



Research Article

How Entrepreneurial are Doctoral Students? Some Evidence from Romania

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Abstract

Besides the increasing role of entrepreneurship in shaping economies and empowering people, the question of fostering entrepreneurship among highly qualified individuals still remains open topic. It has particular relevance both for improving university curricula and for designing educational and economic public policies. As it was previously demonstrated in literature, endogenous factors play an important role in shaping (entrepreneurial) individual attitudes. Several empirical researches proved that entrepreneurial education contribute to increasing students' interest for entrepreneurship and to enhancing competencies required or at least useful in a potential entrepreneurial career. Addressing this topic, the present article relies on a survey-based research developed and conducted among doctoral students in different science fields from three public universities in Romania. We have investigated issues such as entrepreneurship as a career option, interest, intentions and realism of the option of entering entrepreneurship, personal determinants related to entrepreneurial approaches. The paper presents in its first part a review of the relevant literature. The second part presents the methodology and the results, and the last part concludes and draws main implications for universities as to improve the curriculum and its efficacy in the case of doctoral study programs.

Keywords: Doctoral students' entrepreneurial intention, doctoral programs, Higher Education Institutions.

Introduction

Information on entrepreneurship are consistent, varied, but rather unsystematic and contradictory in nature, whether it is about the entrepreneurial spirit, motivations, influences and specificities determined by gender, economic environment, education or personality, supporting measures, or relation with innovation or SMEs sector expansion.

If we refer, however, to understanding the link between entrepreneurship and doctoral options (i.e. the highest level of excellence in academic education) we notice that the researches are much less numerous, and the divergences are not (yet) manifested.

Obviously, doctoral graduates are given with exceptional scientific expertise in their field of study, but there is little analysis on the set of personal and business skills that could be looking for labor market (as future employees) or even self-employment (by setting up new businesses). When asked "to what extent doctoral experience prepares the graduates for one of the two facets of self-employment (small business owners or entrepreneurs)?" we are less able to respond based on available research or statistics.

Our paper, based on research conducted on the sample of doctoral students or recent graduates, aims to fill this gap and to contribute to clarifying the following issue: whether scientific thoroughness closes the doctoral students to self-employment and even prepares them for entrepreneurial challenges? Of course, we are not able to respond if universities (doctoral programs) are prepared for entrepreneurial option. We try to answer the question whether young graduates (and policy makers) are still excessively focused on the final product "thesis itself" or interest starts to move towards the intrinsic value of qualified researcher, holder of a single set of high-level skills.

Literature Review and Recent Developments

Growing challenges of the "knowledge economy" and the importance of innovation and strategic management skills acquired through study make the research of doctoral graduates and post-doctoral become extremely important, and the formation of people able to combine scientific research with entrepreneurial skills could be essential. According to Smith et al., Higher Education Institutions (HEI) should be "more pro-active in providing postgraduates with the opportunity to develop the core competencies they need to succeed in a competitive job market" (Smith, et al., 2010). From this point of view, it is essential that teachers, all those involved in career guidance and entrepreneurship education to be well trained, with practical and theoretical skills

to effectively manage continuous training in graduates processes (CEDEFOP (European Centre for the Development of Vocational Training), 2005).

From the beginning, it should be noted that the link between the accumulation of knowledge, possibility to research in a favorable environment and entrepreneurship can have two distinct lines of analysis. On one side, we talk about involving PhD students and teachers in entrepreneurship under academic "umbrella", although some more conservative views called it a "forced entrepreneurship" as the only way to continue their scientific work (Walsh, et al., 2010). On the other hand, it is about the separation, more or less visible, of doctoral students or graduates by academic environment, organizing and commercialization the research results through their own business. In most cases, even there is an outstanding scientific potential and a specific enthusiasm, it is difficult to accept that a researcher, a graduate student or a recent PhD would establish and operate a profitable business with the same efficiency that he or she performs in research itself. A *via media* to the above mentioned and a real help aligning highly qualified researchers with innovative potential to the business requirements is to increase the number of spin-out companies. "These spin-outs, as demonstrated [...], frequently provide a vehicle for those with doctoral qualifications to pursue an entrepreneurial career path" (Hooley, et al., 2001) or (Boh, et al., 2012)

However, these two entrepreneurial ways mean that the implicit purpose of research exploiting and academic standards are neither fundamentally opposed, nor congruent, and the concept of academic capitalism is associated with a change in academic identity (Slaughter & Leslie., 1997), even though some authors consider that this may be equivalent to a limitation of latitude in scientific research and even of academic freedom itself (Altbach, 2001) or (Henkel, 2005).

According to recent studies, about 10% of doctoral graduates in Europe choose to develop their own business (Auriol, 2010), and this percentage seems to be higher than the proportion of first degree graduates who work as self-employed (Mora & Vila, 2009) or (Thrift, 2008). In the European Union in 2010 there has been granted some 100,000 titles of doctor, most of them (70%) in countries like Germany (26,000), United Kingdom (19,000), France and Italy (from 12 to 13,000 each) (Eurostat, 2010). Obviously, a significant share of doctoral graduates in these countries comes from developing countries, attracted by high-performing education systems and future employment opportunities in these countries.

In the same year (2010), according to the Global Entrepreneurship Monitor for Romania, about 4.80% of Romanian entrepreneurs has postgraduate studies (Matis, et al., 2010) and official data shows that interest in doctoral studies in Romania is relatively high: in the last five years there were about 17,000 graduates, and figures provided by the Romanian Ministry of Education estimated around 3,500 position for admission at doctoral studies per year (The Ministry of Education, Research, Youth and Sports (Romania), 2011).

Empirical research has revealed a variety of situations and attitudes on entrepreneurship in HEI's doctoral communities. Thus, in a survey on economists students from five European countries (Germany, Romania, Latvia, Italy and Austria), researchers have found remarkable differences both in attitudes towards entrepreneurship, both in entrepreneurship as future alternative career. Thus, the lower interest for entrepreneurship was associated by relative blurred and less attractive image of entrepreneurs in some countries, which demotivated young students to choose entrepreneurship in future career preferences. On the other hand, the high valuation of entrepreneurship and its prospects in the economy and society, the high ethical standards associated to entrepreneurs seem to be the most

appropriate explanation for why and how, in other countries, many students were tempted to consider their future as entrepreneurs. Of course, the study excessive emphasized on entrepreneur's image (as it is constructed in the students' minds) and less on the existence (and effect) of educational and informative programs on entrepreneurial realities (Volkman & Tokarski, 2009).

Trying to determine what are the real perceptions of students (from Catalonia, Spain and Puerto Rico, U.S.) on entrepreneur in society and, especially, how serious is their intention to involving in entrepreneurial venture, to consider it as a reasonable alternative in future career, Veciana et al (2005) reached very interesting conclusions:

- Students, in a large majority (between 74 and 92%), have a positive perception on new venture desirability. Although the desirability has increased considerably in recent decades, between 53 and 66% of the opinions consider that is much more difficult to manage a firm at present than in the past decades;
- The possibility of setting up and developing a business as a career counts from moderate (vague) appreciation to relatively strong, but only a small percentage of students expressed their willingness to do so;
- In Catalonia, it seems that male students are more determined to create new ventures, and here the authors found a strong correlation between the existence of an entrepreneur in family and the intention to create a new firm. Also, they found there is a positive image of entrepreneur among students, significantly improved compared to the situation two decades ago.

Another survey, carried out on PhD groups of students and their teachers in China and the United Kingdom, showed a wide acceptance of the relationship between entrepreneurship and the aim of doctoral

studies, both within and between groups, an awareness of the importance of entrepreneurship. This study confirms above mentioned research that the doctoral students from Asia, Central and Eastern Europe value more the entrepreneur in society, as well as a career option. At the same time, this research shows serious concerns on the conflict between two social roles, as a researcher and an as entrepreneur (Walsh, et al., 2010).

Deploing low entrepreneurial engagement in South Africa, Fatoki (2010) shows that employment motivators of entrepreneurial intention (autonomy, creativity, macro-economy and capital) are less consolidated and they are marked by various obstacles. A possibility to reduce the effect of these barriers on entrepreneurial intention is that entrepreneurship education (through creativity, innovation, risk-taking and ability to interpret successful entrepreneurial role models and identification of opportunities) to be accessible to all students and post graduates, in order to prepare them for business practices. The author considers there is an obvious inadequacy between competencies and skills developed by graduates (and doctoral students) in HEI and what they really need to survive in the business world. The author recommends to students living authentic experience (at least 1 year) in active companies from real economy, to get a valuable basis in terms of business and technical experience, and to HEI to introduce and reinforce entrepreneurship education, as the share of graduates and PhD involved in successful in entrepreneurial activities become substantial. "When learners are oriented into entrepreneurship from an early age, it becomes easier to develop successful ventures" (Fatoki, 2010, p. 93).

Finally, a recent research on entrepreneurial attitude among PhD students from Germany found that a large majority of doctoral students are interested in starting their own business, and even already found a business (in a higher proportion than students at the bachelor or master levels). In terms of gender, "female

doctoral students have approximately the same interest to start business than male doctoral students, but, the share of male doctoral students having a business is higher than for female doctoral students". While for launching a business "females expect an advisor, males expect role models" (Titgemeyer & Holtkamp, 2011).

Aim, Methodology and Sample

As a part of a larger project investigating some relevant issues on the subject of entrepreneurial attitudes, orientation and potential of doctoral students, in order to formulate policies and measures to support and foster entrepreneurship among students, we have conducted a survey in January 2012 and developed a sample-based study by emphasizing Romanian doctoral students' attitudes and facts concerning issues such as: entrepreneurial background, factors and motivations driving the entrepreneurial career alternative, gender particularities.

The (online) questionnaire was applied during 9 to 18 January 2012 to all 110 doctoral students and recently graduated doctors who have been financially supported by several European Union funded projects on Human Resources Development (POS DRU), coordinated by the University of Oradea (Romania). The number of PhD students responding to the questionnaire was 88, with the following distribution by study area: Engineering Sciences 25, Philology 20, Geography 17, Economics 8, Biology 6, Medicine 5, History 5, and Sociology 1. All the respondents were doctoral students at one of the following Romanian state universities: University of Oradea - 77 doctoral students (88%), Aurel Vlaicu University in Arad - 6 doctoral students (7%), Petru Maior University of Targu Mures - 5 doctoral students (6%). The occupational status at that time was: full-time doctoral students - 23 persons (26%); employed in education and research sector - 42 persons (48%); employed in public sector (other than education and research) - 8 persons (9%); employed in private sector - 5 (6 %); entrepreneurs - 3 (3%); other 7 (8%). By

gender, 51% of the respondents were female and 49% male.

In this paper, we intend to analyze the following issues:

- Doctoral studies and future career intentions;
- Entrepreneurial and business start-up intentions of doctoral students, including effective steps undertaken, if any;
- Relation between the field of the doctorate and the field of business start-up;
- The importance and role of the doctoral studies for a future entrepreneurial career.

Results and Discussion

Given the fact that the majority of the respondents, i.e. 74%, are, as occupational status, either full-time doctoral students or they are already employed in education and research sector as scholars or researchers, it is not at all surprising that the intentions of doctoral students go as to continue this career in education or to apply for a job in academic field in the near future (78%). The rest of the respondents prefer to work, after they will have completed studies, in the public or private sector, as employees (6%, respectively 8%), and only 5% intend to set-up and run their own business. Compared to their current occupational status, we note that their future employment intentions reveal a shift towards entrepreneurial activities, but the variation and the final share appear to be insignificant (from 3% to 5%). Of course, a doctoral diploma is an absolute condition and necessity for academic staff and (perhaps) an opportunity for public sector or large private companies' employees, but with weak relevance in entrepreneurial firms if the ventures are not directly related to high scientific research.

Respondents were asked to rank their agreement with the following statement:

“doctoral stage improves my employability and wages in the field of ...”. Results calculated as weighted average of the responses indicate that the highest score (strongest agreement) was registered, as expected, for the field of education and research sector (3.41 score), followed by public sector (3.02), entrepreneurship (2.55) and employment in private companies (2.52). Academic and research option positioning is as expected (given the absolute legal requirement of a doctoral diploma as to be hired in the sector) but the gap to the next option (i.e. public sector) seems quite low.

Almost two thirds of the respondents (55 people, representing 63%) state they are interested in starting their own business, and 33 of them (37%) admit they are not interested. Moreover, the relatively high interest shown in starting their own business is confirmed by the actual situation, i.e. about one third of all respondents declare they have already started a business of their own, and a considerable number of these businesses (18 out of 26) still work.

The question is whether this interest is real or merely declaratory. In this respect our intention was to ask respondents to further detail and explain their entrepreneurial options (in terms of agreement / disagreement), by offering them five pre-defined options concerning the effective steps already undertaken: developing of an existing family business; taking over an existing business; entering into a franchise; investing in an established business; and, finally, starting their own business. For each of these options, doctoral students were asked to express agreement / disagreement, on a four-level Likert scale. Besides these, respondents could choose not to answer the question.

The analysis (see Figure 1) led to quite surprising and somewhat disappointing results. First, all five entrepreneurial choices recorded a large number of non-responses (between 28% and 40%). Moreover, if we consider only those effective responses to the question (i.e.

excluding non-responses), we notice that most of them pointed out their partial or total disagreement (between 17 and 53%).

The cumulative percentage of those who were not interested in answering to the questions about the entrepreneurial steps, and those who had a substantial or relative disinterest to these five options is estimated between 35 and 81%, depending on the specific option considered. Thus, it becomes questionable how sincere were the respondents when claiming the entrepreneurial option in the previous (general) question (Figure 1)?

Moreover, if we analyze the "positive" options ("agreement") we notice that the lack of interest for the first three choices

(i.e. developing of existing business family, taking over an existing business or entering into a franchise) could be countervailed by the interest for classical entrepreneurship (starting a new business), but neither this choice has not reported significant agreement, i.e. only 25 "strongly agree" responses (40%). Doctoral students just want the harder and riskier way, establishing a start-up!

As a partial conclusion, we can state that, either doctoral students remain "captive" in theoretical sphere and do not really understand actual entrepreneurship, either their agreement is formal and declarative – facing a tougher choice, they prefer not to answer and dismiss the proposed alternative.

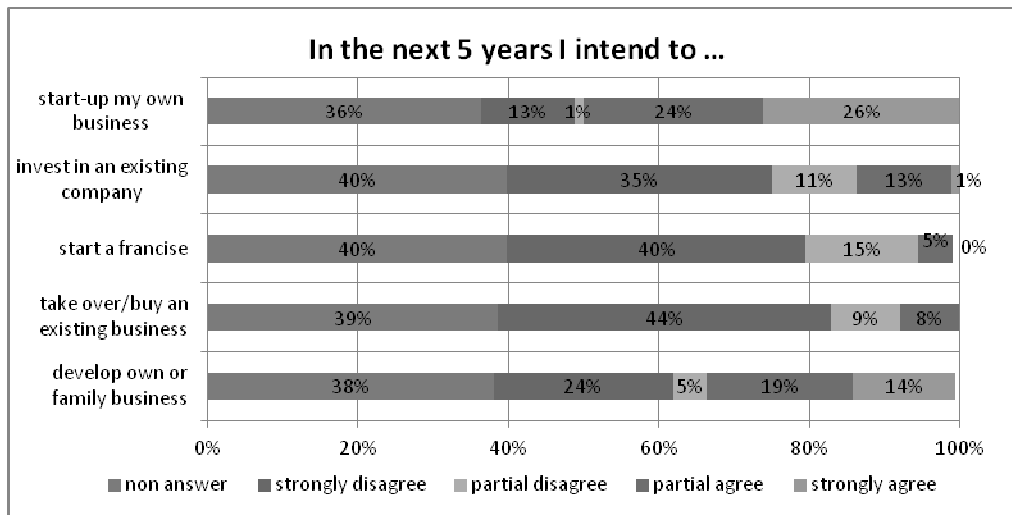


Fig 1. Types of Entrepreneurial / Business Related Intentions

Source: Own calculations, based on the dataset

As we noted in the previous options, doctoral students are interested, in a high percentage, in entrepreneurship, as an alternative career. When asked if, being interested, they have taken any steps in this direction, up-to date, 39 of them answered yes (i.e. 44%), 36 of them have done nothing yet (i.e. 41%) and 13 of them (i.e. 15%) are clearly uninterested about entrepreneurial perspective.

The figures are, at first look, consistent with previous results and make clear about two groups, two attitudes related to entrepreneurship: first group: those

doctoral students exclusively interested in an academic/research career or in public sector, considering the profile or entrepreneurial features not suitable in those areas, respectively the second group, those interested in an entrepreneurial career. However, it remains an important part of students who are apparently interested in entrepreneurship but they have not made any step in this regard.

Which are those pre-entrepreneurial steps? Figure 2 is trying to capture them, briefly, in a logical sequence: finding a business idea, writing a business plan, gathering

information for business start-up, identification of funding sources, possessing an existing prototype or similar.

As it can be noticed, the “trend line” of positive responses is, obviously, decreasing and explainable: 42% have a business idea; about half of them (22%) have already written a business plan, and an equal share gathered information about starting a business; about 29% have identified funding sources, but only 3% of them have prepared a prototype or a core structure for the future business.

Similarly, those self-declared interested but undertaking no particular specific action cumulate about a quarter of responses (between 22 and 29%), except for the last question, when the score exceeds 50%. What intrigues in analyzing these results is the fact that, although respondents belong to the category of those interested in entrepreneurial perspective (77 persons out of 88, see above), a large number of them (between 32 and 34 persons) prefer not to answer and not to choose any option related to specific steps undertaken (as intermediary stages from idea to effective business).

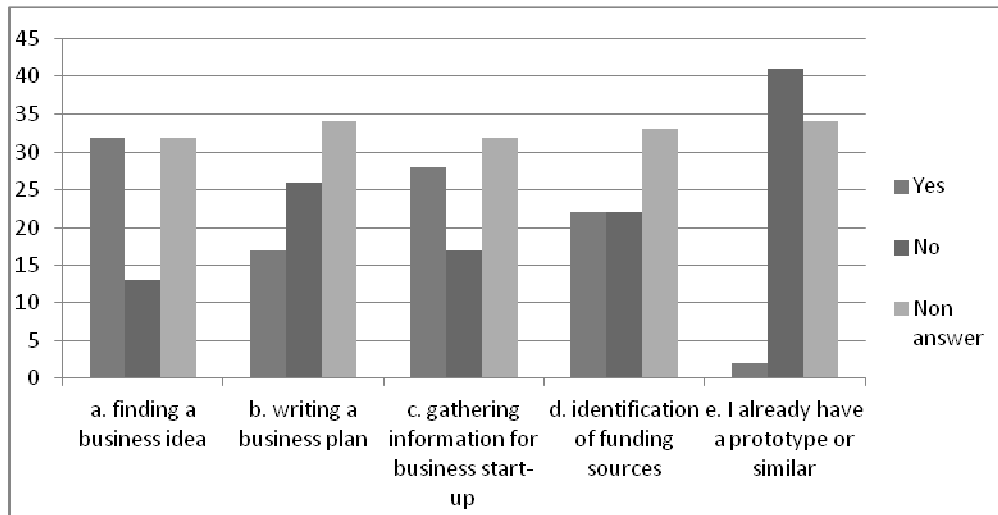


Fig 2. Responses to Question: “If You Have Taken Entrepreneurial Steps, What are They Specifically?”

Source: own calculations, based on the dataset

Thus, the real share of actually not interested is much higher (between 40% and 42%). While some doctoral students have honestly responded: “*I am not interested*”, others preferred to look interested, but then, confronted to specific questions, do not give any answer (positive or negative), rather prefer a non-response, as a back down. And all this, without counting those who recognized from the beginning that they have taken no entrepreneurial step (as they have previously declared interested in entrepreneurship, we have expected them either to take some specific actions or to give up).

The unclear goes away if notice a consistent semblance with data from previous question options - how doctoral student see their future in business over five years?, where a significant part of those self-declared as “interested”, in fact they are not at all interested in entrepreneurship.

The positioning, apparently contradictory, of an important part of doctoral students, which began with a strong interest, but ended in confusion or no answers, has, at least, two explanations:

- Ignorance by doctoral students of approaching specific realities of

entrepreneurship – and in this regard HEI might bear some of the blame: the study programs have not appropriate subjects, or do not reach the fundamentals of the idea of business and entrepreneurship;

- A tendency to comply with the likeness of the moment. As we mentioned in the literature review section, in many countries (especially in Central and Eastern Europe, Asia, etc.) the entrepreneur's image is a positive and constantly improving image (as social position, income, independence, etc.), which makes the entrepreneurial option a trendy option, even the effective knowledge is often superficial. Unfortunately, the doctoral students are also attracted by this image, but the option is quickly abandoned when facing real situation.

A significant part of the surveyed doctoral students (67 out of 88, i.e. 76%) stated that they are tempted to start an entrepreneurial career, and even have already undertaken some steps in this direction. Moreover, 52 doctoral students (i.e. 59%) mentioned that this business is directly related to their doctoral studies and concerns. Thus, only two third of this 52 persons admit that this intended business would be indubitably linked to their doctoral degree and field of study, while the rest (i.e. over one third) considering this business will be in other areas, not directly related with their doctoral studies.

In terms of gender, the share of female and male who intend to start (and even have already started) an entrepreneurial business is very similar (49% females and 51% males). The largest gender differences occur when respondents indicate whether their business (even in early stages) have, or would have, a direct relation with the field of their doctoral studies: only half of the female doctoral students' entrepreneurial intentions has something to do with the advanced skills and competences they acquire during the doctoral stage, while about 87% of male doctoral students are tempted to enter an entrepreneurial activity related to the doctoral studies they are following.

Beyond simple gender differences, these responses raise two issues:

- To what extent the entrepreneurial option is logically and honestly correlated with the doctoral stage and field of study? The entrepreneurial alternative is only a trendy way of thinking, remaining in a declarative stage and a formal declaration? Are doctoral students much more interested in academic career, or enjoying the benefits offered by a doctoral diploma for people employed in the public sector?;
- If the entrepreneurial intentions turn real and become effective entrepreneurial careers, are there really understood the implications of the fact that, even for a part of them, the doctoral degree/diploma held will not effectively help? How we accept that high scientific knowledge and skills acquired during their doctoral stage reflects, somehow, a waste of resources, both on personal and societal level?

As expected, the propensity towards business start-ups differs, according to doctoral field of study. By far, the most interested to start a business in the field of their studies are doctoral students in engineering sciences (92% of the total number of doctoral students in engineering), followed by geographers (71% of the total number of doctoral students in geography) and economists (63% of the total number of doctoral students in economics). Doctoral students in medical sciences, philology and history appear to be less interested in starting a business. We found the same trend when asking doctoral students to evaluate whether the doctoral stage helps them in choosing an entrepreneurial career: future doctors in engineering (96% of them), in geography (71% of them) or in economics (75% of them) consider that skills and competences acquired during the doctoral stage would support and help them in entering the entrepreneurship and developing their own business.

The explanation of these optimistic responses in the case of engineers and

economists relies with the nature itself of their field of study and economic sector working into, and much larger opportunities for economic and entrepreneurial involvement in the so called “real economy”, i.e. in the production of tangible goods and industrial services. In the case of geographers, the high rates reported could be related to their interest and initiative in interdisciplinary areas such as tourism. As the tourism sector is considered having an important development potential for small businesses and many Romanian HEIs successfully developed bachelors and post graduate programs in the field of tourism and hospitality industry.

Conclusions and Further Implications

Undergraduate, graduate and particularly doctoral stages have to find an optimal combination between the acquisition and transmission of high value scientific knowledge, and the way ideas, innovations and research findings can be honestly and motivating marketed through entrepreneurial initiatives of their authors or contributors.

Our research has demonstrated a significant interest of young doctoral students to acquire skills and to use them in their future career, whether it is an academic one, or they target to be employed in the public or private sector and/or will start their own business. However, our research revealed also the existence, for a significant part of the surveyed doctoral students, of a formal and declarative interest for business sector, and a superficial knowledge of the realities and requirements for an entrepreneurial career.

Another concern emerged from our research is the fact there are significant entrepreneurial intentions of doctoral students that are not directly related to the field of their doctoral studies and thus they will not be able to make use of the competencies and information acquired during the doctoral stage.

The limited objectives of our study do not allow to capture the extent to which HEI are willing and ready to include entrepreneurship education in their concerns. We strongly believe that these opportunities exist and they are waiting to be supported by internal reforms, by an effective integration of business and entrepreneurship related issues in academic curricula.

Although many HEI are concerned on this issue, they should made effective and decisive steps on the way of creating “doctoral entrepreneurs”, through policies and strategies on the medium and long term, and not just by encouraging individual doctoral graduates in an entrepreneurial career. After all, we talk about a relatively small number of graduates, highly competent, involved in scientific research. They should be given the real possibility to use the results of their skills and competencies and introduce innovation in the “real economy”. Thus, a fair and realistic attitude towards entrepreneurship of doctoral students could significantly improve, by resulting in a positive impact on social and economic development at national and global level.

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