

Entrepreneurship Skillset Build-up in the Conditions of the Fourth Industrial Revolution

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Abstract In the conditions of fourth industrial revolution, it is very difficult to find new entrepreneurship ideas and windows. This paper delves into the modern ways to do entrepreneurship like digital, green, medical, educational, social, creative or art. Some creative and critical thinking techniques for entrepreneur windows are discussed and their implementation in education has been drawn. They include lateral thinking, the six thinking hats, simplify and their suggested usage for classes as role-playing games, puzzles and quizzes. A connection between leadership, entrepreneurship, innovation and creative thinking has been drawn. On that basis, a conclusion about usage of creative thinking techniques in educational centres to build up entrepreneurship and leadership skills has been done.

Keywords Entrepreneurship, critical thinking, leadership, education.

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1. Introduction

In modern age society, it is very difficult to find new ideas for entrepreneurship or to start up business. New technologies and researches in every field make it very hard to find something new or to exploit the given resources with new methodology. As it has been considered entrepreneurship to be the fourth main resource in the economy with land, labour and capital being the other three. Nowadays, entrepreneurship has become more and more difficult and it has moved to pivot role for economic growth.

According to some researchers, Entrepreneurship is the ability to search and exploit the changes, create, innovate and be willing to take the risk, which can make old industries obsolete [1, 2].

Some of the key personal attributes for it are:

- ✓ Creativity as the spark that drives the development of new products or services, or ways to do business;
- ✓ Dedication as what motivates the entrepreneur to work hard, more than 12 hours a day;
- ✓ Determination as the extremely strong desire to achieve success;
- ✓ Flexibility as the ability to move quickly in response to changing market needs;
- ✓ Leadership as the ability to create rules and to set goals. It is the capacity to follow through to see that rules are followed and goals are accomplished [1], [3].

These attributes come from a different background – cultural, historical, economical status of the country and so

on, but they can also be acquired which means skillset buildup.

The main goal of this paper is to create a framework for entrepreneurship skillset buildup for the purposes of educational institutions and to provide them with some ideas and insights about teaching techniques and methodologies. They include lateral thinking, the six thinking hats, simplify and their suggested usage for classes as role-playing games, puzzles and quizzes, digital skills.

2. Material and method

2.1. Methodological framework

The attributes required for entrepreneurship very often come from personal background, but it is not enough just to have them, you need to develop and deploy them. To do it you need to start from early age development. This is possible with the right education, which is the core for the methodology – a framework for building some key entrepreneurship skills by facilitation in classrooms or educational centers.

The main skills to build up with this methodology are as follows (see fig. 1):

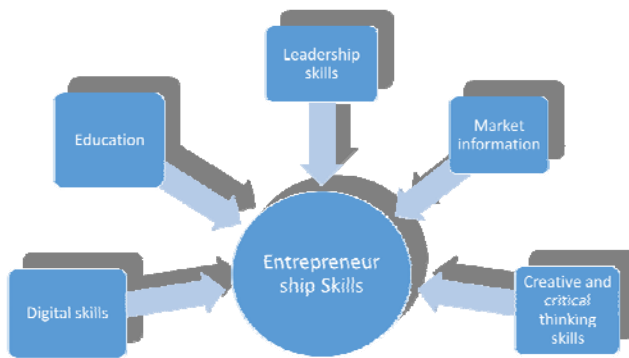


Figure 1. Entrepreneurship skills

As evident from figure, there are five entrepreneur skills considered to be build up – digital skills, education, leadership, market information, creative and critical thinking.

On the one hand, Education seems a bit odd here, but it is actually the connection between them. The main idea is presentation and implementation of the other skills via change in the educational pattern, introduction of some creative or critical thinking games, puzzles and emphasizing on digital and leadership skills.

On the other hand, same goes for market information but its importance is in possibility to gain new ideas for starting up small business or entrepreneur windows. In more detail it would be described in the following section.

2.2. Market information

As mentioned market information could be the source of new ideas for entrepreneurs so it is very important such information to be distributed to students especially in business management classes or innovations. There are many examples, like [4]:

- ✓ Digital Entrepreneurship - a combination of traditional entrepreneurship with a focus on new technologies, opportunities created by these technologies and new business forms. Digital startups are characterized by the use of a variety of new technologies, social media, big data analytics, mobile cloud services, predictive analytics;

- ✓ Social entrepreneurship - this is a different way of doing business that mixes the ingenuity of business with a social mission (Non-profit), skillfully combining and balancing social and economic goals (for example Private rehabilitation center);

- ✓ Green entrepreneurship or "eco" entrepreneurship is an economic activity that deliberately addresses an environmental problem and / or need by implementing an entrepreneurial idea that has a positive effect on the environment and at the same time is financially sustainable. Green entrepreneurship is directly linked to social entrepreneurship in view of the fact that it is working for a social cause in the field of ecology.

- ✓ Entrepreneurship in the field of education is the start and development of a business related to the learning process of children, young people or adults. Well-known examples of such entrepreneurship are

learning centers where a teacher conducts a course to a small group of students. Recently, many innovative companies and associations have emerged based on informal learning methods.

- ✓ Creative or art entrepreneurship is in the fields of music, theater, fine arts, dance, animation, cinema and other creative industries. For example, "Grozen Entertainment" is a Bulgarian cultural organization, a 2D & 3D animation and comics, a publishing house and an educational center, whose activity is focused on popularizing the quality of Bulgarian art world-wide and the best Bulgarian authors of comics, illustrators, designers and animators.

This type of information about the market and the examples of successful entrepreneurs could inspire young people to put their own ideas into practice. It is advisable to use examples from your own country so it is easy to relate to them. If possible - invite entrepreneurs into classes to explain about their idea and how they put it into practice.

2.3. Digital skills

Each According to some researchers, in the near future 65% of the existing jobs will be very different as a result of technological developments, and individuals should develop their skills and competences in order to remain competitive in the digital economy [5]. Furthermore, in the European Union the need for IT professionals with competences to sustain innovation and competitiveness in the world market is growing rapidly. They will have to face the challenges of the fourth industrial revolution and the high-tech economy, which can be described as: the combination of interrelated digital technological decisions assisting the development of the automation, the integration and the exchange of data in real time in the production processes, delivering several times higher norm of added value compared to the traditional economic system [5].

On the other hand, digital skills is essential in supporting management in the following areas [5]:

- ✓ analysis and processing of big data and real-time decision-making using information and analytical systems with in-built artificial intelligence, which leads to a greater flexibility in process management, reduction in the time needed for managerial decisions, and as a result to reduction in the cost of the produced items;

- ✓ dynamic organization of business processes in terms of quality, time, risk, durability, price, and environmental impact, which leads to reducing the cost of production of each item as a result of reduction in expenses for resources, energy, labor, and time needed for production;

- ✓ continuous optimization and adaptation of the production capacities with in-built artificial intelligence, leading to reduction of the expenses for resources, energy, polluting emissions, and thus of the costs of the production;

✓ handling individual and specific orders reflecting customer requirements in terms of design, configuration, order, planning, production, functioning, deadlines and changes in deadlines, which is linked to increases of production of specific individual orders, thus leading to a greater competitiveness and market stability for the business organization.

These are the reasons for digital skills to be considered as very important asset to the entrepreneur's skillset and they should be involved more in the education. Moreover, universities should imply more computer based courses for Business management, Public administration and Economics curriculums. Thus, leading to mixture of IT engineering and management which is necessity in modern age education.

2.4. Leadership skills

Leadership skills, which are co-related to the entrepreneurship as mentioned, are the ability to set goals, create rules and follow through or in other words to plan, organize and control assets and management of business processes. This is familiar to us leadership which takes place from inside outward, but today the conceptual doctrine of leadership is changing radically due to global challenges and increased competition. The new type of leadership is digital and it evolves in the digital environment, does not require communication face to face and appears from the outside to the inside environment [5]. It is based on three core skills (see fig. 2):



Figure 2. Core digital leadership skills

Firstly, strategic leadership involves leading international team and influencing employees, customers, suppliers, investors, shareholders, society. To comprehend it, you need knowledge for: management, controlling, finances, logistics and abilities for: searching and analyzing data, planning, finding optimal solution, communication, motivation [5], [6].

Secondly, the business perceptive includes ability to innovate business and operating models to realize high added value for the company. This requires knowledge for: market and marketing strategies, business analysis, innovations and abilities for: analyzing the environment, processes and operations, building and maintaining customer relationships, process optimization and so on [5], [6].

Finally, High-tech perceptive is the ability to envision and drive change for business performance, exploiting the innovation opportunities in high-tech trends. To fulfill it you need knowledge of: information technology tools, complex business systems, artificial Intelligence, Internet of Things, Cloud technologies, virtualization and so on [5], [6].

All of the core digital leadership skills should be developed and implemented in the educational system so pupils would be able to satisfy labor market needs. The implementation might be by interdisciplinary or/and multinational group tasks from cooperating universities or educational centers which would allow students to participate in dynamic environment and to train their digital communication, project management and problem solving skills.

Another way is by creating more competitions on national level for e-commerce business models with the condition of mixed teams between universities or educational institutions which will allow collaboration between students with different background.

2.5. Creative and critical thinking skills

Creative and critical thinking are very important for finding solutions or puzzle solving which is co-related to entrepreneurship with the skill for finding new market opportunities and designing new products. Moreover, organizations and their leaders need not to allow success to blunt the drive for innovation, a never-ending race. Managers in every organization have a responsibility for initiating and directing change in addition to their regular objectives. Everyone has the shared responsibility of changing the organization to make it better equipped to meet the needs of its customers, and of keeping finding innovative ways to deliver its products or services [7]. Thus, leading to necessity to improve creative and critical thinking skills.

One way to do it is by the so-called "Lateral thinking" a term created by E. de Bono in 1970's which corresponds to methods and techniques for new approaches to problems [7]. There are many related to this type of thinking skills puzzles, which could be implemented in schools, educational centers or universities as part of entrepreneur courses. For example (the subway problem) [7]: "A large city in the United States had a problem with thefts of light bulbs from its subway system. Thieves would unscrew the light bulbs, leading to cost and security issues. The engineer who was given this challenge could not alter the location of the light bulbs, and he had very little budget to work with, but he came up with a very lateral solution. What was it?"

Sometimes lateral puzzles could be solved as a group game in which the facilitator gives small piece of information to the participants (main puzzle idea) and then gives the opportunity to each participant to ask him/her questions related to the puzzle with "yes" and "no" or "not related" answers. At the end all the questions and answers should reveal the puzzle. This game could benefit students' critical thinking, out of the box thinking and problem solving skills.

Another approach is the so called "six thinking hats", it can be used as role-playing interactive game for students. The basic idea is to distribute different roles to a small group

for a project or problem solving via the color of their hat and they have to focus their thinking on specific threat, like:

- ✓ White hat, concentrate on the information. Decide what information you have and what you can learn from it. If you find any gaps try to fill them;
- ✓ Red hat, look for a solution using intuition, instinctive reactions and emotions. Try to think about how others will react emotionally and seek to understand the intuitive reactions of people who are not fully aware of your considerations;
- ✓ Black hat has pessimistic, cautious and defensive view. You are trying to understand why ideas and approaches may not work. This is important because it reveals the weaknesses of the plan or its implementation;
- ✓ Yellow hat suggests an optimistic view that helps you see all the benefits of the solution and its value, and discover the opportunities that flow from it;
- ✓ Green hat, think creatively and develop creative solutions to the problem. Thinking is free and ideas are not criticized;
- ✓ A blue hat is related to process control. It is worn by the group leader. This person can direct group to think in one way or another, change the hats of the others and so on depending on the needs [8].

The six hats could be implemented in classrooms for group tasks which would help students build critical and creative thinking skills.

The other possibility is the method “Simplify” - a process aimed at turning the complex solutions into simple and clear ones, by creating the right order of things.

This leads to the following results:

- ✓ Identifying and stopping things that are no longer needed;
- ✓ Eliminating unnecessary duplication and complexity;
- ✓ Challenge every aspect of the organization in constructive and effective way;
- ✓ Reducing unnecessary duplication of effort to increase return on investment (ROI);
- ✓ Removing barriers to increase the satisfaction of employees and customers;
- ✓ Empower employees to think through new ideas faster, leading to faster market innovations [8].

In educational field, this technique could be implemented by individual or group complex tasks and with the guidance of the teacher or trainer, the students would have to simplify it. Moreover, it could be combined with lateral puzzles because some of them are related exactly with simplifying.

3. Results and discussion

The aforementioned methods are not something new in terms of brain trainings for creative, critical and out of the box thinking. Moreover, they are familiar to educators, but not taken so much into consideration for preparing classes, especially in Bulgaria. They should have higher role in the

educational system for changing the paradigm from passing and repeating information to more interactive way of doing it. Creativity and open mind are crucial for developing entrepreneur ideas and critical thinking is useful for putting it into practice so having more such of kind interactive classes in the educational system would benefit students and help them build entrepreneur skills or to be more willing to express their own ideas.

Besides critical and creative thinking, digital and leadership skills are also considered to be very important part of the entrepreneur's skillset. On one hand, digital skills are already considered to be one of the top priorities in education due to the rapid increase of the market requirement. This changes the focus of Business and management curriculums not only in their field but also involving more IT based classes. Thus, leading to the higher demand of educational institutions to open more computer labs in which IT business classes could take place. That kind of labs could find some support for the private sector. According to the European commission report from 2017, around 48% of the experts agree that private sector should initiate effort to improve high-tech skills in their employees and managers and 44% are willing to fund such kind of training courses [6].

On the other hand, the fourth industrial revolution demands new type of leaders – ones with business and high-tech savviness in addition to their leadership skills. According to the European Union agenda for digital leadership there is a need for:

- ✓ Integration of high-tech savviness in formal education (nearly 60% of experts participating in the survey agree);
- ✓ Promotion of training course for high-tech skills for managers (about 53% of respondents agree) [6].

This is enough evidence to prove the necessity of collaboration between leadership and digital skills build up in the formal education system.

For many years, entrepreneurs have been considered as the important link for every community's economic growth and as the world changes the set of skills needed for entrepreneurship changes, as well. Nowadays, as evident it is necessary to have good and creative ideas alongside leadership qualities, business knowledge and high-tech savviness. All of these skills could be built up or enhanced in the educational system. In addition, market information could serve as guideline for entrepreneur ideas and business startups. However, in many cases entrepreneurs fail sustain their business in the market, but they don't give up and try again which is also considered as part of being a good leader. This type of failure should be included in entrepreneur classes as a symbol of being more determined in following business path and striving for success, because it won't come easy. Good examples inspire and bad ones teach important lesson.

4. Conclusions

In the conditions of the fourth industrial revolution, being an entrepreneur and successful business owner requires

many qualities, but the main attributes are creative and critical thinking, digital skills and leadership. Building up such kind of skills in formal education would be crucial for generating the new wave of entrepreneurs, who will lead the economy growth and the future stability of each country. Every educational institution should focus on the ways of developing those skills with a collaboration with private organizations.

Despite being known for many years, the creative and critical thinking techniques like the six thinking hats, lateral puzzles and simplify could be implemented successfully in modern education.

Collaboration between digital skills and business training is the future of Business and administration curriculums towards the development of the digital leaders for the conditions of the fourth industrial revolution.

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