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THE INFLUENCE OF EDUCATIONAL ENVIRONMENT ON THE DEVELOPMENT OF ENTREPRENEURIAL SKILLS AND COMPETENCIES IN STUDENTS

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ABSTRACT

In the climate of rapidly changing labour market, globalization and developing information society, higher education needs a new approach to learning. The purpose of this article is to identify the main entrepreneurial competencies and to determine the role of a learning environment on the development of entrepreneurial competencies in students. This article uses methods of statistical analysis and a questionnaire survey. The survey involved 251 students of the Elabuga Institute of the Kazan Federal University. These bachelor's students were majors in Economics, Management, Professional Education (by branches) and Applied Computer Science in Economics. The survey that was applied uses a Likert five-point scale. The research showed that the level of entrepreneurial competencies among the Economics and Management majors averages 60%, 10% higher than in students majoring in Professional Education and Applied Computer Science in Economics. The survey showed that students could hardly assess their strengths and weaknesses, they were not confident in their abilities and talents either (the average score for "self-confidence" was 11 ± 2 points). The strongest entrepreneurial competence was formed in Economics majors (31%), while the lowest indicators were found in students majoring in Professional Education (18%). Among the various components of entrepreneurial competence, all students have better formed personal competencies, such as initiative, persistence, effective communication, and a focus on efficiency. Professional competencies, such as seeking new business opportunities, using information and communication technologies, and assessing new business opportunities, are better developed in students majoring in Economics, Management and Applied Computer Science in Economics.

The study showed a high correlation between the quality of the learning environment and the level of entrepreneurial competence. The quality of education and training affects the future development of specialists in the enterprise. Therefore, data in this study will be useful in forming entrepreneurial competence in students when creating an innovation-based learning environment in higher educational establishments. **Keywords:** Educational Environment, Entrepreneurial Skills, Competencies, Entrepreneurship Education.

INTRODUCTION

Modern society is in need of professionally trained specialists possessing a wide range of entrepreneurial competencies and an ability to drive the economic growth in the country (Syam et al., 2018). Universities as educational institutions are the centre of development. Their mission is to provide enterprises and organizations of the country with highly qualified personnel with significant creative and intellectual potential in various fields, including business projects (David et al., 2017).

The development of entrepreneurial skills requires inner-directedness and initiative. Companies wishing to move in this direction should be able to organize and improve the way in which these skills are used. This will require flexibility (Bismala & Handayani, 2017). Hence, the practice of shaping entrepreneurial culture and literacy among university students in developed countries is of great interest. Graduates are a key to developing an entrepreneurial economy based on competitiveness, innovation, and creativity (Nwambam et al., 2018). The reality falls short of expectations, as there are very few people, who make up the workforce with a broader and deeper concept of knowledge. The modern world needs people with a wide range of skills and competencies, such as the ability to think and solve problems differently and with a creative touch (Dzisi et al., 2018).

In many countries, national education policies emphasize the relationship between education and the employment/labour market, as well as the importance of developing core competencies in students (Chen et al., 2015). In China, for example, due to a large number of start-ups, business schools trend toward *"live education"*. Last year, students were invited to create their own trial business projects. These projects could be later implemented in the form of a startup. Such motivation encourages searching for effective ideas because it points directly to the opportunities in the field (Lin & Xu, 2017). Entrepreneurial competencies are often considered only an integral part of managerial competencies. Thus, management disciplines are included in entrepreneurship education programs. However, entrepreneurship takes place also outside the corporate sphere, which makes managerial competencies less significant in a specific context (Cincera et al., 2018).

Entrepreneurial competencies are divided into three broad groups:

- 1. Personal qualities and traits of a person.
- 2. Acquired skills and abilities to do something well in a particular field of activity.
- 3. Knowledge and experience, including facts and information that was learned through training, practice and observation; theoretical or practical understanding of the subject (Baczyńska et al., 2016).

The main entrepreneurial competencies are:

- 1. Seeking new business opportunities.
- 2. Assessing new business opportunities.
- 3. Initiative as a willingness to work faster, to do more and to perform beyond the prescriptions.
- 4. Decision-making, responsibility for the consequences.
- 5. Identifying and solving problems.
- 6. Creative thinking.

- 7. Effective communication with different partners.
- 8. Deal-making and negotiation.
- 9. Business networking.

The conceptual model of entrepreneurial competency stands on three pillars-"*Ideas and Opportunities*", "*Resources*" and "*Into Action*"-assuming that an entrepreneurial competence is the ability to turn ideas and opportunities into actions using resources. Resources can be represented by personal traits, such as self-awareness, self-efficacy, motivation and persistence, and by physical means, such as things used in production and money (Gümüsay & Bohné, 2018). A higher educational establishment exists to communicate the possibility of self-realization in entrepreneurship to students. With this goal in the set, education should be organized in such a way as to affect those areas of consciousness that are responsible for the formation and development of entrepreneurial knowledge and competencies (Aldoshina, 2018; Ruškytė et al., 2017).

In the category of productive thinking, creativity, innovation and gumption are considered universal characteristics that display an outstanding degree of competence. They are crucial to entrepreneurship (Ng et al., 2016). With creative and innovative teaching methods, students learn to look at the problem from different perspectives (Edwards-Schachter et al., 2015).

The process of entrepreneurial competence formation in students involves the inclusion in the process of accomplishing educational and professional tasks within the framework of a competitive scientific project. At the end of such an activity, the student is expected to possess an entrepreneurial competency at the level allowing the creation of an independent business organization (Schelfhout et al., 2016).

The need for entrepreneurship education is growing, but there are still many obstacles to the development of it. For example, entrepreneurship programs and courses showcase the list of competencies that students should form during the learning period, but the competencies on the list are sometimes contradictory and old-dated (Dascalu et al., 2017).

The analysis of scientific literature shows a set of entrepreneurial competencies that are formed in the learning process. The impact of the learning process in higher educational establishments on the formation of entrepreneurial competencies was not investigated through and through. Consequently, the purpose of this research is to determine the influence of the learning environment on the formation of general entrepreneurial competency in students and to assess the formation of entrepreneurial competencies in bachelors majoring in different fields.

METHODOLOGY

Research Design

The study was developed, organized and conducted with regard to the set goals. This process was carried out in two stages. At the first stage, 13 core entrepreneurial competencies were listed (Table 1). This list was used at the second stage. Additionally to each competency, five statements were formulated to characterize the competence (4 positive and 1 negative). A negative characteristic describes a person with the lack of a corresponding entrepreneurial competence.

Table 1 ENTREPRENEURIAL TRAITS AND COMPETENCIES				
Competence	Proficiency Levels			
Initiative	1. Ready to do things faster.			
initiati ve	2. Ready to do more tasks.			
	3. Able/ready to go beyond the prescriptions.			
	4. Able to cope with unfavorable circumstances and temporary setbacks.			
	5. Disposed to work.			
Persistence	1. Makes efforts to accomplish an objective.			
T OTDIDIOTOCO	2. Overcomes obstacles that get in the way of reaching goals.			
	3. Accomplishes difficult and obscure tasks.			
	4. Pines for self-development.			
	5. Unmoved by promotion opportunities.			
Self-confidence	1. Able to assess one's own strengths and weaknesses.			
	2. Confident is one's own abilities and talent.			
	3. Confident is one's own knowledge and skills.			
	4. Able to analyze one's own actions, to tell positive and negative sides.			
	5. Questions one's own capabilities.			
Seeking new business	1. Uses the Internet (websites, social networking sites, etc.) to find new			
opportunities	business ideas.			
opportunities	2. Analyzes business trends and current demands.			
	3. Uses the advantage of e-business.			
	4. Makes contacts and communicates with people.			
	5. Knows nothing about business development.			
Decision-making and	1. Speaks the final word when the consequences of decision-making are			
responsibility for the	clouded, when the available information is not full and questionable, or			
consequences	when the risk of an abrupt happening is evident. 2. Copes with the rapidly changing externals.			
	3. Distributes the resources reasonably.			
	4. Does staffing and controls over the performance.			
	5. Dreads to make a decision.			
Efficiency orientation	1. Strives to reach fast performance.			
Efficiency offentation	2. Intents to do business with fewer resources.			
	3. Sorts effective actions from unproductive ones.			
	4. Reacts to changes in no time.			
	5. Ready to spend a lot of time and resources on the achievement of			
	objectives.			
Systematic planning	1. Able to set long-term, mid-term and short-term goals.			
Systematic planning				
	2. Able to prioritize and plan actions.			
	3. Able to cope with unforeseeable events.			
	4. Able to see the possible obstacles.			
Drohlam solving	5. Spontaneous in one's own decisions.			
Problem-solving	1. Sets key problems for a specific context. 2. Defines the causes.			
	3. Sees the consequences of a problem.			
	4. Knows how to make good out of unfavourable.			
A appaging a providence in the state of the second	5. Does not know how a problem is handled.			
Assessing new business	1. Makes a backbone hypothesis.			
opportunities	2. Assesses the alternatives.			
	3. Assesses the associated risks.			
	4. Knows the market.			
	5. Has no idea of how the business opportunities are assessed.			
Using influence strategies	1. Demonstrates leadership and the abilities to communicate, convince, and			
	negotiate effectively.			
	2. Successfully pursues others to reach one's own goals.			

	3. Builds mutually beneficial partnerships.		
	4. Able to put influential people, sellers, agencies, consumers, employees,		
	lenders and others on supporting the long-term business contacts.		
	5. Unable to listen to and hear the other party.		
Creativity	1. Able to generate a new idea or innovative solutions.		
	2. Able to investigate and do experiments with innovative approaches.		
	3. Able to unite one's knowledge with available resources to reach a positive		
	effect.		
	4. Takes action to put one's idea into action.		
	5. Follows the pattern.		
Effective communication	1. Collaborates with others and successfully fights competition if necessary.		
with partners	2. Finds ways out of a conflict.		
	3. Treats his/her employees with respect and shares positivity.		
	4. Develops ideas and turns them into reality.		
	5. Not a team player.		
Using ICTs	1. Knows all about innovation technologies of project management		
	(SCRUM, PRINCE2, etc.).		
	2. Uses new digital technologies, including social networking sites,		
	databases, mobile and cloud apps.		
	3. Organizes and takes part in video conferences and webinar.		
	4. Quickly adapts to changes and implements innovations on a constant		
	basis.		
	5. Sticks to traditional ways.		

The objective of this study is to determine the competency level of the third-year and fourth-year students majoring in different fields. At the second stage of the study, a questionnaire survey was developed and conducted to determine the influence of a learning environment on the formation of entrepreneurial competencies in students. The goal was also to determine the progress in the formation of basic entrepreneurial competencies.

Participants

The survey involved 251 random third-year and fourth-year students of the Elabuga Institute of Kazan Federal University (EI KFU) aged from 20 to 22 years. To determine the role of the learning environment, the survey covered four fields of study (Table 2).

Table 2 FIELDS OF STUDY TO WHICH BACHELORS WERE ADMITTED IN THE ELABUGA INSTITUTE OF KAZAN FEDERAL UNIVERSITY, LIST ENCOMPASSES THOSE STUDENTS, WHO TOOK PART IN THE SURVEY				
Faculty/Institute of the Kazan Federal University	Field	Number of Students		
Economics and Management, Elabuga Institute of KFU	38.03.01 Economics (specialization: Accounting, Auditing and Analysis)	97		
Economics and Management, Elabuga Institute of KFU	38.03.02 Management (specialization: Logistics)	87		
Mathematics and Natural Sciences, Elabuga Institute of KFU	09.03.03 Applied Computer Science (Specialization: Applied Computer Science in Economics)	14		
Economics and Management, Elabuga Institute of KFU	44.03.04 Professional Education (by branches) (Specialization: Economics and Management)	53		

Survey

The survey was conducted among the fourth-year students using a questionnaire. This group of respondents was chosen for the potential of senior students to become workers with great theoretical and practical experience ready to enter the employment market. The questionnaire used 65 entrepreneurial competency items to measure 13 competencies. Each competence implied five Likert scale statements (Kitsantas et al., 2009). The statements were taken from Table 1.

Positive items were rated using a 5-point positive scale with anchors labelled as "5": always, "4": usually, "3": sometimes, "2": rarely, "1": never. A negative scale was used to rate the negative items, but the anchors were labelled the same. These 13 competencies all had 4 positive and 1 negative statement. Thus, the maximum score for each trait/competence was 20. The minimum score was "-5". The general entrepreneurial competency was assessed by compiling the scores into an Overall Competency Score. The maximum score that could be obtained was 260, and the minimum score was 65.

Statistical Analysis

Data analysis was performed using STATISTICA software. For convenience, part of data was presented as histograms made in Origin 9.1. The responses were assessed using a 95% confidence interval.

To calculate the confidence interval, Student's t distribution was used with a significance of $p \le 0.05$ and a standard deviation (σ). The survey error was $6 \pm 2\%$ because not all questionnaires were filled out correctly.

RESULTS

Based on a literature analysis, 13 core entrepreneurial competencies were outlined (Table 1). These competencies are essential to the purposeful and effective preparation of students for career building and successful business activities in the future.

The survey showed the average level of entrepreneurial competency among students (Table 3). The average score for each competence was 12 ± 3.5 points out of 20 possible.

Table 3 STUDENT SURVEY RESULTS						
Entrepreneurial Traits and Competencies	Economics (n=97)	Management (n=87)	Applied Computer Science in Economics (n=14)	Professional Education (Economics and Management) (n=53)	Normal Deviation	p- Value
Initiative	17.09	17.05	16.01	15.01	± 0.49	
Persistence	15.05	15.06	14.89	14.54	± 0.35	
Self-confidence	11.41	11.83	12.17	11.33	± 0.56	
Seeking new business opportunities	13.21	13.11	12.51	11.20	± 0.35	0.05
Decision-making and responsibility for the consequences	13.01	12.56	12.25	11.98	± 0.56	
Efficiency orientation	14.85	13.75	14.65	13.01	± 0.49	1

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Systematic planning	11.78	11.98	11.65	11.04	± 0.35	
Problem solving	11.17	11.35	11.97	11.08	± 0.45	
Assessing new business opportunities	15.01	14.92	13.87	9.78	± 0.55	
Using influence strategies	13.45	13.78	12.95	13.95	± 0.35	
Creativity	11.38	11.02	11.46	11.07	± 0.45	
Effective communication with partners	15.98	16.01	15.56	15.01	± 0.50	
Using ICTs	13.12	13.18	14.98	8.01	± 0.35	

Survey results showed high readiness of students to do things faster to reach their goals. This is evident from the scores get for *"persistence"* and *"initiative"* competencies. These competencies more than 14 points out of 20 possible.

The positive responses indicate a desire to work in a team in a friendly environment. However, the analysis also showed that students are incapable of assessing their strengths and weaknesses; they are unsure of their abilities and talents (the average score for *"self-confidence"* was 11 ± 2 points). One can assume that this was caused by a lack of practice, where students could create and analyze their projects and develop personal qualities necessary for successful business activity.

"Problem-solving", "decision-making" and "systematic planning" averaged 12 ± 1 points. This result indicates the absence of the necessary entrepreneurial experience.

Low creativity ($<12 \pm 1$ points) indicates that students have trouble generating new ideas, putting them into practice, making innovation-driven decisions, and using new digital technologies.

Some students adhered to the traditional approach to entrepreneurship. It happened that they lacked the knowledge necessary to do business, as evidenced by the overall competency average of <13 points.

Through learning, students actively form personal traits and competencies, such as initiative, effective communication, persistence, and efficiency orientation (Figure 1). This result indicates that student actions go beyond job requirements. Students are sufficiently motivated to make repeated efforts to overcome the obstacles that get in the way of reaching goals. In the end, it is the personal traits, properties, values, individual characteristics of interaction with society, and the ability to work in a team that determine the way in which the knowledge is used. Therefore, they determine the vector of entrepreneurship development. Self-confidence, creativity, problem solving, and systematic planning scored the lowest. This indicates that education programs should draw more attention to these competencies, given their significance. They are crucial for improving business process, as they develop the ability to explore and do experiments with innovative approaches, as well as the ability to take necessary actions to put an idea into action.



FIGURE 1 ENTREPRENEURIAL COMPETENCY RATING (ADAPTED FROM STUDENT RESPONSES)

Among professional competencies, students gave a high score to the "use of influential strategies". This means that during the learning process, students formed knowledge and skills necessary to convince, negotiate, and communicate with mutual benefit. "Seeking new business opportunities" scored lower by 2%. Figure 1 shows that students found it difficult to use ICTs. This can be explained by the fact that this type of activity is a new field to explore in education. The students are more initiative (16%) but less creative (2%).

Special techniques are necessary to form entrepreneurial competencies in class. The techniques shape the culture of creativity, imagination and the innovative thinking in students. They also help to develop skills of strategic planning, opportunity analysis and identification.

The analysis of the most formed competencies suggests that the majority of students, regardless of the field of study, have entrepreneurial competency at the level above average (60%) (Figure 2). The result showed that personal traits, such as *"persistence"*, do not have a significant difference between the fields of education. This indicates that fields of study and the entrepreneurial traits of students are not co-related, so the first cannot affect the formation of the second.

Students majoring in Economics and Management rated "*opportunity seeking*" and "*effective communication*" 6% higher than students majoring in other fields. This confirms that a learning environment is crucial for a successful entrepreneur.



Professional Education
Applied Computer Science in Economics
Management
Economics

FIGURE 2 FIVE CORE ENTREPRENEURIAL COMPETENCIES ACROSS DIFFERENT FIELDS OF STUDY

Students enrolled in the Applied Computer Science in Economics program show a rather positive and significant entrepreneurial competency $(50 \pm 5\%)$. Figure 2 shows a high score for *"efficiency orientation"* and for *"opportunity seeking"*. The assumption is that this high score is a result of the active results-oriented use of innovative approaches in learning. Students majoring in the Applied Computer Science in Economics are able to adapt to changes quickly and to make good use of Internet resources when searching for new business ideas. They also know the opportunities of e-business and social media marketing better.

The survey showed that students majoring in Professional Education (Program: Economics and Management) show 3% greater progress in the formation of one specific competence–"using influence strategies" (Figure 3). This progress was facilitated through learning: students learned the existing techniques to influence other's mind, learned the psychology of personality.



THE EFFECT OF EDUCATIONAL ENVIRONMENT ON THE FORMATION OF ENTREPRENEURIAL COMPETENCY

The strongest entrepreneurial competency was formed among the Economics students. The difference in feedback between economists, managers and information scientists was only 2%. This means that there is no significant difference between the entrepreneurial traits in possession. In Professional Education (Economics and Management program), this difference was 8%. This means that students studying in the field of Professional Education receive the least attention to their entrepreneurial competencies.

DISCUSSION

There is no universal information and communication tool to promote entrepreneurial competency among students (Robles & Zárraga-Rodríguez, 2015). In the context of education, such tools can be the e-books. On the other hand, e-learning courses, business plans and market research databases contribute to the development of entrepreneurial skills (Gutiérrez & Baquero, 2017)

The EU documents highlight the competence known as the *"initiative and entrepreneurism"*. This competence refers to the person's ability to turn an idea into action. It includes creativity, the ability to take risks and take responsibility for risk, as well as the ability to plan and manage projects to reach goals (Farhangmehr et al., 2016).

The State of the art of entrepreneurship education in universities reached the point when the curriculum includes disciplines, which are related in one way or another to the formation of entrepreneurial competencies (innovation orientation, initiative, risk-taking, and social responsibility) (Lambrechts et al., 2018).

As in some European countries, the national development plan for research and education in Finland provides for the expansion of the interaction between higher education establishments, employers, companies and regions (Garavan et al., 2016). The main idea of such interaction was that curricula are able to both exhibit and foresee the future requirements for competence in the labour market so that students could better prepare for the future professional activities (Jääskelä et al., 2018). The internship is essential for the formation of entrepreneurial competencies in students. Many students, who have successfully tried things out and started their careers through the internship, occupied decent positions in good companies by the time of graduation (Mohsin et al., 2017).

A study of entrepreneurial competencies in Irish and Iranian universities showed that despite the differences in the education systems, there are strong interdependencies in the development of core entrepreneurial competencies in the educational settings (RezaeiZadeh et al., 2016). The understanding of how the competency systems work in specific contexts can be essential for the creation and successful growth of any business (Udoye & Mba, 2018).

Scientists from South Korea say that when the inexperienced university students try to create new enterprises, they might find useful the support from experienced staff and teachers. Such assistance can help students realize their entrepreneurial intentions, up to the intention to start a real business (Choi at al., 2017). The recent studies show that many universities seek to expand their ability to assist student entrepreneurs by employing competent staff (Beyhan & Findik, 2018). A similar practice is done in the Baltic countries, especially in Lithuania, which is currently experiencing a start-up boom. Private and state universities offer a separate course to help students start their first business. This course takes into account, motivates students and forms their resistance to stress (Kaufmann & Shams, 2016).

Developing entrepreneurial skills means creating an environment in which the traditional system can help students gradually develop their creativity and strive to improve their skills (Solomon et al., 2017).

Some countries with a high retraining rate, such as France, Italy, and Turkey, have a much greater entrepreneurial potential. Other countries with a much lower retraining rate (Czech Republic, Norway) may experience a lack of entrepreneurs (Kucel et al., 2016; Eckhaus, 2017).

With the shift to competency-based learning in Russia, the requirements for university graduates increased. When both happened, the problems of entrepreneurship education step into the light (Devyatkin & Laskovets, 2014).

CONCLUSION

This study shows that the learning environment plays an important role in shaping entrepreneurial competencies and in developing entrepreneurial skills in students. Most students have a moderate level of entrepreneurial competency (>50%). Students majoring in Economics and in Management have a 5% higher level of entrepreneurial competency than students, who major in Professional Education and in Applied Computer Science in Economics. The results of this research demonstrate the effectiveness of a theoretical and practical guide to entrepreneurship in the formation of entrepreneurial competency. This study shows that students have the greatest progress in developing personal traits, such as initiative, communication effectiveness, persistence, and efficiency orientation. The least developed competencies included creativity, self-confidence, problem-solving, and systematic planning. These results indicate how important it is during the learning process to develop creativity, critical thinking, and the ability to analyze/make effective and timely decisions. Economists and managers did a 2% greater job developing entrepreneurial competencies ("opportunity seeking" and "using ICTs") than the information scientists did. Their progress was also 4% greater than the progress of future teachers. These results indicate the importance of the introduction of innovative methodologies into the Russian system of education. With them, university graduates will be able to meet the high requirements of modern society.

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