

Ewa Badzińska

Poznan University of Technology
Faculty of Engineering Management

Poznan, Poland

ewa.badzinska@put.poznan.pl

ORCID ID: 0000-0002-2621-976X

Liisa Timonen

Karelia University of Applied Sciences
Research, Development, Innovation
and Business Services

Joensuu, Finland

Liisa.Timonen@karelia.fi

ORCID ID: 0000-0002-1302-4023

Exploring the University-based Entrepreneurial Activities in International Collaboration: Development Cases of HEIs

ABSTRACT

Objective: This paper attempts to shed some light on the entrepreneurial university elements through the examination of two HEIs – Karelia University of Applied Sciences and Poznan University of Technology. The case study explores the prerequisites for effective result-driven entrepreneurship education and business collaboration. Furthermore, the study examines

what is the potential to build joint entrepreneurial pathways for HEI students and staff in an international context within the Erasmus+ Strategic Partnership Project "Entrepreneurship and Communication in Multicultural Teams (ECMT+)".

Methodology: The nature of this exploratory case study is descriptive and data was collected using literature and reports review, participatory observation, reflection, and inference tools. The HEIs cases of practical implementation of the entrepreneurial university framework were selected with a purposeful sampling technique. The applied case study was practical orientated. Due to the small number of informants within the case and its qualitative nature, no generable conclusions can be drawn.

Findings: Even as a subjective and descriptive case study, it offers an arena to explore one authentic example of a community of practice and entrepreneurial education platform promoting the systematic competence and skills development in international collaboration context. Entrepreneurial university with a true multicultural nature supports building inclusive education bridging universities with their regions and businesses.

Value Added: The study reveals that the higher education has to be more inclusive and develop practices to meet the more diverse learners who may have disabilities and learning difficulties, diverse racial, cultural and linguistic backgrounds or meet with social and economic challenges. The value resulting from the research allow to state that the effective cooperation and building of entrepreneurial university practices at ECMT+ partner universities are beneficial both for students, teachers and the HEIs and they could be applied at other HEIs.

Recommendations: The strategic development of higher education should be oriented to promote the entrepreneurial mindset reforming the curricula to provide academic graduates more practical skilled, multi-disciplinary and social competent to discover the entrepreneurial opportunities and boosting employability. Despite the qualitative nature of the study it may enrich the discussion on the entrepreneurial university practice.

Key words: curriculum development, entrepreneurial university, entrepreneurship education, experiential learning, international and intercultural collaboration

JEL codes: I23, L26, M14

Introduction

The current changes in Europe and beyond (economy, environment, demographics, consumer behaviour, IT, shared economy, robotics, crowd-sourcing,

single market and opening of borders) require new competences and therefore new ways of teaching and learning. The universities need to co-operate widely to be able to renew their curricula and practices responding to the needs and foster more competitive and innovative economies. The need for skilful and multicultural competent HEI graduates with entrepreneurial and intrapreneurial mindset is crucial. The transversal competences (also called soft skills) like creativity, initiative, tenacity, teamwork, understanding of risk, taking responsibility and having resilience are more important in the future work life than ever. These competences are said to be the keys to successful work shaping the future in a good way at the time when we are dealing with big challenges like industry 4.0 and the rise of the artificial intelligence. However, still today many higher education students and graduates somewhat lack the required knowledge and skills. Furthermore, they seem to have challenges in developing businesses and apply result-driven work motivation, employ themselves into the regions and efficiently work in the more and more diverse teams.

Nowadays, a crucial challenge of the higher education is to create favourable preconditions to prepare students for the modern business world and practices in multicultural teams. For the above reasons, universities should support the practice-oriented entrepreneurship education and be involved in a range of partnerships within the business ecosystems. That stimulates the knowledge spillover and absorption of innovative solutions in society and the economy (Badzińska, 2020), and foster the entrepreneurial mindset and self-confidence of the students and graduates.

In order to modernize the pedagogical practices in higher education and systematically develop the competences and skills needed in professional life integrating the entrepreneurial and multicultural approach into teaching and learning is a must. Entrepreneurship education that brings practice, business and work life into the academic education might be a good way to enable the students to develop the expertise they really need in the future (Lackéus, 2015; OECD, 2012; Bacigalupo, Kampylis, Punie, & Van den Brande,

2016). At the same time also questions of diversity and inclusion in work life become more crucial (Badzińska, 2017; Sułkowski & Marjański, 2017; Glinka, 2018; Reimer, 2018; Timonen & Turunen, 2018). Moreover, definitely, the need for the competence development is relevant in any field of higher education – the need is multi-sectoral and multi-disciplinary as the working life itself. Undoubtedly, entrepreneurial and intrapreneurial thinking and skills are globally needed to foster employability and economic well-being. However, it is relevant to ask how to really integrate entrepreneurial approach into higher education? And how to ensure that the students do have relevant but smooth pathways for entrepreneurial learning and practicing?

This exploratory case study has two objectives. It discusses first, what kinds of entrepreneurial university elements do the two selected higher education institutions – Karelia University of Applied Sciences and Poznan University of Technology have, and how they could be applied at other HEIs. The authors collect, review and reflect the approaches and activities of the above-mentioned HEIs applying the concept of the Entrepreneurial University Framework by OECD (2012). The case study attempts to explore the prerequisites for effective result-driven entrepreneurship education and business collaboration. The selected HEIs differ in terms of research and technology, nature of the knowledge and practice that they intended to generate, and the proximity of the environment to perceived practical needs but this diversity makes the investigation more interesting. Second, the case study explores what is the potential to build joint entrepreneurial pathways for the HEI students and staff within an international collaboration context. The Erasmus+ Strategic Partnership Project titled Entrepreneurship and Communication in Multicultural Teams (ECMT+) offered an arena to work with these questions and ways to elaborate and create entrepreneurial mindset in an international consortium, and some of the findings are reflected in this article.

This study is limited to the explorations within the ECMT+ project (2016-2019) by the researchers who themselves were involved in the process and wanted to learn both from the entity and members of the HEI com-

munity. Therefore, the discussion is descriptive in its nature reflecting the main findings of the data gathered from a limited number of informants in authentic environment.

The paper is a thoroughly rework and extension of the communication originally presented at the 1st International Conference CREE2019 Entrepreneurship Education in IUT Roanne in France (Timonen, Badzinska & Immonen, 2019). It is composed by the following five parts: (i) introduction that place the study in a broad context of entrepreneurial university integrating the international approach and highlighting its importance for more innovative economies and challenges like industry 4.0; (ii) literature review on the concept of the Entrepreneurial University and its responsibility for the development of society, environment and the economy; (iii) materials and methods; (iv) results and discussion; (v) conclusions, limitations and future research lines.

Entrepreneurial University Approach – Literature Review of the Concept

Higher education is facing growing challenges in the definition of its purposes, basic and applied research, flexible organization as well as its responsibility for the development of society, environment and the economy. One significant response to the challenges of the higher education system is seen in the creation and development of an entrepreneurial university, which brings together internal and external stakeholders to look for mutual cooperation mechanism (Badzińska, 2020). In addition, to facilitate the generation and commercialization of university research and help start new ventures, a modern university has not only to change its core activities and routines, but also combine adequate organizational environments and resources (Guerrero & Urbano, 2011).

The term “Entrepreneurial University” was used by Etzkowitz (1983) to describe those universities that improved different mechanism through their scientists to contribute to the regional development and increase

their incomes. They are considering new sources of funds like patents, conducting research under contracts and entry into a partnership with a private enterprise. It was argued that, in terms of organization, entrepreneurial universities are managed in such a way that they become capable of responding flexibly, strategically and autonomously to opportunities and challenges in the environment (Clark, 1998). In turn, Kirby (2002) emphasizes that entrepreneurial universities have the ability to innovate, recognize and create opportunities, work in teams, take risks and respond to challenges. In this context, Etzkowitz (2003) even considers that the entrepreneurial university is a natural incubator providing support structures for teachers and students to initiate new ventures: intellectual, commercial and conjoint. „Integrating a universities' mission for economic and social development urges universities towards transformation of traditional teaching and research universities towards entrepreneurial universities” (Arnaut & Dogić, 2018, p. 70). Thus, the university is expected to fulfil its obligations related with research, teaching and entrepreneurial mission for creating and fostering new products and processes. For this reason, universities are looking for ways to build entrepreneurial pathways and create internationalization opportunities for students and staff. Therefore, a lot of attention have to be paid to development of student-oriented participatory teaching and sharing with peers (Badzińska & Timonen, 2019).

There is a growing global need for entrepreneurs from social, cultural and economic backgrounds to launch new start-ups and engage in entrepreneurial activities to support the sustainable development of the region. In this context, entrepreneurship is seen as a powerful driver of economic growth and job creation. The current changes in the surrounding environment require new competences and therefore new ways of teaching and learning. „Creating widespread awareness amongst staff and students of the importance of developing a range of entrepreneurial abilities and skills is therefore an important function of an Entrepreneurial University” (OECD, 2012, p. 10). The need for skilful and multicultural competent graduates with entrepreneurial

and intrapreneurial mindset is crucial. The universities need to cooperate widely to be able to renew their curricula and practices responding to the challenges in order to foster more competitive and innovative economies. “Moreover, definitely, the need for the competence development is relevant in any field of higher education – it includes much more than business or economics: the need is multi-sectoral and multidisciplinary as the working life itself” (Timonen et al., 2019, p. 3).

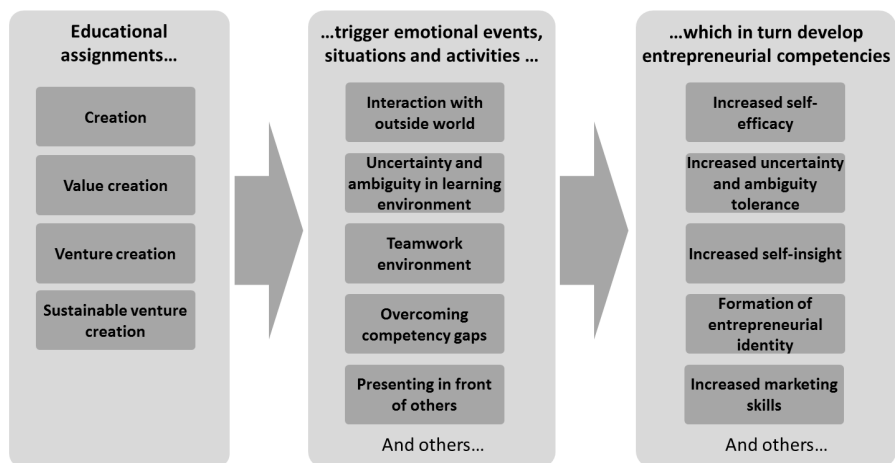
Universities have incorporated entrepreneurial educational programs in undergraduate, master and doctoral educational levels. Entrepreneurship education covers a wide variety of audiences, objectives, contents and pedagogical methods (Fayolle & Gailly, 2008), including entrepreneurial behaviour, risk and opportunity recognition, equity financing, business culture and strategy, innovation, and the impact of entrepreneurship on economic growth and development (Acs & Audretsch, 2010). In this context, the analysis of entrepreneurship within the university curricula and entrepreneurship training programs has attracted the interest of many researchers (Gibb et al., 2009; Guzmán & Liñán, 2005; Wach, 2008; Raposo & Paço, 2011; Fayolle & Gailly, 2015; Rachwał et al., 2016). As internationalization is increasingly integrated into strategic processes of higher education institutions, it becomes essential for universities to be able to enhance performance in international activities (for example in europeanization of entrepreneurship education) (Wach, 2014).

In this study, the conceptual discussion benefits (among other studies) from the Entrepreneurial University Framework by OECD (2012), Lackéus (2015) study about competence development in entrepreneurship education, and the Entrepreneurship Competence Framework (Bacigalupo et al., 2016) that provide an understandable context of the main elements of entrepreneurial universities. The OECD (2012) framework is designed to help interested universities assess themselves against statements which are organized under the following seven areas: (i) Leadership and Governance; (ii) Organizational Capacity, People and Incentives; (iii) Entrepreneurship development in teaching and learning; (iv) Pathways for entrepreneurs; (v)

University-Business / external relationships for knowledge exchange; (vi) The Entrepreneurial university as an international institution; (vii) Measuring the impact of the Entrepreneurial University. The framework can be used as a thematic reflection model where the above-mentioned statements are factors likely to be characteristic of the entrepreneurial university. There are proposed several activities which are established and managed by a university in order to justify the status of an entrepreneurial university (OECD, 2012). The scheme is practical and visual and it helps to organize the development actions in a logical form in reflection with the process of creating an entrepreneurial university.

In entrepreneurial learning, according to Lackéus (2015), it is crucial to offer students opportunities that trigger them one way or another. Creativity and innovation potential do not grow without challenges, teamwork and real life engagement. Therefore, they are key elements in entrepreneurial pathways (figure 1).

Figure 1. A competence development model of entrepreneurial education by Lackéus



Source: Lackéus, 2015, p. 27.

In the competence development, it is necessary that students themselves do take the ownership in the learning process. This process is participatory, involving, active and challenging in a way it requires critical thinking and problem-solving skills. In addition, real life contribution is a necessity. The universities do not operate in a vacuum but should be active contributors and co-creators in their operational context. The aim of the university-business collaboration is to create new multi-disciplinary curricula, promote transferable skills and entrepreneurship within and through education as well as encourage a more systemic culture of cooperation between business and academia. Therefore, the real innovation ecosystem is needed and a lot of efforts should be invested in partnership and collaboration development.

The applied case study benefits from the above-mentioned entrepreneurial university frameworks and attempts to explore the prerequisites for effective result-driven entrepreneurship education and business collaboration. It aims primarily to enrich the discussion on the entrepreneurial university practice in international context sharing the experiences from the ECMT+ project. Therefore, other theoretical approaches and models described in the subject literature are not included here (more about conceptualisation, models and challenges for operationalisation of the concept of entrepreneurial university see by Badzińska, 2020).

Materials and Methods

The main question of this study is how the partner organizations develop the entrepreneurial pathway for the students and how does this process meet with the entrepreneurial university framework. The aim is to become aware of the existence and functioning of the entrepreneurial ecosystem, as well as imparting knowledge and facilities for the creation of entrepreneurial study pathways. The study applies the case study method where the researchers explore and build understanding on the phenomena as a holistic and interpretive study in the selected context in as naturalistic form as possible

(Patton, 2002; Cohen et al., 2008). The nature of the study is descriptive and reflective and as a result, it provides an illustration of the phenomena. As the researchers themselves are active participants and informants of the process they do the study about, the aim is to provide a picture of the case in a general, descriptive form. In addition, the study itself is at the same time a learning process even for the researchers as they examine their own working environment and learn from the process (Patton, 2002).

Following Cohen, Manion, & Morrison (2008, p. 254) a study meets with the case study criteria, „when the context is clear and the place, time and participants can be identified.” Moreover, the number of participants in a case study is relatively small. In this study, there are two places: the Karelia University of Applied Sciences and the Poznan University of Technology. The two HEIs cases of practical implementation of the entrepreneurial university framework were selected with a purposeful sampling technique (Patton, 2002). This selection resulted from a pragmatic criterion of data availability, a clear example illustrating the problem studied, as well as the observed and reflected factors influencing the development of an entrepreneurial university. The applied case study was practical orientated (executive research). The above criteria lead to the conclusion that the two HEIs cases would help to attain the objectives of the research.

The necessity to confront a variety of data sources forced the application of the principle of triangulation (a multimethod research approach). When dealing with qualitative studies it is advisable to use methodological pluralism with different methods and research techniques (Sułkowski & Marjański, 2014). The time of the data collection and analyses was autumn and winter 2018/2019 during the ECMT+ Intensive Programmes and output development, and the number of participants includes the researchers and their colleagues working in and developing this thematic area. The case descriptions are built using the Entrepreneurial University Framework by OECD (2012) as a thematic reflection model. Data collection was semi-structured and the researchers collected the descriptive data from their organizational

practices from different documentation (curricula, web pages, intranet, internal development plans, ECMT+ project plan). In addition, the researchers themselves are informants providing subjective data over the phenomena as not all the evidence is documented. Furthermore, the conditions of learning are discussed based on Lackéus model (2015). The cases are categorized to meet with the different elements of the framework. The reflection identifies the strengths, opportunities and potential but also shows, where the gaps and development needs are. The analysis is used to illustrate the main elements of the entrepreneurial study pathway development approach to gain answers to the key question of the study.

Results and Discussion

Entrepreneurial Pathways at the selected HEIs

Both of the selected HEIs have developed entrepreneurial education in and outside of the ECMT+ project, but during that the researchers made the review. Karelia University of Applied Sciences operates in North Karelia, Eastern Finland, in a close co-operation with regional companies, educational and other partner organizations. Karelia UAS provides innovative tertiary education leading to bachelor and master degrees as a part of the European and national system of higher education. Karelia is a multidisciplinary HEI with six study fields and 19 degree programs, of which five are master-level. Karelia provides in-service learners with full programs via blended learning. The total number of full-time students is approximately 3800, of which 250 come from outside Finland, however, there are several thousand learners in complementary and in-service education. Karelia employs approximately 350 staff members in education, development, RDI and administration.

At Karelia University of Applied Sciences, entrepreneurship is one of the strategic development themes systematically worked with from year 2016 on. Of course, there have been entrepreneurial university actions

before, too, but the systemic entrepreneurship learning pathway building was established during the strategy 2016–2020, and continues during the Karelia2030 strategy applied from 2020 on. What have been the actions at the time of the study, then? First key element providing a solid base for the whole action is that Karelia has created a post of a principle lecturer in entrepreneurship. The principle lecturer coordinates and develops the entrepreneurial learning pathway for the students in a close collaboration with students, staff, business partners and other players in the field. The aim is to establish a visible and recognized innovation ecosystem serving entrepreneurial learning, innovation and actions. The learning pathway already include Business Academy, DRAFT-program, Epic Challenge, Entrepreneurial Week and Start me up-competition. Many of the actions are open also for the students from Riveria vocational education college and University of Eastern Finland, and some even to the staff members. The diverse, multisectoral and inter-disciplinary approach offers a floor for meaningful competence development. Resulting from that, the partners have opened joint SPARK community promoting entrepreneurship and innovation for the whole region benefit.

A thorough mapping of the entrepreneurial courses, services and program was done in 2017. As a result, the abundance of various offerings came clearly visible. There are more than 60 core and optional courses and more than twenty different types of activities and programs available for students. To bring order to this and facilitate flexible creation of individual entrepreneurial pathways, two organizing principles were used. First, all courses and services were classified based on their location on the business lifecycle. Second, everything was tagged based on which stage of studies it belongs to. With this kind 2-dimensional classification, newly named entrepreneurship coaches and students themselves can easily find the most appropriate course or service depending on where they are business- and study-wise.

The Poznań University of Technology (PUT) is the best technical university in Wielkopolska Region and among the best universities in Poland.

Established in 1919 as Higher State School of Mechanical Engineering was transformed in 1955 into Poznań University of Technology. The PUT therefore has a 100-year tradition. The educational and scientific offer of the Poznań University of Technology is very wide and diverse. It provides education in four campuses in Poznań for 14,000 students with more than 1,300 academic staff. Candidates can choose between 9 faculties, 33 fields of study, and almost 60 post-graduate courses as well as doctoral studies in many fields of research. A wide range of specializations is addressed to people who want to develop their professional skills in practice, get better career opportunities in their field of work, change their occupation or have the possibility to grow intellectually.

The University provides its students not only substantive preparation, but also equips with transversal skills to facilitate an effective start on the labour market. Poznan University of Technology can boast very efficient career office. The Students and Graduates' Internship and Career Centre is a university-wide unit, to promote students and graduates from PUT in European and global labour markets. At Poznan University of Technology, entrepreneurial mindset is implemented in curricula of such subjects as: corporate management, enterprise competitiveness, entrepreneurship in IT, international competitiveness, business internationalization, enterprise development, concepts and tools of modern business management, and many others in the field of social sciences.

In practical terms, the entrepreneurial university approach is expressed through the activity of students in professional organizations and scientific associations. There are over 70 scientific circles and 15 student organizations operating at nine faculties of the Poznan University of Technology, among others: Enactus PUT, Centre for Promotion of Engineers, Student Process Improvement Club, PUT Solar Dynamics, eMobility, Bioinformatic, Clean Energy, PUT Students Association with Disabilities "Extraordinary", Student Forum Business Centre Club, Erasmus Student Network Poznan or PUT Motorsport. The main goal of their activity is to carry out projects promot-

ing Poznan University of Technology as well as scientific achievements and business or social solutions to improve the quality of life. Scientific circles and student organizations are a place for creative and ambitious students who want to develop their passions and transversal skills by creating innovative solutions at the local, regional and international level in close cooperation with the business environment. Students participate in numerous contests and exhibitions, competing with students from other national and international universities. They create projects within the framework of social entrepreneurship as well as commercial solutions, among others for the automotive industry, mechanical engineering, computing, electronic and telecommunication, civil construction and environmental engineering or chemical technology, and many more.

The entrepreneurial university puts greater emphasis on innovation in all areas, from research to teaching and learning, knowledge exchange, governance and external relations. The practices and innovation potential at Karelia UAS and PUT following the OECD Entrepreneurial University Framework are presented synthetically in Table 1.

Table 1. Case summary: Entrepreneurial university elements at case HEIs

Element	Karelia University of Applied Sciences	Poznan University of Technology
Leadership and governance	Entrepreneurship is one of the three cross-sectional themes in the 2016-2020 strategy. Organization-wide entrepreneurship team was established for the supervision of the strategy. Annual strategy implementation plans are developed and monitored by the team.	The University's mission is to educate future highly qualified employees and create new technological innovations in world-class research. "Poznan University of Technology –University in a positive climate"

<p>Organizational capacity</p>	<p>Microfunding granted for teams with innovative business ideas since 2008. Post of principal lecturer of entrepreneurship created in 2016. Entrepreneurial couches named for all 16 bachelor degree programme and 5 master degree programme in 2018. Business Academy opened in 2018, SPARK community opened in 2019.</p>	<p>At the Faculty of Engineering Management, lecturers and assistant professors offer various entrepreneurial courses (multi-disciplinary curricula), University to Business services, numerous optional programs (elective courses) available for students from all nine Faculties.</p>
<p>Development in teaching and learning</p>	<p>More than 60 entrepreneurship-themed courses available for students. Pedagogical approaches range from teacher-lead lectures, to multidisciplinary team-based learning, to all-year-round self-study online course. About 20 different programme and services available for students. Teachers and faculty have been trained in team pedagogical methods during the past 3 years.</p>	<p>PUT offers 33 fields of study and more than 100 specializations, almost 60 post-graduate courses, and doctoral studies at nine faculties. Various entrepreneurial courses (multi-disciplinary curricula) and numerous optional workshops to facilitate flexible creation of individual entrepreneurial pathways addressed to students from all nine Faculties (also within the Erasmus+ mobility programme). International development in teaching and learning – regional and international projects implemented at the Faculty of Engineering Management.</p>

<p>Pathways for entrepreneurs</p>	<p>Available courses and services classified based on stage of studies and stage of entrepreneurship. This allows students and student entrepreneurs to select courses and services that most appropriately support their studies and at the same time their business activities. Most major programmes are done jointly with other local educational institutions and business organizations. 2-year entrepreneurship specialization program Business Academy for selected fields. In the program students establish and run their own companies. Program utilizes team pedagogy.</p>	<p>Services and Organizations at PUT that most appropriately support the entrepreneurial activities of students: Academic Entrepreneurship Incubator of Poznan University of Technology, The Students and Graduates' Internship and Career Centre, Over 70 scientific circles and 15 student organizations, Academic Sports Association Club (AZS) with its 40 sports sections Professional internships in enterprises in the region. A wide range of entrepreneurial, cultural and sports events serving the promotion of student activities.</p>
<p>University-Business relationships</p>	<p>65 key partner companies and hundreds of companies with informal relationship. Key activities: R&D partnership Staff training Company-sponsored theses Practical training for students Company visits to lectures Company-sponsored idea competitions Curriculum development</p>	<p>An innovative dual program of study – combining theoretical knowledge with its practical application on the internship in the leading companies across the region. Professional internships for students in the leading business entities in the Wielkopolska Region for building the U2B relationships. University cooperation with the Chamber of Commerce and Industry, the Business Council in the Wielkopolska Region.</p>

<p>International elements and partnerships</p>	<p>Karelia is actively building partnerships within the entrepreneurial university frame. The actions are partnership development and analyses, thematic curriculum and pedagogical development and systemic design of international projects within the field. The international project actions include for example ECMT+, which is funded from the Erasmus+ programme and WPower funded from the NPA programme. In addition to these, the theme is actively discussed and explored in new project initiatives. The aim is to build an international innovation ecosystem supporting the growth of entrepreneurial skills and competences. That will enable the students (and staff) to choose an international learning pathway.</p>	<p>Membership in international organizations: SEFI ((European Society for Engineering Education) EUA (European University Association) AUDEM (Alliance of Universities for Democracy) IAU (International Association of Universities) CESAER (Conference of European Schools for Advanced Engineering Education and Research) ECTS (European Credit Transfer and Accumulation System). PUT has 110 active partnership contracts with foreign centres from around the world, which include joint research and exchange of university students and staff as well as over 400 Erasmus+ bilateral agreements.</p>
<p>Indicators, measuring, impact</p>	<p>Number of graduates employed as entrepreneurs measured annually. Number of ideas students send to local business idea competitions measured annually. Number of growth-oriented start-ups measured annually. Amount of private investments start-ups have received measured annually.</p>	<p>Position of the University as a whole and separate fields of study in the national rankings of the educational offer and preparation for the labour market measured annually. Number of start-ups created in the Academic Entrepreneurship Incubator of Poznan University of Technology. Number of departures from PUT and Students and Staff incoming within the framework of Erasmus+ mobility programme measured annually.</p>

Source: elaborated by Timonen, Badzińska, & Immonen (2019).

The above overview of activities indicates relatively high involvement of both universities in the implementation of the entrepreneurial university

concept by OECD (2012). It is developed and implemented at all the seven areas of the model. However, all the areas do not fully meet with the framework objectives but need to be further elaborated and documented clearly. Several important characteristics are indicated that reveal the importance of internal and external factors that strongly influence this type of universities, namely: the high interdependence with the government and industry firms, the different sources of funding, the entrepreneurial activities of all community members (students, academic, alumni), the implementation of different strategies to accelerate knowledge spillover and improve the creation of new ventures as well as the adjustments in the organizational structure of universities.

Unfortunately, the OECD framework cannot be considered as a benchmarking tool, because many proposed statements / factors (especially informal ones as traditions and reputation) are individual and contextual, hence it is difficult to assess them objectively to get reliable results (for example, the entrepreneurial agenda is usually tailor made to the individual purposes). There are many "soft" areas and invisible university resources that are difficult to be operationalized and measured by quantitative methods (Badzińska, 2020).

The presented case study may act as a starting point for an in-depth empirical research on endogenous and exogenous factors influencing the development of an entrepreneurial university to build an innovation ecosystem supporting the growth of entrepreneurial skills and competences.

International Collaboration and Learning-Teaching Pathways

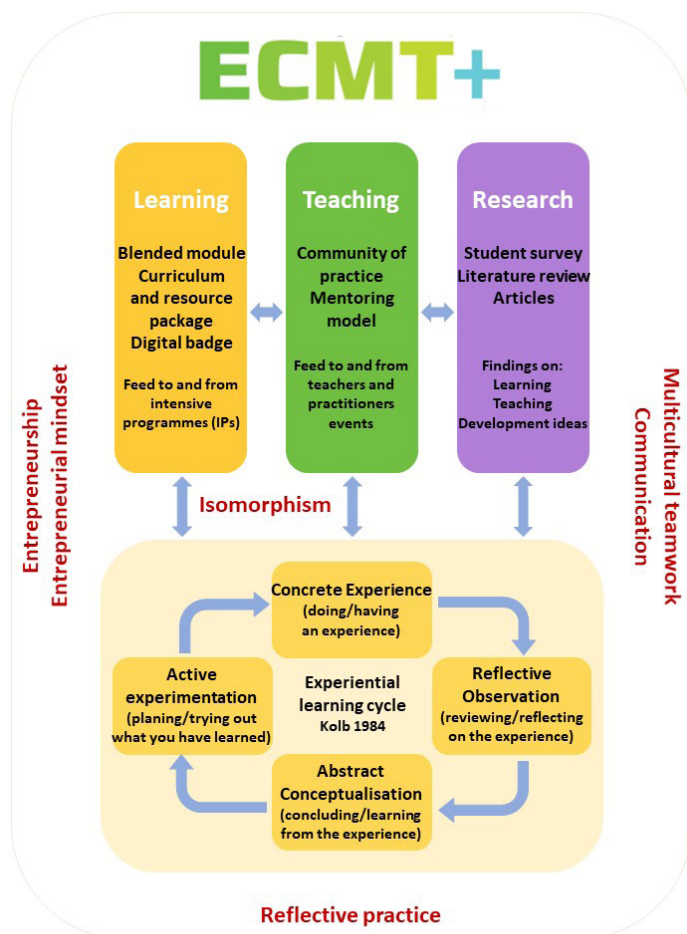
Both Karelia University of Applied Sciences and Poznan University of Technology were partners in the Erasmus+ Strategic Partnership project titled Entrepreneurship and Communication in Multicultural Teams (ECMT+) where seven European higher education institutions from Belgium, Czech, Finland, France, Germany, Poland, the United Kingdom, and the project leader Karelia

University of Applied Sciences from Finland, worked together for developing competences the students need in the future and ways to promote entrepreneurship education using the experiential learning approach (Badzińska, 2019; Bond et al., 2019). All the partners shared the same aims and development goals and were committed to gain the results.

Multidisciplinary and inclusiveness were embedded into the process as an integral part of the whole implementation. The project team was a bit more than twenty members (researchers, teaching staff, practitioners) and it was diverse itself, too. First, the professional backgrounds represented several different disciplines and different levels of degrees. Second, the age, sex, languages, cultural backgrounds, professions, skills, talents and personal features varied. Currently the working life requires transversal skills with a strong emphasis on emotional competence, creativity and team play skills (Timonen, 2018). Therefore, a lot of methods and tools supporting the development of student-oriented participatory teaching and sharing with peers were provided within the ECMT+ project (Badzińska & Timonen, 2019).

ECMT+ worked for building entrepreneurial university practices at partner universities with an emphasis on concrete entity of development objectives: (i) coherent curriculum development (joint e-course about entrepreneurship and intrapreneurship, learning materials); (ii) relevant teachers' competence development (multiplier events and materials for peer learning); and (iii) evidence based joint research practices discussing entrepreneurship, intrapreneurship, pedagogical practices, education aims and means, learning outcomes and results. The work was divided into three main areas: development of learning, development of teachers' expertise and reflective research each of which produced project outputs (figure 2). The practice-oriented methods and experiential learning activities were crucial for knowledge acquisition and business modelling to support students in solving real business problems by interacting in multicultural teams (Timonen, 2018). The aim was to explore possible ways to build international entrepreneurial pathways for the students that would enable them to grow international, too.

Figure 2. The pillars of the ECMT+ Community of Practice



Source: adapted from: Bond, Le Pontois, & Timonen (2019).

The development process included three circles of pilots and their reflections both in learning, teaching and research. The project pilots and their results were further elaborated for the next round and, in the end, the very final and shareable results have been modified. During the project lifetime,

there were three pilots on learning (intensive courses (IPs) with blended modules: Finland 2017, Germany 2018, France 2019) and three on teaching (teacher/expert training workshops: Poland 2017, Belgium 2018, Czech 2019). The project started in the United Kingdom in 2016. The whole process was supported with the thematic research, which was used for both developing the process and sharing the results (ECMT+ project plan). In addition to the students and teachers learning, the ECMT+ strengthened university-business collaboration. In intensive courses and teacher workshops, some businesses and other work life partners contributed to the implementation bringing their valuable expertise to the table.

Finally, as in any projects, one crucial element was sustainability. All the partners dealing with ECMT+ need to constantly and carefully consider how to ensure the best benefits and relevant use of the achieved results that are many. The key element is a real integration with the organizational strategies and the development of entrepreneurial university actions within that frame. The ECMT+ community in its turn worked for the strategic aims of concrete internationalization of entrepreneurship education, development of teachers' and students' competences as well as increase numbers of mobility – this all is an integral part of the international element of the entrepreneurial university framework.

The value resulting from the research allow to state that the effective cooperation and building of entrepreneurial university practices at ECMT+ partner universities are beneficial both for students, teachers and the HEIs. Among the measurable benefits for students the following achievements should be mentioned: (i) acquiring practical skills relevant for setting-up a business and professional development; (ii) developing transversal competences and sharing knowledge and skills with students from different countries; (iii) increasing future employment and career opportunities; (iv) as well as familiarize with different social, linguistic and cultural matters increasing the self-confidence. Based on the observations and reflections methods applied during the intensive entrepreneurship workshops (IPs) undoubted usefulness for teachers lies in: (i) creating spin-off effects like

curriculum development, development of joint courses and modules; (ii) experimenting and developing new learning practices and teaching methods and tools; (iii) sharing own knowledge and experiences with teachers from partner universities. Moreover, joint activities and goals in the area of learning, teaching and research have also brought measurable benefits to project partner organizations. It should be noted first of all: (i) expanding professional academic networks and research collaboration; (ii) increasing the quality and quantity of student and staff mobility; (iii) conclusion of inter-institutional agreements in the framework of Erasmus+ staff mobility for teaching and training as well as for exchange of students. Dissemination of achieved results and good practices is an important source of knowledge for other universities. This opens the way to other joint international projects for the development of an entrepreneurial university.

Conclusions, Limitations and Future Research

Almost all the higher education institutions around Europe and more widely, are looking for ways to build entrepreneurial pathways and create internationalization opportunities for the students and staff. Entrepreneurship, creativity and interpersonal communication are the key transversal skills that graduates need on the labour market. This requires future-oriented curricula, appropriate learning environments, competent teachers, possibilities to interact with professional life as well as expert support to solve real problems by interacting in diverse multicultural teams. This case study offers concrete examples from the practitioners that can be benefitted and applied as a source for further elaborations at any HEIs. The presented cases have helped to recognize the analysed phenomenon under real conditions and illustrate the progress in development of joint entrepreneurial pathways for HEI students and staff in an international context.

Undoubted usefulness of the OECD Entrepreneurial University framework (2012) lies in the possibility to assess the own strengths and weaknesses

in the current situation of the studied universities and plan potential improvement actions, considering local, national and international environments. Furthermore, it enables to trigger a discussion within and among the organizations what is needed to gain joint understanding from all the relevant partners. The conducted research may well serve as a starting point to examine the level of entrepreneurship in various areas of the university's activity and comply it with the developed statements to assess the current situation and then work on areas where improvement is considered a priority.

Internationalization has been one of the main streams of development for a long time growing into a significant arena of varied ambitious research and development projects and even global education services. At the same time, many of the HEIs today operate with more and more limited resources while the result expectations get higher and competition harder. In addition, universities are expected to benefit the regions in many different ways, by not only educating competent graduates but also actively promoting regional development and competitiveness. This study also offers one concrete example of an international joint venture that again can be applied by other HEIs.

The case study is limited, though. However, the rationale for conducting research on case studies is the need to orient stakeholders for a better understanding of modern entrepreneurial university approach. Even as a subjective and descriptive case study, the study offers an arena to explore one authentic example of a community of practice and entrepreneurial education platform promoting the systematic competence and skills development. Moreover, the literature review reveals a tendency to use case studies to explore and build understanding on the phenomenon of the entrepreneurial university (Clark, 1998, 2004; Sporn, 2001; Gibb et al., 2009; Kirby et. al, 2011; Urbano & Guerrero, 2013; Arnaut & Dogić, 2018; Timonen et al., 2019). However, there is a lack of one universally recognized method and indicators for measuring this phenomenon objectively, a very large number of variables depending on the economic, social, governmental and business environment as well as many qualitative factors. Thus, the measurement methods and outcomes

may have many limitations and ambiguities. For these reasons, decision makers must be very careful when making recommendations and creating policies towards an Entrepreneurial University (Badzińska, 2020). This is the main limitation of this study, too, and therefore it is descriptive in its nature.

The more challenging and constantly changing operational environment drives the higher education institutions really to consider how they can achieve the results, meet with the future working life and rapidly changing society needs. This consideration recalls strategic, profound and open operational environment supporting quality and relevance of higher education really meeting with the needs and looking for the future. Therefore, among other areas, developing entrepreneurial university practices and pathways are seen as significant contribution supporting the strategic development of education and research bridging universities with their regions and businesses in a meaningful way. Therefore, concrete but systematic and thorough development actions as presented in this study, are crucially needed in the higher education. To obtain a deeper insight into the research problem the future investigation will focus on the identification of critical factors related with the transformation process to an entrepreneurial university using multiple case studies. Furthermore, more emphasis should be put on development of digital collaboration and tools that are less risky and more resource wise. We suggest the future studies to explore this area more in detail.

Acknowledgment

We would like to express our gratitude to all ECMT+ Project Partners, Students, and Entrepreneurs who participated in the Intensive Programmes 2017-2019 and provided valuable feedback on the international Strategic Partnership Project.



Funding

The article processing charges were funded by the Faculty of Engineering Management from Poznan University of Technology, grant number 0812/SBAD/0616.

References

Acs, J. Z., & Audretsch, D. B. (Eds.) (2010). *Handbook of Entrepreneurship Research. An Interdisciplinary Survey and Introduction*. New York: Springer-Verlag.

Arnaut, D., & Dogić, R. (2018). The Inevitability of University Entrepreneurial Path. In V. Babić (Ed.), *Contemporary Issues in Economics Business and Management* (pp. 69–80). Kragujevac: Faculty of Economics University of Kragujevac.

Bacigalupo, M., Kampylis, P., Punie, Y., & Van den Brande, G. (2016). *EntreComp: The Entrepreneurship Competence Framework*. Luxembourg: Publication Office of the European Union. EUR 27939 EN.

Badzińska, E. (2017). Empirical Study on Intercultural Collaboration in Project Teams: Preliminary Research Findings. *Journal of Intercultural Management*, 9(3), 29–44.

Badzińska, E. (2019). Knowledge acquisition and business modelling using experiential learning approach to entrepreneurship. *European Journal of Social Sciences Education and Research*, 6(2), 48–56.

Badzińska, E. (2020). The Entrepreneurial University: Conceptualisation, Models and Challenges for Operationalisation of the Concept. In *Contemporary organisation and management. Challenges and trends*. University of Lodz (in process after reviews).

Badzińska, E., & Timonen, L. (2019). Entrepreneurial Mindset and Multicultural Communication Skills: a Reflection on the ECMT+ Intensive Programme. *Zeszyty Naukowe Politechniki Poznańskiej, seria Organizacja i Zarządzanie*, 79, 5–19.

Bond, G., Le Pontois, S., & Timonen, L. (2019). *ECMT+ Entrepreneurship and Communication in Multicultural Teams: Learning Pathways for Students and Staff*. Publications of Karelia University of Applied Sciences C: Reports, 63.

Clark, B. R. (1998). *Creating Entrepreneurial Universities. Organisational pathways of transformation.* Pergamon IAU Press.

Clark, B. R. (2004). *Sustaining Change in Universities. Society for Research into Higher Education.* Open University Press.

Cohen, L., Manion, L., & Morrison, K. (2008). *Research methods in education* (6th ed.). New York: Routledge.

Etzkowitz, H. (1983). Entrepreneurial Scientists and Entrepreneurial Universities in American Academic Science. *Minerva*, 21(2-3), 198–233.

Etzkowitz, H. (2003). Research groups as 'quasi firms': the invention of the entrepreneurial university. *Research Policy*, 32, 109–21.

Fayolle, A., & Gailly, B. (2008). From craft to science: Teaching Models and Learning Processes in Entrepreneurship Education. *Journal of European Industrial Training*, 32(7), 569–593.

Fayolle, A., & Gailly, B. (2015). The Impact of Entrepreneurship Education on Entrepreneurial Attitudes and Intention: Hysteresis and Persistence. *Journal of Small Business Management*, 53, 75–93.

Gibb, A., Haskins, G., & Robertson, I. (2009). *Leading the Entrepreneurial University. Meeting the entrepreneurial development needs of higher education institutions.* Birmingham: NCGE.

Glinka, B. (2018). Immigrant Entrepreneurship as a Field of Research. *Management Issues – Problemy Zarządzania*, 16, 1(73) Part 2, 25–39.

Guerrero, M., & Urbano, D. (2011). *The Creation and Development of Entrepreneurial Universities in Spain: An Institutional Approach*. New York: Nova Publishers.

Guzmán, J., & Liñán, F. (2005). *Perspectives on Entrepreneurial Education: A US Europe Comparison*. Madrid: Universidad Antonio de Nebrija.

Kirby, D. A. (2002). *Creating Entrepreneurial Universities: A Consideration*. Working Paper, School of Management, University of Surrey.

Kirby, D., Guerrero, M., & Urbano, D. (2011). Making Universities More Entrepreneurial: Development of a Model. *Canadian Journal of Administrative Sciences*, 28, 302–316.

Kolb, D. A. (1984). *Experiential Learning: Experience as the Source of Learning and Development*. Englewood Cliffs: NJ: Prentice Hall.

Lackéus, M. (2015). *Entrepreneurship in Education. What, why, when and how*. Entrepreneurship360 Background Paper. OECD.

OECD (2012). A Guiding Framework for Entrepreneurial Universities. Retrieved December 14, 2018, from <http://www.oecd.org/site/cfecpr/EC-OECD%20Entrepreneurial%20Universities%20Framework.pdf>.

Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3rd ed.). Thousand Oaks: Sage Publications.

Rachwał, T., Kurek, S., & Boguś, M. (2016). Entrepreneurship Education at Secondary Level in Transition Economies: A Case of Poland. *Entrepreneurial Business and Economics Review*, 4(1), 61–81.

Raposo, M., & Paço, A. (2011). Entrepreneurship Education: Relationship between Education and Entrepreneurial Activity. *Psicothema*, 23(3), 453–457.

Reimer, M. (2018). *Women and Careers Transnational Studies in Public Policy and Employment Equity* (1st ed.). Routledge.

Sporn, B. (2001). Building Adaptive Universities: Emerging Organisational Forms Based on Experiences of European and US Universities. *Tertiary Education and Management*, 7(2), 121–134.

Sułkowski, Ł., & Marjański, A. (2014). Metodyka badań jakościowych w małych podmiotach rodzinnych. *Problemy Zarządzania*, 12, 3(47), 222–235.

Sułkowski, Ł., & Marjański, A. (eds.) (2017). Przedsiębiorczość w dobie wyzwań rozwojowych. *Przedsiębiorczość i Zarządzanie*, XVIII, 12(1), SAN.

Timonen, L. (2018). *Developing transversal competences and skills – case ECMT+*. HAMK publications.

Timonen, L., Badzińska, E., & Immonen, H. (2019, March 7–8). *How to build entrepreneurial pathways for students? – reflections on development cases from Karelia University of Applied Sciences, Finland, and Poznan University of Technology, Poland* [Conference presentation]. The 1st International Conference CREE2019 Entrepreneurship Education, IUT Roanne, France.

Timonen, L., & Turunen, E. (2018). Reflections on Equity in the Finnish Working Life: A Case Study on Master's Students as Diversity and Inclusion Promoters. In M. Reimer (Ed.), *Women and Careers. Transnational Studies in Public Policy and Employment Equity* (Chapter 6). New York: Routledge.

Urbano, D., & Guerrero, M. (2013). Entrepreneurial universities: Socio-economic impacts of academic entrepreneurship in a European region. *Economic Development Quarterly*, 27 (1), 40–55.

Wach, K. (2008). Entrepreneurship Education in Poland. *ERENET Profile*, III, 3(11), 36–44.

Wach, K. (2014). Europeanisation of Entrepreneurship Education in Europe – Looking Back and Looking Forward. *Horyzonty Wychowania*, 13(26), 11–31.