

Competencies in the education of potential entrepreneurs. Research among students of technical faculties

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Abstract. The aim of the article is to present the basic competencies of entrepreneurs in the contemporary market economy and to compare them with the knowledge, skills and attitudes of potential entrepreneurs, i.e. students of technical universities. The research tool used was an original questionnaire. The obtained results were subjected to statistical analysis. The declared intention to run one's own business was compared to the declared ability to write a business plan. The results of the research presented in the article were compared with the author's previous study into shaping entrepreneurial attitudes among students. It should be noted that, in engineering faculties, competence in entrepreneurship, management and economics is sometimes considered unnecessary. It seems, however, that the relevant knowledge gained in high school is insufficient. Young people should have a sound understanding of the principles governing the market economy and the mechanisms at work in the labour market. They should have basic legal knowledge, be able to manage and motivate people as well as plan their own business. The results of the presented research make it possible to identify the competence gap and, potentially, create entrepreneurship education programmes for technical universities.

1 Introduction

Entrepreneurial skills among students are becoming an increasingly important field of theoretical and practical research. [1-2]. Among others, the trend is visible in the idea of an entrepreneurial university [3]. Researchers are drawn to the subject not least because of the existing link between entrepreneurial competence and the growth of the national economy. Indeed, entrepreneurship has to do with identifying and implementing new development ideas bringing about a change in social status through the actions of active individuals, societies and whole nations [4]. Entrepreneurship is also understood as the ability to cope with different everyday challenges as well as the desire and capacity to undertake new ventures. The literature offers many, complementary definitions of entrepreneurship. It can be defined as a course of action whose aim is to initiate economic activity and develop a business [5]. In this article, entrepreneurship has been linked to an entrepreneurial attitude as

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expressed by the propensity to start and manage a company. It has been assumed that the attitude hinges upon the competencies obtained by students – potential entrepreneurs.

Due to their complex nature, it is difficult to provide a clear definition of such competencies. Again, the literature offers many options. According to M. Armstrong, competency is the ability to use and apply knowledge in the professional context or a set of skills making it possible to work effectively, achieve objectives and adhere to relevant standards [6]. Whilst it is true that most competencies may be obtained through personal development, there are certain psychologically determined skills which, in order to reach a high level, must be grounded in specific innate personality traits.

There are many accounts of entrepreneurial competencies in the literature, all having to do with the attitudes and skills expected of an entrepreneurial person.

The theoretical and empirical aspects of entrepreneurial competencies among students and the possibilities of their development in the process of education presented in this article continue the author's research into different areas of student entrepreneurship.

The findings presented herein are the result of a research project focused on business knowledge among students of technical specialties carried out at the Poznań University of Technology, Faculty of Engineering Management. This particular group was selected because it is precisely the graduates of technical schools that are able to find innovative solutions, develop modern technologies and launch start-ups. Investigating their competencies and entrepreneurial attitudes dovetails with the classical view represented by P. Drucker whereby entrepreneurship is seen as a specific approach to management which involves “adopting innovations that constitute the basis of future business” while “making the best possible use of the available resources” [7].

2 Educating potential entrepreneurs – selected theoretical aspects

2.1 Entrepreneurship education in Poland – general observations

Entrepreneurial education represents one of the vital challenges of both contemporary educational systems and socio-economic development [1]. In the Polish educational system, entrepreneurship is taught as a separate subject in secondary schools. In addition, higher education institutions also offer different courses on how to run a business. Nonetheless, teaching entrepreneurship in technical faculties comes across many obstacles. On the one hand, students in non-economic specialties lack fundamental knowledge about operating in the economic environment and managing a company. On the other, teachers who develop curricula for different programmes often do not understand the importance of economic and managerial knowledge [8].

Notably, research into student entrepreneurship has demonstrated that it could have an impact on future careers so that they do not involve “useless apprenticeships” following graduation [9].

The most recent Global Entrepreneurship Monitor Report for Poland records a major improvement in entrepreneurship education at the level of higher education and lifelong learning. Unfortunately, teaching entrepreneurship in primary and secondary schools scored very low. What experts found deficient was the way in which students are taught about the workings of the economy and made aware of entrepreneurship in its different forms. Moreover, schools do not encourage creativity, independence and acting on one's own initiative. The assessment of Polish experts ranked lowest among the European countries included in the study. It should be observed, however, that this area was also assessed as poor in other countries such as Germany and Italy [10]. Also, the quality of education in primary

and secondary schools failed to improve in spite of the fact that teachers have access to many interesting initiatives focused on teaching entrepreneurial skills such as different competitions and computer programmes (e.g. simulating the process of writing business plans for small companies).

The poor level of education may have a negative impact on entrepreneurial attitudes and competencies among young people and even discourage them from setting up their own business. This is because “instilling entrepreneurial attitudes from a very early age should be treated as an indispensable component in the process of educating citizens who will be able to function in a knowledge-based economy” [11].

2.2 Importance of entrepreneurial competencies in the education process

Competencies comprise specific knowledge, skills and behaviours with a bearing upon career development. It is commonly acknowledged that there is a correlation between the level of competence and the performance of managers and employees. People with a high level of competence have an advantage on the labour market. When they become entrepreneurs, they create jobs for others.

Strong and relevant competencies help to find employees and business partners who are high-class specialists. Equipped with relevant knowledge and skills, an entrepreneur can choose the right training options for his team to improve their professional qualifications. Improving staff competencies to meet company needs contributes to better productivity [12].

Companies that have been set up and managed by entrepreneurs with high entrepreneurial skills may establish a permanent competitive advantage. They can achieve this by having more knowledge (mainly technological, marketing and strategic) and being able to apply it. [13].

The literature contains many definitions of entrepreneurial competencies. Entrepreneurial competencies may be defined as the ability to achieve objectives by taking innovative steps, especially when it comes to identifying, predicting and taking advantage of business opportunities [14].

According to B. Bird, entrepreneurial competencies may be defined at three levels: as motives and traits; as social roles and self-images; and as knowledge and skills [15]. This conception is based on combining knowledge, skills and ethical attitudes that are neglected in some accounts of entrepreneurial competencies. Today, however, corporate social responsibility has become a recurrent topic in the context of entrepreneurship. Hence, new trends in entrepreneurial education are more and more often focused on the social approach where students are given the opportunity to obtain knowledge and skills from the domain of social economy treated as a medium of social content and competencies [16].

Developing entrepreneurial competencies among students is one of the main objectives of contemporary economic education. As has been mentioned earlier, entrepreneurial education should not be addressed only to students of business-oriented schools. Regardless of their course of study, students should have an option to obtain formal entrepreneurial competencies, i.e. innovativeness, creativity, social communication, team cooperation and problem solving [17].

Entrepreneurship courses delivered both in secondary schools and higher education institutions should teach fundamentals of management and entrepreneurship, analysis of the macro- and microeconomic environment, the importance of innovation for competitiveness as well as the practicalities of starting and funding a business. They should also teach the skills that are necessary to develop the idea of a business venture (write a business plan).

3. Competencies in the education of potential entrepreneurs – empirical research findings

3.1 Survey description

The study was carried out in June 2018 and involved 267 Poznan University undergraduate students of the following BSc specialties: Mechanical Engineering, Logistic, Biomedical Engineering, Material Engineering, Mechatronics and Informatics. The large majority (as much as 94.4%) of respondents were first-year students. Furthermore, 21% of the respondents declared being employed, one respondent declaring self-employment.

The study relied on quantitative methods, and specifically the auditorium survey, with the use of an original questionnaire. The obtained results were analyzed by percentage. Research questions focused primarily on the declared level of knowledge about different business areas as broadly defined. This article discusses selected results of the survey related to entrepreneurial competencies.

3.2 Respondent declarations of intent to start and run own business

Attitudes towards entrepreneurship correlated closely with the respondents' intention to set up a business. The results are shown in Table 1.

Table 1. Responses to the question: "Are you interested in running your own business?"

Answers:	Percentage of responses (%)
Yes	44
No	14
I haven't thought about it	39
I don't know what business activity means	0.4
I don't understand the question	2
No answer	0.8

Source: Own research

The table shows that a relatively large group of respondents (44%) is interested in running their own business. In the study carried out in 2016, the share of students planning to start a business stood at 32% with 7% already pursuing economic activity. Importantly, the previous study sample comprised students of economics programmes as well as those of technical programmes leading to engineering degrees. First-year students accounted for only 31% of the respondents [18].

By way of comparison, in the study carried out in 2017 only 1 Pole in 10 declared his or her intention to set up a business in the following three years. It is estimated that this low score may reflect the upward trend on the labour market that has been visible over the past several years (low unemployment rate). The great majority (89%) of the people employed as hired workers are satisfied with their current employment. On the other hand, most (51%) of the young people who enter the labour market would like to work for someone in the future. Only 13% plan to set up their own business. However, 69% of adults living in Poland notice business opportunities in their environment. In addition, as much as 79% believe that running a business is a good career option. This is the second best result in Europe were, on average, 59% of citizens are of the same opinion [10].

3.3 Self-assessment of entrepreneurial competencies by students

As observed above, entrepreneurship courses are delivered in secondary schools and focus on teaching skills that are necessary to develop an idea of a business venture. In order to identify entrepreneurial competencies, the author looked at the students’ declared ability to draft individual elements of a business plan.

Table 2. Responses to the question: How much are you able to draft elements of a business plan?

Business Plan Elements	Responses by percentage (%)					
	I cannot do it	I cannot do it, but I know where to seek assistance	I cannot do it, but I will learn myself	I have a general idea	I can write it myself	No answer
Description of an undertaking (mission, vision)	□9.4	□7.9	□18.4	□50.6	11.6□	2.2
Strategic analysis (e.g. SWOT)	12.6□	□16.9	□24.3	□27.3	15.4□	3.4
Market analysis (research)	□12.0	□30.3	□29.2	□21.7	□3.4	3.4
Marketing plan	□12.7	28.5□	□27.0	□24.3	□4.5	3.0
Technical and/or production plan	□13.9	23.6□	□27.0	25.8□	□6.4	3.4
Organisation and management plan	□10.1	24.0□	30.0□	26.2□	□7.5	2.2
Financial plan	13.5□	34.5□	27.7□	□18.7	□3.4	2.2

Source: own research

Table 2 shows that the level of entrepreneurial competencies declared by students describing their ability to plan a business venture is not very high.

Respondents were most confident about their ability to write a description of a business venture and carry out a strategic analysis and least confident about preparing a financial plan. This makes for a certain discrepancy between the declared proactive entrepreneurial attitude and poor entrepreneurial competencies. The aim of entrepreneurship education at higher education institutions should therefore be to improve the poor level of business competencies and business knowledge obtained during secondary education. Insufficient entrepreneurial competencies should not present an obstacle to student entrepreneurship.

It should also be mentioned that the author of the survey question expected that respondents would consider the financial plan to be the most difficult section of the business plan as it requires knowledge about writing financial statements and the potential sources of funding for the company. As was demonstrated by a previous study conducted among students, knowledge about these aspects is rather poor [19].

At the same time, young people are willing to obtain the necessary knowledge and skills on their own which is testament to a very positive and proactive attitude of the respondents.

It is important to bear in mind, however, that respondents involved in the study assessed their knowledge and skills subjectively. Their actual competences would be truly tested if they participated in an educational project during which they would have to write a business plan or if they tried to write such a plan under real-life circumstances (in a genuine business environment).

4 Conclusions

Broadly defined entrepreneurship education (involving courses in business, economy, finance and legal matters) may contribute to increasing the pace of economic development as young and educated people set up and manage businesses in innovative branches of the economy. The development of entrepreneurial competencies is important for launching start-ups, i.e. business ventures based on modern technologies which are addressed mainly at young, talented and enthusiastic students and graduates of technical schools who want to use their skills creatively.

It would be worthwhile for entrepreneurship courses to include examples of both successful women and men who established their ventures and the different ways in which success in business can be achieved. Additionally, students should learn how successful business people can handle the disadvantages of being self-employed. [20].

As future entrepreneurs, students should have an opportunity to develop and perfect their competencies during classes, participate in different training sessions and take vocational training. One way to obtain such competences is to complete a post-graduate program of studies [21].

Entrepreneurship courses should involve hands-on exercises in creativity, looking for opportunities etc. This has to do with the need to use active teaching methods giving students room for experimentation as well as allowing them to experience failure and find their own way to success. [8].

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