EDUCAÇÃO EM EMPREENDEDORISMO: O QUE PODEMOS APRENDER DOS EXEMPLOS BRASILEIROS E FINLANDESES?

ENTREPRENEURSHIP EDUCATION: ¿QUÉ PODEMOS APRENDER DE LOS EJEMPLOS BRASILEÑO Y FINLANDÉS?

ENTREPRENEURSHIP EDUCATION: WHAT CAN WE LEARN FROM THE BRAZILIAN AND THE FINNISH EXAMPLES?

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RESUMO: A educação desempenha um papel fundamental na promoção do empreendedorismo e da inovação, especialmente nos novos mercados globais e nas mudanças tecnológicas rápidas no mundo. Este artigo discute brevemente o conceito de educação para o empreendedorismo, com foco nos fatores que aumentam as intenções do empreendedorismo, por exemplo, dimensões cognitiva, conativa e afetiva da personalidade. Também introduz alinhamentos e discute a situação atual na promoção da educação para o empreendedorismo no Brasil e na Finlândia, dando exemplos de práticas para o desenvolvimento de competências empresariais dos alunos em diferentes níveis educacionais em ambos os países. As conclusões destacam algumas semelhanças e diferenças nas abordagens dos dois países, além de elaborar recomendações sobre como as competências empresariais podem ser promovidas em todos os níveis de educação.

PALAVRAS-CHAVE: Empreendedorismo. Educação para o empreendedorismo. Inovação. Competências empresariais.

***RESUMEN**: La educación desempeña un papel clave en la promoción del espíritu empresarial y la innovación, especialmente en los nuevos mercados mundiales y en los rápidos cambios tecnológicos en el mundo. En este artículo se analiza brevemente el concepto de educación empresarial, centrándose en los factores que aumentan las intenciones del emprendimiento, por ejemplo, cognitivas, conativas y afectivas de la*

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personalidad. También introduce las alineaciones y la situación actual en la promoción de la educación empresarial en Brasil y en Finlandia basado en ejemplos de casos de prácticas para desarrollar las competencias empresariales de los estudiantes en diferentes niveles de educación en ambos países. Las conclusiones destacan algunas similitudes y diferencias en los enfoques de los dos países, así como las recomendaciones acerca de cómo fomentar las competencias empresariales en todos los niveles de la educación.

***PALABRAS CLAVE**: Emprendimiento, Educación para el espíritu empresarial, Innovación, Competencias empresariales.*

***ABSTRACT**: Education plays a key role in fostering entrepreneurship and innovation, especially in new global markets and in the whirlpool of the rapid technological changes in the world. This paper shortly discusses the concept of entrepreneurship education, focusing on the factors that increase entrepreneurship intentions, e.g. cognitive, conative and affective dimensions of personality. It also introduces alignments and the current situation in the promotion of entrepreneurial education in Brazil and in Finland giving case examples of practices to develop students' entrepreneurial competences in different education levels in both countries. The conclusions highlight some similarities and differences in the approaches of the two countries as well as draw recommendations on how entrepreneurial competences could be fostered in all levels of education.*

***KEYWORDS**: Entrepreneurship. Entrepreneurship education. Innovation. Entrepreneurial competences.*

Introduction

The globalization and the rapid development of technology set significant challenges as well as opportunities to entrepreneurs of today. How resilient entrepreneurs are, how they deal with these changes is much dependent on of course their personal traits and characteristic, but also on the education they have had. Indeed, the role of education is crucial when fostering new ideas, creating businesses and innovations. Different kinds of business services, innovation systems and hubs and other kinds of consultation services for startups and growth companies are naturally important. However, the role of education as a place to develop entrepreneurial competences and entrepreneurship intentions is undeniable.

There has been doubts regarding the efficacy of entrepreneurship education (MARTINEZ et al, 2010; PITTAWAY; COPE, 2007). It is argued that it needs further conceptual and theoretical development (GREENE et al, 2004; MATLAY, 2006). Indeed, according to thorough review of the entrepreneurship education research

literature by Béchard and Grégoire (2005) there is no uniformity in content or approach among entrepreneurship programs and courses. Nonetheless, entrepreneurship education has most frequently been categorized into three different types: education 'for', 'about' and 'through' entrepreneurship (JONES et al, 2014).

These three types of entrepreneurship education ('for', 'about' and 'through') can be loosely linked to the theory developed by Snow, Corno and Jackson (1996) on the construction of the personality and its three areas: cognitive, conative and affective. 'For' and 'about' types focus on the cognitive dimension (knowledge) and 'through' emphasizes conative and affective dimensions (personal characteristics, motivation, feelings, values, etc.).

Until recent years, entrepreneurship education in Brazil has been roughly education 'for' and 'about', focusing on the knowledge of entrepreneurship and specific singular courses. It has not been very efficient and the results in general have been rather poor, though the starting point has been encouraging in the international rankings scenario, given that Brazilian students are having rather positive attitudes towards entrepreneurship compared to other countries, including Finland, and students consider becoming entrepreneurs as one potential career option (LIMA et al, 2012). However, the wider approach in entrepreneurship education has been supported by research, where e.g. Koiranen and Ruohotie (2001), as well as Gibb (2002), state that mere knowledge of entrepreneurship is not sufficient. In order to develop entrepreneurial competences and entrepreneurship intentions, the conative and affective sides of the personality need to be addressed.

In Finland, the development of entrepreneurship education has been one of the strategic areas in education over a couple of decades so far, and the transition from singular entrepreneurship courses to a wider understanding of entrepreneurship education has taken place. Today, promotion of entrepreneurship focuses more on the development of skills and competences that support entrepreneurial behavior according to age levels.

This paper introduces the concept of entrepreneurship education and describes how entrepreneurship education is being promoted in Brazil and in Finland, giving practical examples from different levels of education. The conclusions draw up similarities and differences in entrepreneurship education between the two countries, and give recommendations: What is it that you need to learn to become a successful

entrepreneur, and how should you learn it? And how can the development of the entrepreneurial competences support your overall work life skills and behavior?

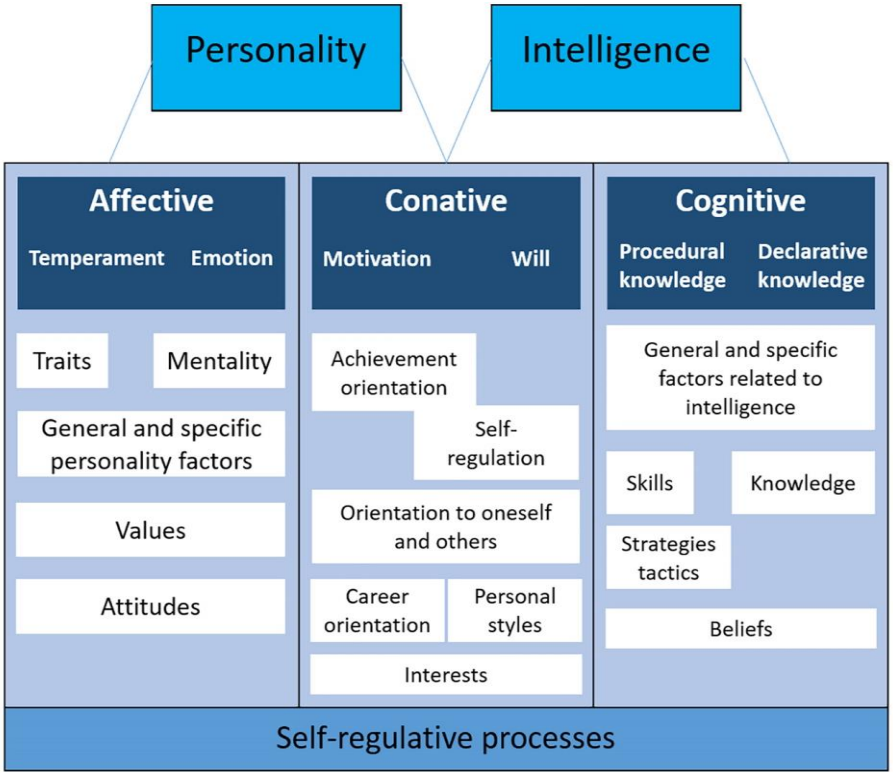
The concept of entrepreneurship education and how it should be taught

On one hand, there has been consistent effort to define entrepreneurship education but on the other hand no universally accepted definition (FAYOLLE, 2010) has been placed so far. Further, there is no common understanding of what entrepreneurship education is trying to achieve (GIBB, 2002; PITTAWAY; COPE, 2007). In addition, there exists debate on whether entrepreneurship can be taught or not (FAYOLLE; GAILLY, 2015; RIDEOUT, 2013) and how it should be taught (HEINONEN, 2007; MWASALWIBA, 2010). Nonetheless, research literature has identified three distinct outcomes of entrepreneurship, which are: understanding of entrepreneurship, enhancing graduate employability and encouraging graduate startups (PITTAWAY; COPE, 2007; RAE, 2010; HUQ; GILBERT, 2013).

Few decades ago, entrepreneurship was accepted as a concept of economic growth and venture creation (CARLAND et al, 1984). Recently, the understanding has shifted from traditional economic stance to a holistic (including economy, politics, society and culture) and integrative process (KURATKO, 2005). Furthermore, entrepreneurship education should foster students' entrepreneurial mindset, addressing their values and entrepreneurial competences (e.g. opportunity detection, risk taking, proactivity).

Snow, Corno and Jackson (1996) introduced their own construction of a taxonomy, which consists of cognitive, conative and affective dimensions. According to Ruohotie and Koiranen (2000), the cognitive part includes knowledge, perception, evaluation and reasoning, whereas the conative part relates to motivation and self-regulation, and the affective is linked to feelings, values and attitudes (Figure 1). Ruohotie (2000) argues that the key processes in entrepreneurship education are related to the conative dimension. On the other hand, Gibb (2002) calls for affective aspects in learning, and Koiranen (2001) emphasizes all three aspects. Nonetheless, mere knowledge is insufficient in entrepreneurship education - it should address all three aspects of personality (KOIRANEN; RUOHOTIE, 2001).

Figure 1: Personal taxonomy



Source: Snow, Corno and Jackson (1996), Ruohotie and Koiranen (2000), Kyrö (2008)

From early on, researchers have seen the connection between entrepreneurship education and adult education, where individual learners are autonomous and in the center of the learning process. The focus of teaching was directed towards taking action as an essence of entrepreneurial behavior. Thus, the emphasis has been on learning-by-doing and experiential learning, i.e. the process of transforming experiences into knowledge (PITTAWAY; COPE, 2007; POLITIS, 2005; KOLB, 1984). In addition, entrepreneurship education includes elements of e.g. uncertainty and newness which are mainly possible to achieve by doing (POLITIS, 2005; RAE, 2000).

Furthermore, Jones et al (2014) identify three main types of entrepreneurship education: "about" entrepreneurship, "for" entrepreneurship and "through" entrepreneurship. The first two are traditional teaching approaches focusing on theory in establishing a business. In contrast, "through" entrepreneurship emphasizes the mindset and capabilities needed to start a venture. Thus, there needs to be a paradigm shift from the transmission and re-production of knowledge ("about" and "for") to a competence-based experiential pedagogy that prepares students to take an active part in learning, also extended from the classroom to their real life settings with the world of work ("through")(MARITZ; BROWN, 2013; GÜNZEL-JENSEN et al, 2017). Besides,

entrepreneurship education should develop a sense of ownership of one's own learning and build a learning community, where educators play a central role by shaping attitudes and enabling the development of students' entrepreneurial competences in cooperation with the companies (SUMMERS; SVINICKI, 2007; ANDERSON; JACK, 2008). According to Rae (2005), entrepreneurial learning is shaped by the individual's context, personal and social development and in negotiation with otherness and their critical standpoints.

Recently, research on effectuation is trying to solve the old matter – what makes entrepreneurs entrepreneurial? Further, the effectuation theory has provided one answer to the question whether entrepreneurship can be taught and/or learnt by transforming the previous idea that all entrepreneurs have an inborn skill (genetics) or an acquired personality trait/character within themselves to the idea that entrepreneurship is rather a learnable and teachable mindset. Indeed, effectuation is a logic of entrepreneurial expertise, it is a thinking and sense-making process to solve entrepreneurial problems with the means and networks available while tolerating uncertainty but being the "pilot of the venture" (SARASVATHY, 2001; SOCIETY FOR EFFECTUAL ACTION, 2017)**.**

Entrepreneurship education in Finland - How does it appear in the curricula of different education levels?

The Finnish Government Programme (2015-present) includes promotion of entrepreneurship from pre-primary to higher education, enhancing cooperation between education and working life while paying attention to the future needed competence for the workers. Based on the European Union strategies and working papers, the Finnish Government Programme, regional and local strategies *Koulutuksen yrittäjyyslinjaukset* (2017), i.e. the entrepreneurship alignments in education were created by experts aiming to steer and promote entrepreneurship education activities in different education levels.

The foundation of the alignments is the conception that entrepreneurship can be learnt. Entrepreneurial behavior includes features such as creativity, curiosity, innovativeness, problem solving, risk taking, responsibility, ability to plan, setting goals and self-regulation to achieve those goals. In education, these features should be encouraged and emphasized in order to respond to the rapid changes of the working life. The entrepreneurship alignments include strategic recommendations, teachers'

continuing education, development of active learning methods and inspiring learning environments. Further, they are concrete guidelines and tips for educators to evaluate and develop their operations (KOULUTUKSEN YRITTÄJYYSLINJAUKSET, 2017).

In addition, the Ministry of Education and Culture takes part of an international research project *Innovation Cluster for Entrepreneurship Education*, which investigates how to implement practical entrepreneurship education in basic education, an objective set by the European Union (THE MINISTRY OF EDUCATION AND CULTURE, 2017)

The Finnish Government Programme and the Ministry of Education and Culture have systematically embedded entrepreneurship education in the curricula of all education levels where entrepreneurship is promoted according to appropriate age levels.

In Finland, the curriculum for the basic education promotes entrepreneurship education from different aspects. On one hand, students' social skills, critical thinking, responsibility, time management and self-regulative skills are fostered. They also learn to become more responsible consumers and active citizens who can understand and evaluate how society works. On the other hand, it is important that students get real-life experiences that help them understand the meaning of work and entrepreneurship. The learning processes should be organized in a way that students can develop their entrepreneurial competences and increase their understanding and skills of the working life by familiarizing themselves with the industries close by.

In basic education, the focus of entrepreneurship education is on soft skills and the development of entrepreneurial competences, especially related to the conative (motivation and self-regulation) and affective (personal characteristics and attitudes) dimensions (THE MINISTRY OF EDUCATION AND CULTURE, 2017).

In general, in upper secondary education entrepreneurship is a theme which is embedded to all subjects. These themes are socially significant and aim at active citizenship and societally aware individuals. In Finland, there are different models to support students' entrepreneurship and entrepreneurial competences, e.g. the Junior Achievement concept, co-ops, business idea competitions and other forms to support the cooperation with the working life (THE MINISTRY OF EDUCATION AND CULTURE, 2017).

A similar approach lies in the vocational education where the focus is on lifelong learning skills which are crucial for today's working life. These skills include constant

learning and adaptation to globalization and rapidly changing requirements of the working life. Entrepreneurship activities are combined to professional studies, which enables students to practice and start their own business ventures while still studying. As a matter of fact, talking about vocational education as an entrepreneurial action is a genuine, and quite common, career option for students (THE MINISTRY OF EDUCATION AND CULTURE, 2017).

In Finland, there is no national curriculum for higher education as universities are autonomous educational institutes and thus, can develop their own curricula. However, there are some strategic recommendations for higher education in both European Union and national level in which promotion of entrepreneurship and innovation is one of the key issues. Still, each university in Finland addresses entrepreneurship in different ways.

According to a survey carried out by the Ministry of Education and Culture (VILJAMAA, 2016) for the Finnish higher education institutes on their practices in promoting entrepreneurship, it is evident that there are a lot of entrepreneurship training in both traditional universities and universities of applied sciences. In traditional universities, entrepreneurship training is offered all the way to Doctoral studies. Some of the training is organized in the form of specific courses, but it can be integrated to other courses as well. On the other hand, all universities of applied sciences offer at least specific courses in entrepreneurship, and they have developed the entrepreneurial students' practices by allowing, for instance, that final papers and final graduate work to be focused on students' own enterprises, or developed based on students' business ideas or startups.

Another significant aspect of entrepreneurship education is the development of pedagogical methods, e.g. projects with the working life, real life cases, and different models to support entrepreneurial activities (co-ops, business incubators, start up support, etc.). Due to the nature of universities of applied sciences, it is expected that their cooperation with the world of work is especially strong. The competences of the teaching staff are crucial, however only a few of the traditional universities and universities of applied sciences claim to offer continuing education to support the entrepreneurial activities of their teachers. This is clearly one hindrance of entrepreneurship education in higher education (VILJAMAA, 2016).

Another area, which is not fully explored, is the research in the field of entrepreneurship education. There is research about growing enterprises for innovating

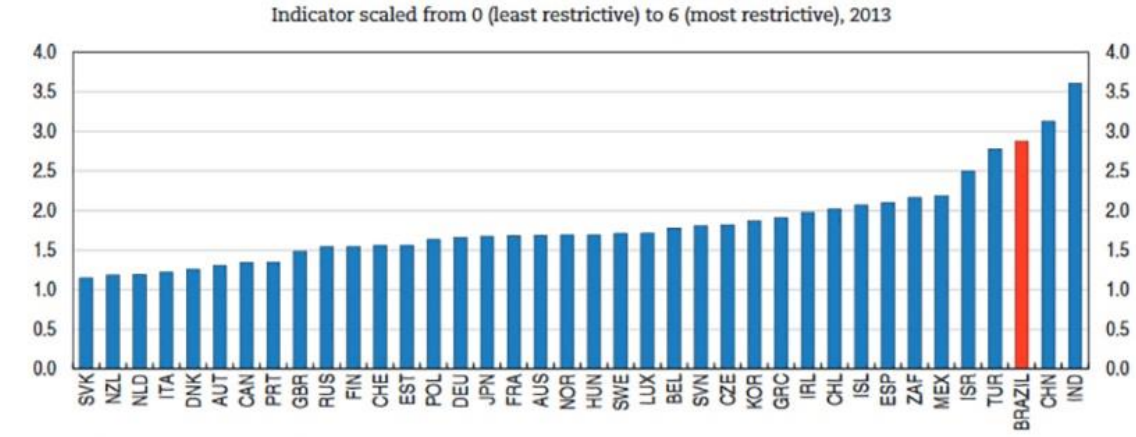
systems, from teacher education to commercialization of innovations or research findings. However, there is not enough research about the evaluation or reflection about the impact of the entrepreneurship education and training activities, nor coordination in the research results to develop entrepreneurship education and training in Finland (VILJAMAA, 2016). The research literature in the field supports this finding according to Fayolle (2013) and Kyrö (2015), what is missing in entrepreneurship education in general is a comprehensive understanding of the reflection of the experience and a lack of drawing from a pragmatic output.

Emerging entrepreneurship education in Brazil

In recent years, small and medium size enterprises (SMEs) have represented approximately 99% of the Brazilian business sector with 6.3 million formal businesses, which accounts for 20% of the GDP and employs 52% of the formal labor force (AMERICAS SOCIETY/COUNCIL OF THE AMERICAS, 2014; IBGE, 2014). However, when compared to the international scenario, Brazilian students have traditionally shown greater preference for working in big companies or in public sector employment (LIMA et al, 2012). Nonetheless, the 2013 GEM (Global Entrepreneurship Monitor) survey showed that this trend is changing rapidly: having a business was the third most common wish among Brazilians, and more than 80 % believed that entrepreneurship is a desirable career path. In addition, around 71 % of the new start-ups were based on opportunity, rather than necessity, which has usually been the case in Brazilian context (AMERICAS SOCIETY/COUNCIL OF THE AMERICAS, 2014).

Despite the improved image of entrepreneurship amongst students, there are still several other challenges in the promotion of entrepreneurship. One is the regulatory barrier, including administrative burdens on start-ups, which have been significantly more restrictive, less transparent and simple than in OECD countries according to the OECD Product Market Regulation indicators (Figure 2) (OECD, 2015). This is confirmed by a comparative analysis by the World Bank in which Brazil ranks at 167 out of 185 economies surveyed (WORLD BANK, 2015).

Figure 2: Regulatory barriers to entrepreneurship are high in Brazil



Source: OECD Product Market Regulation Indicators, 2013, available at *www.oecd.org/eco/pmr* .

In Brazil, most of the existing entrepreneurs do not have any connection to higher education. The results of Greco et al (2009) showed that 90% of the new entrepreneurs had never attended any course or training activity related to opening a business. Thus, in an educational context, Brazilian higher education faces severe difficulties in finding quality solutions to entrepreneurs. Moreover, research and development within higher education do not meet businesses' needs, which affects their competitiveness in the global market (DORION et al, 2015). Thus, Brazilian education institutions need to seek out new models to assist companies to grow with training, and relevant and up-to-date research.

According to Dorion et al (2015), the inclusion of entrepreneurship education in Brazil is emerging but facing obstacles arising from the structures of education or pedagogical strategy. In the Brazilian context, the areas of knowledge are still being compartmentalized and teaching is focusing more on informative learning instead of students being in an active role in the learning process. In addition, both universities and vocational institutes are geared towards preparing job applicants rather than the developing entrepreneurial skills and potential entrepreneurs (LAVIERI, 2010).

Guerra and Grazziotin (2010) stated in their survey that one third of the public and 11.5% of the private higher education institutions offered entrepreneurship courses. Even though entrepreneurship education is still a growing area in Brazil, Guerra and Grazziotin (2010) found out that some institutions already have e.g. specific centers for entrepreneurship, business incubators, business plan competitions and events (e.g. Internationalizing Entrepreneurship Education and Training Conference – IntEnt 2006,

the Roundtable on Entrepreneurship Education (REE) Latin America in 2007, and the Roundtable on Entrepreneurship Education Satellite Brazil) that promote entrepreneurship and entrepreneurial competences in the students (LIMA et al, 2012).

Nonetheless, the GEM study Entrepreneurship in Brazil: 2008 (GRECO et al, 2009) revealed worrying information with a modest offering of higher education entrepreneurship courses and a lack of trained teachers. However, the number of entrepreneurship courses in higher education is not the main challenge: a bigger issue is whether those existing courses are the first situations in which students come across the concept of entrepreneurship. Thus, as stated by the GEM study, Brazil's primary and secondary education is one of the biggest hurdles to improving entrepreneurship outcomes (ZACHARAKIS, 2013). In addition, entrepreneurship education should involve the presence of real life entrepreneurs and company cooperation as well as other practical activities to foster entrepreneurship (not only creating a business plan) (SUEDEKUM; MILLER, 2011).

Despite the challenges, there are also some means to support entrepreneurship education, e.g. the digital platform named *"Educação Empreendedora Brasil"* which provides educational content in entrepreneurship and innovation for the Brazilian professors. Another initiative is the Center for Entrepreneurship and New Business, whose mission is to build a culture of entrepreneurship (DORION et al, 2015). Furthermore, Serviço Brasileiro de Apoio às Micro e Pequenas Empresas (SEBRAE) is a private entity that stimulates competitiveness and sustainable development of SMEs. Its main focus is on strengthening entrepreneurship with e.g. training programmes, promotion of associations, fairs and business roundtables. It has created a National Plan for Entrepreneurial Education (*Plano Nacional de Educação Empreendedora*) to train teachers and to design alternative models to education (SEBRAE, 2017). Further, Sebrae has established the Entrepreneurship Education Reference Centre (CEE) which promotes and disseminates entrepreneurship education from basic to higher education. They offer a plethora of workshops and other support platforms to discuss new creative methodologies in entrepreneurship education (CEE, 2017).

To conclude, there are indeed initiatives to support entrepreneurship education and the attitudes of the students towards entrepreneurship are rather positive. However, what is lacking is a systematic approach to promote entrepreneurship and innovation in education in the form of guidelines and strategies from the Ministerial level.

Chosen case examples in entrepreneurship education from primary to higher education in Brazil and in Finland

Even though entrepreneurship education happens in slightly different stages in Brazil and in Finland, both countries still have inspiring and efficient practical examples to support the development of entrepreneurship education and entrepreneurial students' (and teachers') competences. The following practices were selected from different levels of education and they are not all examples of entrepreneurship courses but of innovative ways, methods and learning spaces where the surrounding society is present and the students are active actors in the learning process in order to foster their entrepreneurial behavior and competences.

Me & MyCity

Me & MyCity, is a Finnish education innovation that started in 2009, and is run to the current days, which has received international acclaim. It is a learning concept aimed at school children (sixth-graders and ninth-graders), covering society, working life and entrepreneurship. It is a miniature city where students work in a profession (the city has altogether 15–20 companies and public services, and approximately 70 professions) and function as consumers and citizens as part of society and global economy.

For sixth-graders, the concept includes learning materials for 10 lessons and one-day visit to the learning environment. For ninth-graders, the concept includes lessons in History, Social Studies and Career Counselling culminating to a game (in the learning environment) that simulates the operations of the global case companies and a bank. The students act as the company executives and engage in the tasks of various areas of responsibility. In addition, they compete in teams to achieve the best operating profit and the best reputation by having a good strategy and close interaction.

For the schools, Me & MyCity offers teacher training about the learning targets and the structure of the lessons prior to the visit to the environment, as well as the learning materials for 10 lessons whose purpose are to present what work represents and how to seek it, and to familiarize students with the fundamentals of economy and society as well as their own roles as workers, consumers and members of the community. Teacher's role is to act as an employer and select the right student for each profession based on job applications and interviews (YRITYSKYLÄ, 2017).

Junior High school project on entrepreneurship

A Junior Hight School (eight-graders and ninth-graders) in João Pessoa, Paraíba, Brazil, designed a project to stimulate the creation of entrepreneurship with low cost activities and easy applicability against social exclusion and economic development. In order to ensure feasibility and multiplication of the project it was implemented in cooperation with the Centro Estadual Experimental de Ensino-Aprendizagem Sesquicentenário (CEEEAS) and a total of 20 individuals from the school community (teachers, parents, employees) and 30 students participated in the project.

The project started with activating the curiosity of teachers towards the topic and the way of working (problem-based learning and interdisciplinary projects combining different subjects e.g. English, Science, Geography, Mathematics, Portuguese Language and Arts). For the second stage, two meetings were held to raise awareness among students about the importance of social and economic exclusion experienced by many families in the metropolitan region of João Pessoa. Three voluntary students from each class were selected to the project group (in total 30 students).

Once the project group was formed, it was stimulated to research on social problems, exclusion and social inclusion. A survey was carried out to collect data on the socioeconomic profile of the participating students and their families, categorizing and identifying the main social problems experienced. After data analysis, the group created entrepreneurial solutions for the most recurrent difficulties and selected potential projects of social entrepreneurship that met the reality of the school community. At the end of the project, the students selected the best idea and elaborated a business plan to execute the identified solution. With the plan ready, a partnership will be made with SEBRAE Serviço de Apoio à Micro e Pequena Empresa (private institution that helps to create micro and small business, giving subsidies for feasible ideas of entrepreneurs) to implement the solution.

Ifactory

IFactory is an Environment of Innovative Practices, a multidisciplinary experimental space for teachers and students. It results from the development work of three federal institutes in Brazil: Federal Institute of Espírito Santo (IFES), Federal Institute of Brasília (IFB) and Federal Institute of Sergipe (IFS) by a multidisciplinary

team Flávio Lopes (Teacher and Electrical Engineer), Paula Schlemper (Teacher and Designer), and Wlamir Soares (Teacher and Architect).

IFactory utilizes the previous experiences of Laboratory of Education in Developing Solutions (LEDS) from IFES which works with multidisciplinary and real projects driven from the needs of the surrounding society by applying Project Based Learning where teachers and students cooperate in learning by doing and proposing local social development and technological innovation.

IFactory networks with the surrounding stakeholders and sponsors who are interested in assistance to develop their products and publicize their actions through a positive policy of inclusion and social marketing, as well as with other Federal Institutes in Brazil and other similar initiatives around the world (FabLabs, Students factories, Design Factories). Thus, it is an international learning environment for the students and teachers to develop competences related to project development, innovation and agile methods as well as their lifelong learning skills.

IFactory is an environment to develop knowledge and competences through real life projects by combining practice and theory (research). The IFactory community consists of teachers and students from different areas as well as entrepreneurs, company representatives, Non-governmental Organizations (NGOs), government and policy makers, and so forth. The organizational structure is very balanced where all the members have the same right to express their views and have practically the same responsibilities within the environment, which itself creates a culture of trust between the parties involved. The students and the teachers work in a collaborative way as a team and the students are active agents being responsible for their actions and learning. The teacher's role in IFactory is to act as a facilitator being responsible for guiding the students in their learning processes and providing them with useful tools and materials to achieve the desired learning outcome. The teacher also identifies all skills and competences acquired during the projects and applies different techniques of assessment to the projects.

The following testimonial from the student Luzia Adriane (Federal Institute – Lagarto Campus) demonstrates the students' enthusiasm with IFactory activities that not only develop their competences as future professionals but prepare them to be entrepreneurs as well:

> *IFactory is still something very new to us, we are still crawling in that phase, but it is being very cool, because our research problem has*

> *turned into a product that we have a certain time to solve, for the good progress of our company. We are using a methodology called SCRUM, which is rigorous, we are getting used to it. This is all very cool because it creates a spirit of entrepreneurship within us that we did not yet know. It is a unique experience!*

The final two examples come from higher education in Finland, where especially universities of applied sciences foster connections with the world of work and the creation of innovations and entrepreneurship. All universities of applied sciences have different approaches to promoting entrepreneurship: some have created specific programmes for entrepreneurship studies: e.g. Team Academy in Jyväskylä, where the students establish their own companies and all the studying takes place through business activities; whilst other universities of applied sciences implement entrepreneurial activities within normal studies. Häme University of Applied Sciences (HAMK) offers a combination of these by building up the entrepreneurial competences of the students through daily processes in project-based learning with real life cases from the local companies (cSchool) as well as by organizing some specific activities to foster entrepreneurship (Amazing Business Train).

Amazing Business Train (ABT)

Amazing Business Train or ABT is a method for learning the skills necessary to grow into being an entrepreneur, to teach entrepreneurship and for working in entrepreneurial way. ABT provides an innovative way to learn business development studies and entrepreneurship while travelling by train for 40 hours and 1200 km long train trip to northern parts of Finland (and back). It is a moving and intensive practical, empirical and supervised learning experience to all students during which the students develop either existing business ideas further into business models or start brainstorming new ideas by creating networks and utilizing different development tools. They obtain new information on business opportunities by doing and experimenting and get help with the designing, modeling and commercialization of the business. Through the hands-on work the entrepreneurial competences of the students are strengthened.

Entrepreneurship teachers at HAMK work as coaches during the ABT tour. They are provided with the coach's handbook that includes all the necessary tools to guide the future entrepreneurs during their learning process. In addition, external

entrepreneurship and innovation hubs and entrepreneurs are utilized (when applicable) during the trip as experts.

cSchool model

cSchool is a “can-do-school”! It is a study module in marketing and business administration with 45 European Credit Transfer and Accumulation System (ECTS) credits, where students learn through authentic development challenges and experiments from real companies. A multidisciplinary project team is formed to solve company cases. Other kinds of activities to support entrepreneurship can be included to cSchool studies, e.g. Startup Business School where students can develop their business ideas in interaction with professional coaches either from the university or companies. The process utilizes service design concept and business development tools, as well as different forms of practical models to develop entrepreneurial competences, e.g. KillerPitching with real investors, Apprentice-type-of team competitions, participation to entrepreneurship events (Slush, Nordic Business Forum), TaskTank with small development cases from the companies, and Orkidea - a problem solving activity. The philosophy in all these activities is that students are taking an active role and responsibility in their learning and teachers are merely supporting the learning process, guiding and providing help when needed. Different environments and the connections to real life make learning more demanding but also interesting for the students developing competences relevant for the needs of the world of work. These kinds of activities are also fruitful encounters for research initiatives for the students (final graduate work), but also for the staff.

In all of these examples, the Finnish and the Brazilian approaches, students are in an active role in their own learning and their learning takes place in cooperation with the world of work or in situations stimulating the real-life environments where they need to find solutions to different entrepreneurial challenges. Depending on the level of education, these activities can develop different age appropriate competences and vary from little projects to processes that are more comprehensive.

Conclusions

Entrepreneurship education is not an easy concept to understand in a common way. Thus, research and activities vary a lot between actors, schools, education levels, and countries. However, prevalent comprehension is that entrepreneurship education is not only passing on knowledge or skills but more so a process where students are active participants who develop their entrepreneurial competences through different kinds of activities that provide them knowledge about the world of work and allow them to possibly test (without any risks) their own business ideas or otherwise solve entrepreneurial problems.

Entrepreneurship education has been one of the priorities in the Finnish education policies for a couple of decades already, as well as in the whole European Union. The common problem in Europe is that European countries perhaps do not have strong entrepreneurship cultures and, in general, young people do not have the best attitudes towards being an entrepreneur. Whereas, in Brazil, entrepreneurship education is still only emerging but there seems to be more entrepreneurship intentions and people see themselves being an entrepreneur as one potential career option. Thus, even though Brazil faces many challenges in the entrepreneurship education there is huge potential to update it in the future. It requires some changes in education towards a more student-centered approach and active learning methods but these are already being implemented more and more, and with this change, there is a good opportunity to foster entrepreneurship education as well in Brazilian education. As illustrated in the examples, there already exists good practices that focus not only on acquiring knowledge, but also on supporting students' entrepreneurial competences.

In Finland, for quite some time already entrepreneurship education has focused on fostering entrepreneurial competences in an age-appropriate way (different objectives in different educational levels). The aim is not only to create more entrepreneurs but to ensure competent work force that can act in entrepreneurial way and thus, contribute to the growth and innovative processes of existing companies. In addition, one of the aims is to create active citizens who have self-regulative skills, understanding of the Finnish economy and society, and can therefore contribute to different sectors in life.

One crucial thing that is common in both countries is the competences of teachers – they face a great challenge navigating the rapid changes in the world, trying to anticipate what the future is like, the future where today's children are going to work. Not only that, but taking into consideration all the different problems young people can

have in today's societies. Indeed, teachers need support and further training, new methods and tools to be applied in classroom to facilitate the learning in a new way. The transition from teacher-centered to student-centered teaching and learning itself is demanding and the transition from merely passing on the knowledge to ensuring that the students develop the abilities to be active in their own learning makes it even more challenging. This requires a new pedagogical thinking and new roles from teachers when facilitating students learning processes. It is not only students but teachers as well who need to learn through entrepreneurship education. They need to start thinking about education in a much wider aspect, by inserting outside world into the classroom and into the learning process and making sure that the students have the abilities and skills needed in the future world of work.

Today it is much more important to ensure that the students, the future workers, whether as entrepreneurs or workers in a company, can find correct information for themselves and apply them in an appropriate way. They need to be able to learn new things continuously (lifelong learning) and take new ideas into action. This requires knowledge, supportive environment, encouragement, self-confidence and -management, creativity, lots of perseverance, sometimes risk taking abilities, and communication skills, to name a few. In other words, these competences can be called soft skills or 21st Century skills and all of them can be developed through entrepreneurship education by putting students in an active role in learning and combining the surrounding real life actors into the learning process. Thus, education plays a key role in fostering entrepreneurship and innovation.

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