

Entrepreneurship Education For Responsible Innovation

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Within the dynamically developing entrepreneurship education, creating and shaping entrepreneurship attitude is a special issue. In the last couple of years, ecopreneurs, 'green' entrepreneurs emerged among entrepreneurs. Ecopreneurs are identified as powerful tools in turning towards sustainable products and processes, and viewed as some kind of 'remedies' to many social and environmental problems. Sustainable businesses, in a narrow sense, are largely innovative start-up businesses that create environmentally and/or socially useful goods and services via responsible innovations. The attitude of social and environmental responsibility may be strengthened in entrepreneurship education, focusing on shaping such attitude, creating and strengthening commitment, and conveying the basic entrepreneur competences necessary for such responsible innovations.

Keywords: Entrepreneurship education, Ecopreneurship, Entrepreneurship, Responsible innovation

1. Introduction

Unsustainability of present social-economical processes is recognized by now both by the public and the researchers. The ecological crisis and its consequences may constraint social-economical choices in the future. Since the Brundtland report, sustainable development became a significant 'character' in scientific discussions. There are almost no areas where it is not presented as a priority. Sustainability may be interpreted in several ways depending on which economic approach we choose. Thus we get different definitions when approaching from neoclassical environmental welfare economics or from ecological economical approach (Málovics 2007). The first approach is economic growth oriented techno-optimistic, while the second is steady state oriented techno-pessimistic.

Neoclassical economics, considered as mainstream paradigm of economics, assumes that resources (consequently natural capital) can be infinitely divided and are infinitely available, which assumption is incorrect because changes in natural capital are often irreversible (Norgaard 1985). Neoclassical economics views nature

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as a subsystem of economy; but this problem should be viewed quite the contrary, that is, to define economy as a subsystem of nature because human economy cannot be imagined without the services of natural capital.

The concept of entrepreneurship might be even more difficult to grasp than that of sustainability, and it also appears in every area as a cure to economic problems. We do not intend to fully explore the concept of sustainability and entrepreneurship in this article, as there are whole dissertations made or in the process of making on those two concepts. We shall here concentrate on a new issue, evolving at the intersection of the two-abovementioned concepts. As environmental problems came more and more into focus, concepts such as ‘ecopreneurship’, ‘environmental entrepreneurship’, and ‘sustainable entrepreneurship’ emerged. These are sometimes used as synonyms, but sometimes not. This is a really new area of study, but many researchers have recognized the importance of businesses in achieving sustainability. As the ecological crisis is growing, the recognition of ecopreneurship is also growing.

In the knowledge intense economy innovation and entrepreneurship are concepts linked closely. Thus the related institutions and organizations must cooperate to operate successfully and effectively. In this paper we are going to investigate the concept of ecopreneurship and related concepts, and the possible role of entrepreneurship education from the viewpoint of supporting responsible innovations realized by ecopreneurs.

2. Ecopreneurship

It is quite hard to define both entrepreneurship and sustainability because there are many different approaches and conceptual limitations. Thus defining sustainable entrepreneurship is a real challenge. By now, sustainability has become a ‘magic word’ that can ‘sell almost anything’ and this makes it even harder to explore the concept of ecopreneurship/environmental entrepreneurship. It obviously matters whether there is real commitment in certain activities and intentions or it is only a slogan. Nowadays sustainability is a concept playing central role in national and corporate strategies also. And the same applies to entrepreneurship as small and medium-size enterprises and entrepreneurship education have a prominent role in different strategies. In this chapter we are going to try and introduce entrepreneurship from the environmental aspect of sustainability.

2.1. *Pros and cons of the environmental role of entrepreneurship*

When examining the environmental role of entrepreneurship, the question arises: how can entrepreneurship contribute to achieving sustainability and how may it be a solution to environmental problems? In related literature there are papers that argue for, and there are papers that argue against the environmental role of entrepreneur-

ship. On the one hand, entrepreneurship has been recognized as a major conduit for sustainable products and processes, and new ventures are being held up as a cure for many social and environmental concerns (Hall et al. 2010). On the other hand, there is significant uncertainty regarding the type of role entrepreneurship has in supporting sustainability and so far there has been only a few studies on this issue in mainstream entrepreneurship literature.

Theories of traditional environmental economics and welfare economics might lead us towards thinking that *market failures arising from the system of economy prevent* entrepreneurship from solving environmental problems, and actually often are motivation to environmentally degrading entrepreneurial behaviours. But other authors, including Dean and McCullen (2007) actually say that entrepreneurship can be a solution to problems arising from market failures, more specifically, to environmental problems. They say a group of market actors are trying harder and harder to eliminate their environmentally degrading activities and are willing to spend money to do so. They actually perform entrepreneurial activities promoting environmental sustainability. This concept of sustainable entrepreneurship differs substantially from explorations of social entrepreneurship, which tend to address mission-driven entrepreneurial activities instead of profit-driven activities. Regardless of its mission, the sustainable entrepreneurship discussed by Dean and McCullen (2007) is defined by its alleviation of environmentally relevant market failures through the exploitation of potentially profitable opportunities.

Schumpeter's '*creative destruction*' is highlighted again when talking about the new pressure of sustainability creating different types of market failure, and creating opportunities for the newcomers. These authors define entrepreneurship as means of resolving market failures, e.g. environmental and social issues (Hall et al. 2010). According to Schaltegger (2002), ecopreneurs destroy existing conventional production methods, products, market structures and consumption patterns and replace them with superior environmental products and services. They create the market dynamics for environmental progress. For this reason, regarding responsible innovation, special attention should be paid to ecopreneurs as they will have a special role in sustainability, welfare and economic growth.

2.2. *Ecopreneurship-sustainable entrepreneurship*

To date, the majority of the corporate sustainability has been focused on how established firms can reduce their environmental impacts and how sustainable development affects competitive advantage (Hall et al. 2010). But recently the concept of sustainable entrepreneurship came into focus when comprehensively discussing the contribution entrepreneurial activities make to sustainable development. Sustainable entrepreneurship is in essence *the realization of sustainability innovations aimed at the mass market and providing benefit to the larger part of society*. By realizing

such (radical) sustainability innovations sustainable entrepreneurs often address the unmet demand of a larger group of stakeholders. Stakeholders are groups or individuals that materially affect or are affected by a firm's activities (Schaltegger–Wagner 2011). As a consequence, the subject of sustainable entrepreneurship – *defined in a narrow sense – is a very innovative company start-up* supplying environmentally and/or socially beneficial products and services with the potential to conquer a large part of the market. *Defined more widely*, sustainable entrepreneurship can thus be described as an innovative, market-oriented and personality-driven form of creating economic and or social value by means of *break-through environmentally or socially beneficial market or institutional innovations*.

Isaak (2002) compares 'green businesses' to 'green-green businesses'. He says a typical 'green business' did not start out that way but, once it was established, managers discovered the cost, innovation and marketing advantages, but not always the ethical arguments, for 'greening' their existing enterprise. In contrast, a 'green-green business' is one that is designed to be green in its processes and products from scratch, as a start-up, and, furthermore, is intended to socially transform the industrial sector in which it is located towards a model of sustainable development. According to Isaak (2002) the ideal ecopreneur creates green-green businesses to radically change the sector in which he or she operates. Similarly, ecopreneurship is seen as an existential form of business behaviour committed to sustainability.

Schaltegger (2002) says that as the term 'ecopreneurship' is a combination of two words, 'ecological' ('eco') and 'entrepreneurship'. Ecopreneurship can thus be roughly defined as 'entrepreneurship through an environmental lens'. Ecopreneurship is characterised by some fundamental aspects of entrepreneurial activities that are oriented less towards management systems or technical procedures and focused more on the personal initiative and skills of the entrepreneurial person or team to realise market success with environmental innovations. Ecopreneurship can thus be described as *an innovative, market-oriented and personality-driven form of value creation* through environmental innovations and products exceeding the start-up phase of a company.

Shepherd and Patzelt (2011) say sustainable entrepreneurship is focused on the preservation of nature, life support, and community, and its goal is to use perceived opportunities to bring into existence future products, processes, and services for profit, where profit is broadly defined to include economic and non-economic benefits to individuals, the economy, and society. Thus ecopreneurship is part of sustainable entrepreneurship, but it is not a synonym to it, because ecopreneurship does not necessarily mean direct support to communities and creation of economic and non-economic benefits to individuals and societies.

From this point on we are going to examine whether responsible entrepreneurship (ecopreneurship) can be taught, and if the answer is yes, how can we support it through entrepreneurship education.

3. Entrepreneurship education

We want to explore the question that creates lots of argument even among professionals: can the science of entrepreneurship be taught, and if yes, how? What are the clear experiences published internationally, and can entrepreneurship competences be widened within the framework of higher education? After these questions we will move on to the possible role of entrepreneurship education, and we will specifically focus on how responsible innovation may be improved in students.

3.1. *Can the 'science of entrepreneurship' be taught?*

Many studies deal with the question whether entrepreneurship can be taught (Vesper–Gartner 1997, Klofsten 2000, Kuratko 2003, Todorovic 2004, Henry et al. 2005, Klein–Bullock 2006). The researchers who say that it cannot be taught start out from that *certain people are born with entrepreneurial traits* (the so-called “trait theory”) (Todorovic 2004). According to another approach, entrepreneurial role is often acquired in a cultural or practical way. The latter supports the *view that “entrepreneurship” can be also influenced through education and training*. Gartner has a convincing argument that it is wrong to investigate entrepreneurship from the viewpoint of personal traits (Todorovic 2004). Entrepreneurship is *rather an attitude (that is learnt), not a personal trait (inherited)*. And others believe entrepreneurship is similar to leadership skills (e.g. communication, team building, etc.), which can and should be taught.

There are many challenges in entrepreneurship education. According to Charharbaghi and Willis (cited by Solomon 2007) entrepreneurs cannot be manufactured, only recognized. Curran and Stanworth (1989) believe that entrepreneurship education is not cost-effective. Garavan and O’Cinneide (1994) are a little less strict and suggest that the problem is that related literature is quite limited yet, and there is no well-prepared curriculum and clear theoretical background that would form a good basis for such programs. Those who argue for teachable entrepreneurship, Gorman et al. (1997) says that it can be confirmed that entrepreneurship is teachable or at least can be encouraged, by entrepreneurship education. Nobody will dispute the fact that medicine, law or engineering can be taught but there are doctors, lawyers and engineers who are talented and others who are not. A similar argument can be made for entrepreneurship and entrepreneurs (Fayolle–Gailly 2008, Fayolle–Lassas-Clerc 2006).

To a certain degree all of these ideas go back to the main questions a teacher must ask: What? For whom? What will be the outcome?

According to Jack and Anderson, teaching the ‘science of entrepreneurship’ is a mystery, as the real entrepreneurial process includes both art and science (Henry et al. 2005). The ‘*science*’ of entrepreneurship means practical finance and manage-

ment skills, and is *considered to be teachable* using conventional methods. However, the ‘art’, including creation and innovation *is not teachable in the same way*.

Kuratko (2003) says that entrepreneurial skills or at least some of their aspects are teachable by entrepreneurship teachers and/or training experts before starting, during operating and after an enterprise. Johannison says teaching individuals to become not only more entrepreneurial but businessmen [...] is a challenge too big both in time and in size for business schools (Matlay 2008). Additionally, Rae (cited by Matlay 2008) states that the skills taught in business schools are necessary but not enough to make successful entrepreneurs.

Taking these opposing opinions into consideration it is not surprising that there is a long on-going debate on whether universities can significantly improve number and quality of entrepreneurs in the economy. Still, despite the continuous debate the number and variety of available entrepreneurship education programs have greatly increased in Europe, Asia, North America, Australia and New Zealand (Kuratko 2003). There has been a tremendous increase in the available related courses between 1990 and 2005 even in the USA, where entrepreneurship education has a long and strong tradition. In the middle of the 1990s, dominating international trends and increasing globalization of markets motivated decision makers in the United Kingdom to value the connection between industry and higher education, and the position of entrepreneurship education.

3.2. *The importance of entrepreneurship education*

Entrepreneurship education was created in 1938 and is attributed to Shigeru Fujii (McMullan–Long 1987). In these days entrepreneurship education is a significant part of economic strategies, and is present in the majority of higher education institutions of economics (Matlay 2006).

In the past decades the role of enterprises in local economic development has become more and more valued (Wennekers–Thurik 1999, Vilmányi–Kovács 2008), and the same applies generally to the different forms of cooperation between universities and the industry (Vilmányi 2011). Furthermore, the *spin-off enterprises creating products and services of high added value* also get higher recognition (Imreh et al. 2013). And this is the reason why entrepreneurship education, as means of creating successful businesses has an emphasized role. According to the European Commission (2013), *Europe in the current economic situation needs more enterprises* in order to return to growth, and to achieve higher employment. Higher entrepreneurial skills of the public (‘entrepreneurial capital’) play a significant role in creating jobs and economic growth as it creates new places of work and new markets, while making the economy more competitive and innovative. Annual Growth Survey of the European Commission (2013) emphasizes the importance of improving the business environment in order to promote growth in the European Union.

According to Fayolle (2009), entrepreneurship education includes all activities aiming to foster entrepreneurial thinking, attitudes and skills and covering a range of aspects such as generating ideas, start-up, growth and innovation.

Supporting to become an entrepreneur via the education system to promote innovative regional development is a great challenge. The first step is to enhance the concept of entrepreneurship in the public, and reorganize the didactic, methodological and conceptual framework of education, training and counselling. Entrepreneurship education may help *creating an entrepreneurial and innovative culture by changing ways of thinking* and offering the necessary skills.

Higher education can contribute to forming and enhancing entrepreneurial attitude via two methods: conveying knowledge, and improving entrepreneurial skills. To enhance responsible innovation, forming of a ‘responsible innovation attitude’ and entrepreneurial and business knowledge (innovation management, responsible leadership, CSR, etc.) closely linked to such activities. Entrepreneurial knowledge is obviously not the same as business (management), but they are closely linked and both are needed in realization of a successful entrepreneurial education. We have to emphasize again that in order to achieve more successful entrepreneurial education, a shift in perspective and in content may be necessary when improving entrepreneurial attitude and conveying specific business knowledge.

One of the most important goals in entrepreneurship education is to enhance the presence of ecopreneurs within entrepreneurship, as they are the future innovators who will become the dominant actors of the next economic years. Therefore we think that in entrepreneurship education one of the most serious steps towards responsible innovation is the strengthening of the ecopreneurship approach.

Now we are going to present some methods that help to strengthen responsible innovation through entrepreneurship education.

4. Suggestions to improve responsible innovation via entrepreneurship education

As the methodologies applied in entrepreneurship education are very diverse, and different successful practices are used in different higher education institutions, the available methods are also numerous and varied. For this reason we are not attempting to make specific suggestions, but to create general guidelines.

Methodologically we chose the alternative that, on the one hand, we examined the general methodology of entrepreneurship education, with particular emphasis on the applied system of tools. On the other hand, we mapped the most important possibilities of intervention promoting ecopreneurship, with particular emphasis on the development of required competences. Thereafter we compared the two lists and based on the potential intersections we attempted to map the relevant activities of entrepreneurship education.

Generally speaking, considering the mainstream methodology of entrepreneurship education, the following may help ‘start forming’ responsible innovation in students:

1. Practical training in small groups.
2. Involving entrepreneurs in education.
3. Formal events and forums.

One of the most important (or maybe the most important) entrepreneurship education services is *practical training in small groups*. Good international practices have many times proved that this is one of the best methods. Within the training, educators should especially focus on developing the following competences besides general entrepreneurial knowledge. Creativity, innovative thinking and openness to new things and ideas are extremely important in enhancing responsible innovation. During training these areas should get special attention. Closely linked to these areas, the other group of competences includes problem-solving skills. ‘Future eco-preneurs’ should be the best problem-solvers they can be. Actually, they should perceive some of the problems as opportunities. The third aspect is the most obvious: responsible thinking within innovation. Case studies and acting out situations help significantly to streamline ideas and sets of values. One of the most current problems is to create good professional materials to help such practical trainings.

Involving entrepreneurs in education may happen in several ways. First, they can be guest lecturers (involved in responsible innovation) and convey their experiences and present case studies on being an entrepreneur, especially focusing on taking environmental social actions. The positive effects of such good examples are inevitable; they can effectively help forming characters. Probably these would be most effective on BA level, in forming basic entrepreneurial attitude. Second, and probably more effective in terms of entrepreneurship education results, entrepreneurs can present specific and real problems that the students will work on in small groups and will have to come up with solutions. The right way of progress here is probably to orient some of the examples towards ‘responsible innovation’.

An third, *formal student-entrepreneur meetings* may be necessary during the trainings. In these meetings interaction and thinking together within the frameworks of responsible innovation are also extremely important. It is essential that the entrepreneur –when possible– would not simply present ‘his/her story’ but motivate students to think and cooperate by analysing a certain problem, difficulty or typical mistakes. Based on experience, the biggest challenge in this field too may be achieving a balance.

5. Summary

In this study we attempted to review the possibilities of entrepreneurship education focusing on ecopreneurship and responsible innovation, both getting great attention nowadays. In the first part of this paper we closely examined the relationship between business and sustainable development. We pointed out that when investigating the environmental role of entrepreneurship, the question arises: how can entrepreneurship help to achieve sustainability and solve environmental problems? After synthesizing many approaches we concluded that the subject of the sustainable enterprise in a narrow sense is a largely innovative corporate start-up that makes environmentally and/or socially useful products and services suitable to conquer a larger segment of the market. In a wider sense the sustainable enterprise is an innovative, market-oriented and personality-driven form of creating economic and social values; and it creates such values through breakthrough, environmentally or socially useful market or institutional innovations. Based on the abovementioned it is safe to conclude that the innovative ecopreneurs creating sustainable businesses are going to be the innovators executing responsible innovation in the future. Thus presenting responsible innovation and the approach of ecopreneurship within the frameworks of entrepreneurship education is definitely desirable. Therefore in the second section of this paper we analysed whether entrepreneurship education can contribute to the improvement of such competences, and if yes, how. We pointed out that based on current practices, higher education can help shaping and strengthening the entrepreneurship attitude basically in two ways: by conveying knowledge and improving entrepreneurship skills. To strengthen responsible innovation it is necessary to create a 'responsible innovation attitude' and to acquire the related entrepreneurial and business knowledge (e.g. innovation management, responsible leadership, CSR, etc.). We want to emphasize once again that a shift in approach and a change in content may be necessary when improving entrepreneurship attitude and conveying specific business knowledge in order to achieve a more successful entrepreneurship education. At the end of the study we briefly reviewed how the related knowledge could be included in the most popular methodologies, as we are convinced that improving the ecopreneurship approach in entrepreneurship education can be one of the most significant step to achieve responsible innovation.

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