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Sustainability-oriented competencies in entrepreneurship education: Insights from an empirical study on Polish students

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Abstract

Entrepreneurship education is aimed at shaping relevant entrepreneurial competencies needed not only to fulfil the role of the entrepreneur but also to change behaviour in order to build a culture of innovation, seeking knowledge and business opportunities to ensure sustainable economic growth and social wellbeing. Entrepreneurial competencies can be understood as knowledge, skills and attitudes having an impact on the readiness and ability to create new value as part of business or social activity. Therefore the development of entrepreneurial competencies is gaining growing interest. This article aims to determine the academic potential of entrepreneurship education in shaping competencies supporting sustainable development as well as to verify entrepreneurial competencies exemplified by students of a selected Polish university. In line with this, a quantitative study was carried out, based on a questionnaire-based survey involving students with entrepreneurship education background. This analysis allows assessing current trends in the development of entrepreneurial skills supporting sustainability at the higher education level.

Keywords: Entrepreneurship education, sustainability

JEL codes: I23, F26

INTRODUCTION

Sustainable development is considered a central model of socio-economic and ecological development at the international level both in macro- and micro-economic terms (Redclift, 2005). It is a multidimensional concept, covering environmental, economic and social dimensions (WCED, 1987). Sustainable development is interpreted differently depending on the economic school, the ethical tradition of thought, or the type of stakeholders (Lockley & Jarrath, 2013; Ramos, Caeiro, *et al.*, 2018). Ecological education, increased public awareness, and continuous degradation of the natural environment, have contributed to the dissemination of the concept of sustainable development in many areas.

In order to be able to cope with contemporary challenges, the current “Europe 2020” strategy emphasises that sustainable development can be supported, among others, through the creation of a competitive, cohesive and more environmentally friendly economy and the promotion of creativity and innovation, as well as the development of entrepreneurship (European Commission, 2010, pp. 20-21). Entrepreneurship and innovation are treated in this strategy as important tools for solving global 21st century challenges, implementing sustainable development, and creating new jobs, which leads to economic growth and increased prosperity. In this context, entrepreneurial skills and competencies can be effective mechanisms for problem solving and employing new ideas in accordance with the principles of sustainable development.

The development of entrepreneurial competencies is gaining growing interest among political decision-makers, practitioners and universities that strive to develop students’ skills and abilities in creating new enterprises (OECD, 2011; WEF, 2011). An important role in the pursuit of sustainable development is played by raising awareness and shaping pro-ecological and prosocial attitudes through formal (elementary, secondary and academic) and informal education (e.g. training, courses for entrepreneurs, self-improvement) (European Commission, 2012). Academic institutions play an important role not only in education, but also as promoters of changes in business practice (Jamali, 2016) and in the support system for the development of entrepreneurship and innovation in the market economy.

Over recent years, various articles and reports have contributed to some progress in conceptualising key competencies related to sustainable development (Segalas *et al.*, 2009; Willard *et al.*, 2010). Among the many different entrepreneurial competencies that support activities for sustainable development, for example, the ability to be innovative, interdisciplinary knowledge, and proactivity as an attitude can be mentioned (Urbaniec, 2016). However, defining competencies in the field of sustainable development is still at an early stage of development and requires further research. Therefore, one can formulate a hypothesis that actions taken by universities for entrepreneurship education have a significant impact on shaping the relevant entrepreneurial competencies supporting sustainable development.

This article aims to determine the academic potential of entrepreneurship education in shaping competencies supporting sustainable development as well as to verify entrepreneurial competencies exemplified by selected students of the Cracow University of Economics (Poland). Based on a questionnaire-based survey, a quantitative study was carried out, involving students with entrepreneurship education background. On this basis, it will be possible to indicate the role of sustainable development in the current education pro-

cess for entrepreneurship in higher education, and to answer the question how the entrepreneurial competencies of Polish students are developed in the field of knowledge, skills and attitudes. This will also allow assessing current developing trends in the field of entrepreneurial skills supporting sustainable development at the higher education level.

Consequently, the significance and essence of entrepreneurial competencies within the context of sustainable development will be explored first and, subsequently, the attempt to investigate entrepreneurial competencies among students with particular emphasis on knowledge, skills and attitudes in the field of sustainable development, will be provided. Subsequently, research methods such as: the method of analysis and logical construction, as well as the survey method based on own research among selected students will be described. The results obtained provide the basis for discussion of findings and conclusions, including the research limitations and suggestions for future research.

The development of entrepreneurial competencies within the context of sustainable development

In recent years, competencies have become increasingly important in various areas (Sánchez, 2013; Baartman, Bastiaens *et al.*, 2007). Depending on the academic discipline or context, various definitions can be found. In general, competencies are defined as everything a person knows, understands and is able to do. According to Whiddett and Hollyforde (2003, p. 13), competencies are a set of features of a given person, characteristics like motivation, personality traits, skills, self-esteem related to group functioning, as well as any knowledge a person has acquired and uses. The concept of competencies therefore includes cognitive, motivational, ethical, social and behavioural elements. It combines certain features, learning outcomes (e.g. knowledge and skills), a system of values, beliefs, habits, and other psychological and relational characteristics (Prandi, Martell, Lozano, 2018, p. 7). This means that knowledge has ceased to be the sole purpose of the educational process, and the cumulative learning outcomes for a given level of education regarding knowledge, skills and personal and social competencies are of great significance (Kuratko, 2005; Fayolle & Gailly, 2008; Lans, Hulsink, *et al.*, 2008).

Entrepreneurial competencies should be understood as knowledge, skills and attitudes having an impact on the readiness and ability to create new value (financial, cultural, social, ecological, etc.) as part of business or social activity. Entrepreneurial competencies therefore include (European Communities, 2007):

- adequate knowledge of the available personal, professional and/or business opportunities,
- skills related to project management (e.g. planning, organising, managing, directing and delegating tasks, analysis, communication and evaluation), as well as the ability to work individually and as part of a team,
- entrepreneurial attitude, reflected in proactivity and being innovative personally and socially, as well as professionally.

Exemplary entrepreneurial competencies in the field of knowledge, skills and attitudes are presented in Table 1.

If entrepreneurship is considered an individual's ability to turn ideas into action (European Communities, 2005, p. 17), this is a key competence for all, and the main goal of

entrepreneurship education at the higher education level should be to develop skills and entrepreneurial spirit in line with the principles of sustainable development.

Table 1. Entrepreneurial competencies

Key theme	Subthemes	Interpretation used in this study
Knowledge	Mental models	Knowledge on how to get things done without resources, risk and probability models.
	Declarative knowledge	Basics of entrepreneurship, value creation, idea generation, opportunities, accounting, finance, technology, marketing, risk, etc.
	Self-insight	Knowledge of personal fit with being an entrepreneur/being entrepreneurial.
Skills	Marketing skills	Conducting market research, marketplace assessment, marketing products and services, persuasion, getting people excited about your ideas, dealing with customers, communicating a vision.
	Resource skills	Creating a business plan, creating a financial plan, obtaining financing, securing access to resources.
	Opportunity skills	Recognising and acting on business opportunities and other types of opportunities, product/service/concept development skills.
	Interpersonal skills	Leadership, motivating others, managing people, listening, conflict resolution, social skills.
	Learning skills	Active learning, adapting to new situations, coping with uncertainty.
	Strategic skills	Setting priorities (goal setting) and focusing on goals, defining a vision, developing a strategy, identifying strategic partners.
Attitudes	Entrepreneurial passion	"I want". The need for achievement.
	Self-efficacy	"I can". Belief in one's ability to perform certain tasks successfully.
	Entrepreneurial identity	"I am/I value". Deep beliefs, role identity, values.
	Pro-activeness	"I do". Action-oriented, initiator, proactive.
	Uncertainty/ambiguity tolerance	"I dare". Comfortable with uncertainty and ambiguity, adaptable, open to the unexpected.
	Innovativeness	"I create". Novel thoughts/actions, unpredictable, radical change, innovative, visionary, creative, rule breaker.
	Perseverance	"I overcome". The ability to overcome adverse circumstances.

Source: Adapted from (Lackeus, 2014, p. 382).

In many countries, including the USA and EU member states, higher education institutions offer entrepreneurship education enabling students to learn about the general requirements of the entrepreneur's profession, as well as contemporary ecological and social challenges (Salvioni, Franzoni & Cassano, 2017). Examples of such universities are presented, for example, as part of the project titled "Support Systems for Sustainable Entrepreneurship and Transformation", managed by The Borderstep Institute for Innovation & Sustainability (Germany), Linköping University (Sweden), and Aalto University (Finland), which identified 42 examples of good practices used by universities in Finland, Germany, Sweden, the United Kingdom and the USA (Fichter, Geier & Tiemann, 2016).

Another example is the international initiative developed in 2007 coordinated by UN Global Compact and leading academic institutions titled “Principles for Responsible Management Education” (PRME). These principles are implemented by over 730 business schools worldwide (PRME, 2018). Educational institutions participating in the PRME initiative are obliged to implement the following principles PRME (2017):

- developing among students the ability to generate sustainable values for business and society as a whole,
- implementing the principles of social responsibility in curricula and academic activity in accordance with the values promoted in the Global Compact document,
- creating educational materials, processes and environments fostering the effective teaching of responsible business,
- conducting research in the field of corporate social responsibility,
- undertaking cooperation with businesses in the sphere of corporate social responsibility,
- supporting dialogue with stakeholders and debates on social responsibility and sustainable development.

Due to the fact that business schools tend to promote a “profit-first” mentality, critics challenge their ability to implement sustainability-related educational programs (Lourenço, Jones & Jayawarna, 2013). The key problem is that sustainable development requires meeting the challenges of short-term business interest on the one hand, and long-term development of both society and the company itself, on the other hand (Urbaniec, 2015).

Assuming that every company or institution can and should be more ecological, there is a need to develop appropriate skills and attitudes in this area. Education for entrepreneurship, taking into account the goals and principles of sustainable development, allows acquiring the values, skills and knowledge needed to build a sustainable economy. Appropriate education also enables the development of skills that generate an entrepreneurial spirit and prepare future leaders for solving more complex, interrelated and rapidly changing problems in accordance with sustainable development principles.

In order to be able to meet the current and future requirements of society in accordance with the concept of sustainable development, a new model of the entrepreneurial competence system is needed. An important role in the professional development of managers for sustainable development is played by the ability to solve problems, analyse complexity and discover more sustainable forms of production and consumption, or the ability to work in a cultural environment on a global scale (UNESCO, 2012, p. 4). Moreover, Hull, Kimmel *et al.* (2016) identified transdisciplinarity and commitment, *inter alia*, as competencies supporting the development of sustainable development leaders. The key competencies, from the point of view of entrepreneurship education, also include (Urbaniec, 2016):

- proactivity – an entrepreneurial attitude based on commitment and problem-solving skills,
- innovativeness – the development of entrepreneurial skills, consisting in the ability to recognise opportunities, generate ideas, make changes to implement complex and interrelated sustainable development goals, and
- interdisciplinarity, or entrepreneurial knowledge, not only in the economic, but also the social and ecological dimension, supporting systemic solutions and the ability to analyse and evaluate current challenges in a holistic approach.

Such competencies combine the need for the ability to cooperate with one another with understanding of why and how to act in order to solve current socio-economic and environmental problems. The concept of entrepreneurial competencies in the field of sustainable development should be based on a holistic and future-oriented approach, which in practice should form the basis of decision-making structures, especially such competencies as: critical assessment of opportunities, and commitment to engage and take risks (Dean & McMullen, 2007; Kapitulčinová *et al.*, 2015). Although in recent years various studies have contributed to some progress in the conceptualisation of key competencies within the context of sustainable development (Segalas *et al.*, 2009, Willard *et al.*, 2010), the definition of competencies in the context of sustainability is still at an early stage of development. That is why it is important to conduct further research in order to identify potential opportunities for developing sustainability-oriented competencies within the framework of entrepreneurship education.

RESEARCH METHODOLOGY

As mentioned in the Introduction, this article aims to determine the academic potential of entrepreneurship education in shaping competencies supporting sustainable development, and to verify entrepreneurial competencies exemplified by students of the Cracow University of Economics (Poland). The research hypothesis assumes that actions taken by universities for entrepreneurship education have a significant impact on shaping the relevant entrepreneurial competencies supporting sustainable development.

A survey based on a questionnaire was employed as the research method. Survey research is a valuable approach to data collection and may be used to investigate any organisational issue or problem either inside or outside of the organization (Crowther & Lancaster, 2008). The choice of this method is justified because it allows verifying the entrepreneurial competencies available in literature, and identifying relevant competencies from the point of view of Polish students as part of the analysis conducted on the example of a selected group of students. The survey concerned entrepreneurial competencies in the field of knowledge, skills and attitudes, with particular emphasis on issues related to sustainable development. The basis for the development of the questionnaire were the entrepreneurial competencies presented in Table 1, which were adapted to the needs of the research objective and extended to include sustainable development issues. The questionnaire contained closed questions, rated according to the seven-point Likert scale (Dawes, 2008). This scale allows for more diverse answers of respondents, where one means “strongly disagree”, two – “disagree”, three – “moderately disagree”, four – “I don’t know”, five – “moderately agree”, six – “agree”, seven – “strongly agree”. Due to the large dispersion of responses and the similar significance of some scales, the results of the survey on scales 1 and 2 as well as 6 and 7 were aggregated to a 5-point scale, where one covers “disagree”, two – “moderately disagree”, three – “I don’t know”, four – “moderately agree”, five – “agree”. This enabled a more accurate interpretation of the results in comparison to those obtained on a 7-point scale.

For the purpose of the research a convenience sampling was used which is a specific type of non-probability sampling method that relies on data collection from population

members who are conveniently available to participate in study. This method allows for a great ease of research, letting researchers focus on analyzing the data (Given, 2008). Nevertheless the results of the convenience sampling cannot be generalized to the target population due to under-representation of the sample in compare to the population of interest (Bornstein *et al.*, 2013). The research was carried out in 2016 on a sample of 42 students of the Cracow University of Economics. The respondents were second-cycle (Master's) students from the "Entrepreneurship and innovations" specialisation offered in the field of economics. Among the respondents, 69% were female students and 31% were male. It is worth emphasising that the respondents were students of the last semester of their Master's studies education, *inter alia*, the final stage of higher education. Although the small research sample does not allow for the generalisation of results, it nevertheless constitutes a preliminary attempt to empirically verify entrepreneurial competencies identified on the basis of literature on the subject. This allows indicating current trends in the development of entrepreneurship skills, as well as assessing the role of higher education in the shaping of entrepreneurial competencies that support sustainable development.

AN ANALYSIS OF ENTREPRENEURIAL COMPETENCIES FOR SUSTAINABLE DEVELOPMENT BASED ON EMPIRICAL RESEARCH

Shaping entrepreneurial competencies is a complex process and includes not only knowledge of the available possibilities of personal, professional and/or business activity, but also skills related to both individual work and team cooperation, as well as entrepreneurial attitude, reflected in initiatives, proactivity, innovativeness in one's personal and social life, as well as professional life. It should be added that the competencies analysed were defined by Lackeus (2014) and extended by the author to competencies related to sustainable development in accordance with the research goal of the article.

On the basis of the research conducted among students of the "Entrepreneurship and innovations" specialisation, it can be concluded that the majority of respondents evaluated their entrepreneurial competence in knowledge positively, especially general knowledge of economics, accounting, finance, marketing, risk management, etc. (36%). However, the use of the acquired knowledge to build creative and innovative solutions (without resources) was assessed rather poorly as "moderately disagree" (36%) and "I don't know" (29%). In the context of sustainable development, the majority of respondents indicated that they had knowledge about the social responsibility (29%) as well as about the ecological impact of businesses (22%) (Table 2).

Analysing entrepreneurial skills, it can be seen that the majority of respondents pointed to high marketing skills (market research, creating a business plan), interpersonal skills (leadership, team management), learning skills (active learning, adapting to new situations) and strategic skills (setting priorities, goal setting and focusing on goals). Analysing skills within the context of sustainable development, e.g. ability to identify new opportunities (33%), and ability to make changes in order to achieve complex corporate sustainability goals (31%), the majority indicated that they do not know or do not have an opinion (Table 3).

Table 2. Entrepreneurial knowledge competencies (in %)

What kind of entrepreneurial knowledge do you have?	Low			High	
	1	2	3	4	5
Knowledge about how to get things done without resources	19	36	29	10	7
Knowledge about how to combine resources in new ways to achieve goals	15	24	33	7	22
Basics of economics, accounting, finance, marketing, risk management, etc.	2	7	31	24	36
Knowledge of personal fit with entrepreneurship career	12	7	38	17	26
Knowledge about the social responsibility of businesses	9	14	21	29	27
Knowledge about the ecological impact of businesses	19	19	21	19	22

Source: own study.

Table 3. Entrepreneurial skills competencies (in %)

What kind of entrepreneurial skills do you have?	Low			High	
	1	2	3	4	5
Conducting market research, marketplace assessment	9	19	21	24	26
Dealing with customers	5	10	24	14	47
Recognising and acting on business opportunities	7	10	36	19	29
Creating a business plan, including a financial plan	14	21	12	31	22
Obtaining financing	23	19	24	14	19
Leadership (leading and managing a team, motivating others, conflict resolution)	12	10	21	26	31
Active learning, adapting to new situations	2	10	19	29	41
Coping with uncertainty	10	12	26	24	29
Setting priorities (goal setting) and focusing on goals	0	7	17	33	43
Developing a strategy	7	10	33	31	20
Thinking outside the box (generating ideas)	7	14	26	24	29
Ability to identify opportunities for new ways to conduct activities	9	19	33	24	15
Ability to make changes in order to achieve complex corporate sustainability goals	2	26	31	21	19

Source: own study.

There are not only knowledge and skills, but also attitudes that play an important role in the shaping of entrepreneurial skills supporting the sustainable development of enterprises. These competencies are reflected in readiness to take various initiatives, solve problems, and make decisions in uncertain situations. Especially the dealing with new challenges (42%), learning from failure (55%) and relatively high self-confidence (48%) should be assessed positively (Table 1). All those competencies are also relevant due to the implementation of sustainability principles.

Shaping entrepreneurial attitudes is a complex process that should start at the level of early school education and be continued during subsequent stages of education, including the academic level. This process can be supported by various educational and

training programs, as well as adequate infrastructure conducive to undertaking own ventures (e.g. incubators). Shaping attitudes also requires a certain initiative from students, e.g. through apprenticeships or entrepreneurial training, participation in job fairs, or exchange of experience with business practitioners (e.g. student research groups). Entrepreneurial attitudes affect the entrepreneurial intentions of people, which in turn stimulates their behaviour towards being entrepreneurial (Pittaway & Cope, 2007; Wach & Wojciechowski, 2016). It should be added that Lackeus (2015) claims that entrepreneurial attitudes are not only the result of innate personality traits, but also the individual's relationship with the socio-cultural and economic environment.

Table 4. Entrepreneurial attitude competencies (in %)

To what extent do you agree with the following statements?	Disagree			Agree	
	1	2	3	4	5
I want to be an entrepreneur	14	10	31	24	21
I can master difficulties	2	7	31	29	31
I have a lot of confidence in myself	5	10	19	19	48
I always find a solution to a problem	5	5	29	26	36
I take action proactively and apply new knowledge practically	2	17	10	45	26
I make decisions in uncertain situations when outcomes are difficult to predict	10	19	26	21	24
I learn from failure	2	7	12	24	55
I welcome every new challenge	2	2	31	12	42

Source: own study.

Shaping an entrepreneurial approach, on the one hand, helps young people using entrepreneurship education to develop their business knowledge and key skills and attitudes (including creativity, initiative, perseverance, teamwork, risk understanding and sense of responsibility) and, on the other, supports the implementation of ideas into life and significantly improves employment opportunities (European Commission, 2013, pp. 6-7). The development and improvement of entrepreneurial competencies increase, *inter alia*, the perception of appropriate opportunities, effective assessment of opportunities, effective risk management, creative problem-solving, the creation and building of value and networking.

DISCUSSION AND CONCLUSION

The development of entrepreneurial competencies takes place through entrepreneurship education. Entrepreneurship education should be seen not as a way to solve all socio-economic problems, but rather as a way to change behaviour in order to build a culture of innovation, seeking knowledge and business opportunities to ensure sustainable economic growth and social wellbeing. Entrepreneurship education is aimed at shaping relevant entrepreneurial competencies, needed not only to fulfil the role of the entrepreneur but also to improve employment opportunities. On the current, unstable labour market, in particular entrepreneurial, creative, quick and non-standard people with the courage to take up new challenges and constantly improve their skills have a chance to improve em-

ployment conditions and increase their opportunities for development. As the theoretical analysis indicated, entrepreneurship education aims to develop comprehensive entrepreneurial features, innovative spirit values, and entrepreneurial skills. It can be treated as a process of change and creation of knowledge, skills, attitudes and entrepreneurial opportunities through education, training, consulting or experience.

Based on the empirical analysis, it can be concluded that the actions taken by universities for entrepreneurship education have a significant impact on shaping the relevant entrepreneurial competencies supporting sustainable development. Research carried out among students of the Cracow University of Economics confirmed this hypothesis. The acquisition of appropriate entrepreneurial competencies in the field of knowledge, skills and attitudes is of key importance in the pursuit of sustainable development. Especially competencies in the field of skills and attitudes should be highly assessed among the surveyed students, while competence in the field of knowledge requires further development and improvement. Students indicated that they have basic economic knowledge, but assess their knowledge on creating innovative and creative solutions relatively poorly.

To support the effective implementation of sustainable development, entrepreneurship education should be extended by making changes to the education system for entrepreneurship, e.g. through changes in curricula and teaching methods, adapting curricula in higher education to the needs of the economy, focusing on content related to creativity, developing creative skills, and increasing emphasis on entrepreneurial competencies, cross-cutting and interdisciplinary skills, taking into account the specificity of sustainable development (Urbaniec, 2016).

A positive development trend is also the fact that a growing number of companies see the need to undertake voluntary ethical, environmental or social actions and consider such issues among the elements in the recruitment of graduates. Achieving a sustainable future requires those employed in the labour market to have different values, attitudes, skills, habits and behaviours. Unfortunately, current educational activities are not enough to achieve sufficient progress in these areas. Sustainable development requires a change in consciousness and forms the basis for further decisions and actions by supporting personality development in order to be able to cope with complex situations and make appropriate decisions, take responsibility, and act in accordance with sustainable development requirements.

In addition, it should be emphasised that every university graduate should possess entrepreneurial skills that will increase his ability to compete with others for a place of employment on an increasingly global and demanding labour market. Students' competencies are the subject of numerous studies, as well as discussions in academic environments or among employers (in particular HR specialists and consultants responsible for the recruitment and selection of candidates for work). For this reason, it is important that educational programs take into account the expectations of the labour market and current socio-economic and civilisational challenges, which requires a dialogue between academia and business. Universities can contribute to the shaping of entrepreneurial competencies that support the implementation of sustainable development principles in various ways, e.g. through targeted education programs, ongoing research, and cooperation with stakeholders. The role of higher education in entrepreneurship extends far beyond the transfer of knowledge, as it also includes partici-

pation in ecosystems, partnerships and alliances of industry sectors. As part of this process, the nature and type of involvement of stakeholders who can support the university's activities should be taken into account.

Despite the effort that it has been put into designing the research, this study is not without limitations. A common limitation in this type of study derives from convenience sampling method which relies on data collection from population members who were conveniently available to participate in study. Therefore the contribution of the paper to the research field is moderate because of a small sample. Due to under-representation of the sample, the research results cannot be generalized to the target population. However, the preliminary results can be utilised for a more advanced analysis in the future. Similarly, it may be interesting to carry out a geographical comparison with other countries in order to analyse whether the results of this work can be extrapolated to different economic and university environments. Moreover, it is important to conduct further research in order to identify potential opportunities for developing sustainability-oriented competencies within the framework of entrepreneurship education.

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