
ENTREPRENEURIAL COMPETENCES IN THE TRAINING OF FUTURE TECHNICIANS IN ECONOMIC ACTIVITIES

**Victor-Marian Dumitrache¹, Iulian Gole², Petronela-Evelina Bălu³ and
Florentina-Olivia Bălu⁴**

¹⁾²⁾³⁾ The Bucharest University of Economic Studies, Romania

⁴⁾ University of Geneva, Switzerland

E-mail: victor.dumitrache@gmail.com; E-mail: iuliangole@yahoo.com

E-mail: evelina.balu@yahoo.com; E-mail: olivia_balu@yahoo.fr

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Abstract

In 2014, the entrepreneurship education started to be one of the strategic directions of the EU policies in education. Since then, EU has been providing increasing support to national policy makers in education, to universities and schools so they can improve policies, curriculum and approaches in entrepreneurship education. Aligned with the new strategic direction, Entrepreneurial Competences Framework was launched in 2016, being, among others, a tool for analyzing the entrepreneurial orientation of various curricula. Using a research tool based on EntreComp, developed by one of the authors in 2018, the article aims to make an analysis of the current “Technician in Economic Activities” Professional Training Standard, EQF level 4, from Romania. Pointing out the gap between the Training Standard and EntreComp, we expect to create awareness among VET policy makers, so further amendments to the current Standard may take entrepreneurial competences into consideration.

Keywords

entrepreneurship, education, training standard, EntreComp

JEL Classification

A20, I25, P46

Introduction

Technology, globalization and the rise of automation and artificial intelligence are shaping the economy, especially the labor market. (WEF, 2018) A student that starts school this year will enter the labor market in mid-2030 and their career will last till 2060s. Since there is no model to predict the needs of our workforce in the coming years, we already know that they are changing and will be changing with the rate of technological advancement. (WEF, 2018)

In Romania there are 3.37 million youth aged 15 to 24 (Eurostat, 2018). Every year, 0.33 million young people reach 16 – the legal working age. Most of them will continue their studies; others will enter the labor market. What they discover is that the economy is not creating every year 0.33 million jobs fitting their qualification. They will discover a significant mismatch between the competences they have and the jobs that are available; the yesterday's valued competences do not match today's job market.

Moreover, Romania has the 4th highest NEETs (not in employment, education or training) rate in the EU (20.6% - Eurostat, 2018) caused particularly by the youth having no relevant qualifications and by those who are unskilled.

Keeping the curriculum up to date making the qualification relevant for the job market are two of the main challenges that the educational systems face nowadays.

The entrepreneurial education is one of the fundamental factors that can be used to approach and face the 21st Century challenges. The European Commission has been focusing on promoting the development of entrepreneurial competences from primary school through to university and assesses that the European Union, by exploiting the dynamism feature that the entrepreneurship has, could succeed in terms of competitiveness and economic growth challenges (Soare, 2016).

Additionally, in 2016, the Entrepreneurship Competence Framework (EntreComp) was elaborated by EU. EntreComp provide a tool for enhancing the entrepreneurial capacity of European citizens and organizations. The framework intends to put together or to have an unanimously accepted opinion regarding the entrepreneurship competence by defining 3 competence areas, a list of 15 competences, learning out-comes and proficiency levels, which current and future initiatives can refer to (EU, 2016). In conclusion, we might consider EntreComp like an additional support offered by the EU for the main players from society - public authorities and private actors – in order to customize their purposes and curriculum to the groups they work with (EU, 2016).

This research paper is the 3rd study which aims to analyze the gap between the aspects that are already being taught and those that should be taught in terms of entrepreneurship as a transversal competence. In the other two studies, the subjects of analysis were the bachelor's degree curriculum in *Engineering and Management* and the Professional Training Standard, EQF level 4, Agricultural Technician specialization. In both the them, EntreComp was the reference. Continuing their work and trying to provide as much input as possible for curriculum developers, the authors analyze this time the Professional Training Standard, EQF level 4, for Technician in Economic Activities.

EntreComp Framework

The need for redesigning the curriculum according to the entrepreneurial education principles comes from the broader definition of entrepreneurship given by EntreComp. It says that entrepreneurship is a transversal competence, not exclusively related to the business world. As a transversal competence, it can be implemented by citizens to all aspects of life - personal development, integration into the labor market - as an employee or as a self-employed person, as an entrepreneur or as an active member in cultural, social or commercial fields (EU, 2016). The model structures the entrepreneurial competences in 3 competences areas - Ideas & Opportunities, Resources and Into Action – each of them covering 5 competences. So, according to the model, there are 15 main entrepreneurial competencies in total.

Each competence is presented in 3 up to 6 threads or dimensions. Then, each thread is explained in dynamics on 8 levels of proficiency.

Professional training standard for Technician in economic activities

The training of the future technicians in economic activities (cashiers, accountants, exchange officers, fiscal agents etc.) is based on the *Technician in economic activities* Professional

Training Standard, EQF level 4, approved by OMENCS nr. 4121/13.06.2016. The Professional Training Standard is applied by all the VET teachers from the economic high schools when adapting the existent curriculum or when designing new one (for example in partnership with local companies).

According to the Standard, the learning process is modular, consisting of 14 Learning Results Units. For each Learning Results Unit, the Standard:

- describes the technical learning results in terms of knowledge (to know), abilities (to do) and attitudes (to be) that the student need the acquire for being considered qualified
- describes transversal learning results, also known as soft skills or transferable skills. They are related to each of the 8 Key Competences (EC, 2006). The entrepreneurial competence is one of the eight
- recommends learning resources that teachers and students may use to obtain the foreseen learning results
- presents the standard for assessment and the evaluation criteria to be used by teachers for measuring the learning results obtained by the students

The 14 Learning Results Units are the following: 1) Professional ethics and communication, 2) Applying basics of accounting, 3) Utilizing the accounting principles and methods, 4) Organizing the activity of economic units, 5) Products and service quality assurance, 6) Environment, consumer and employees protection, 7) Company's administration, 8) Assessing market opportunities, 9) Applying marketing policies, 10) Recording financial and economical operations, 11) Drawing up financial statements, 12) Applying negotiation and contracting techniques, 13) Using accounting software, 14) Applying statistic and financial procedures.

Regardless specialization, in all the Professional Training Standards for each learning result is allocated a 3 digits code under the format x.y.z where x represents the number of the learning results unit, y refers to the type of result (1 is for knowledge, 2 for abilities, 3 for attitudes) and z is calculating the number of results of a category under a specific learning results unit. For example, 8.2.6 Analyzing direct and indirect market competitors is the 6th in the list of abilities under the learning result number 8 Assessing market opportunities and 6.3.2 Following the professional ethics regarding consumer rights is the second attitude under learning results unit number 6 Environment, consumer and employees protection.

For the scope of the analysis, in the column 4 of the table no 1 were used only the codes.

The training standard analysis

Aiming to discover the gap between the Professional Training Standard – in terms of entrepreneurial competencies – and EntreComp, as in the previous two papers, we used two widespread research methods: *the analysis of the documents* and *the comparative analysis*. Apart from the fact that these two methods showed their effectiveness in the previous two research papers, we are continuing to use them because:

- they are more time-effective comparing to other quantitative methods that require more time for data gathering, so they are cost effective
- they are less time-consuming because they require data selection instead of data collection
- most of the documents are available on the Internet and they can be obtained without the author's approval (Bowen, 2009)

Synthetic description of the Table no. 1, no. 2 and no. 3 (table heading as in Dumitrache et al., 2018):

Column 1 shows the area of the EntreComp Framework

Column 2 shows the competence as in EntreComp Framework

Column 3 shows the hint mentioned in EntreComp for that specific competence

Column 4 matches the competences from the Professional Training Standard with the related Entrepreneurship Competences and their level of proficiency according to EntreComp.

By analyzing the data gathered on column 4 - the result of the comparative analysis - we can conclude about the extent in which the Professional Training Standard integrates the 15 entrepreneurial competences. Since each of the 15 competences is divided in threads, column 4 shows how a thread can be either uncovered or covered at different levels of proficiency by multiple competences from the Standard. For example, the thread called Manage resources, associated with Mobilizing resources competence, is covered by one competence from Learning Results Unit no. 4 (up to level 3) and by one competence from Learning Results Unit number 7 (up to level 4).

All these competences can be found under multiple learning results units.

Using an identical methodology and the same table heading, the authors have considered the bachelor's degree curriculum in *Engineering and Management* and the Professional Training Standard, EQF level 4, Agricultural Technician specialization.

Table no. 1 Curriculum analysis – 1st area “Ideas and opportunities”

Competences of EntreComp Framework (EU, 2016)			Level of each competency in the Professional Training Standard according to EntreComp Framework
Area	Competences	Hints	
1. Ideas and opportunities	1.1 Spotting opportunities	Use your imagination and abilities to identify opportunities for creating value	7.2.2 – L4 – Analyze the context 8.2.14 – L3 – Analyze the context
	1.2 Creativity	Develop creative and purposeful ideas	
	1.3 Vision	Work towards your vision of the future	9.2.6, 9.2.9 – L2 - Imagine
	1.4 Valuing ideas	Make the most of ideas and opportunities	
	1.5 Ethical and sustainable thinking	Assess the consequences and impact of ideas, opportunities and actions	1.2.23, 1.2.24, 1.3.16 – L3 – Behave ethically

Source: data from “Technician in Economic Activities” Professional Training Standard, processed by the authors. Table heading as in Dumitrache et al., 2018.

Out of the 5 competences from *Ideas and opportunities* area of EntreComp, 3 are addressed to some extent by the Professional Training Standard, as following:

Spotting Opportunities, which is the first entrepreneurial competence, is addressed by the Standard in 1 out of 4 threads: *Analyze the context* (L4). The 4 unaddressed threads are *Identify, create and seize opportunities, Focus on challenges, Uncover needs*.

The 2nd entrepreneurial competence – Creativity, is entirely unaddressed by the Standard. None of its 5 threads is covered: *Be curious and opened, Develop ideas, Define problems, Design value, Be innovative*.

Vision, the 3rd entrepreneurial competence, is addressed by the Standard only in one out of 3 threads: *Imagine* (L2). The other 2 threads are being unaddressed: *Think strategically* and *Guide actions*.

Like the 2nd one, the fourth competence within the Standard - Valuing ideas - is totally unaddressed. None of its 2 threads are addressed: *Recognize the value of ideas* and *Share and protect ideas*.

The fifth entrepreneurial competence, called Ethical and sustainable thinking, is addressed by the Standard in 1 of its 4 threads: *Behave ethically* (L3). The other 3 threads are not addressed at all: *Think sustainably*, *Assess impact* and *Be accountable*.

Only 4 out of the 18 threads under Ideas and opportunities area are addressed by the Standard.

Table no. 2 Curriculum analysis – 2nd area “Resources”

Competences of EntreComp Framework (EU, 2016)			Level of each competency in the Professional Training Standard according to EntreComp Framework
Area	Competences	Hints	
2. Resources	2.1 Self-awareness and self-efficacy	Believe in yourself and keep developing	7.2.8, 7.2.9, 7.3.7 – L3 – Shape your future
	2.2 Motivation and perseverance	Stay focused and don't give up	4.3.3, 4.3.4 – L2 – Be resilient
	2.3 Mobilizing resources	Gather and manage the resources you need	4.3.6 – L3 – Manage resources 7.2.10 – L4 – Manage resources
	2.4 Financial and economic literacy	Develop financial and economic know how	11.2.2 – L5 – Understanding economic and financial concepts 11.2.4 – L4 – Find funding 14.2.7 – L4 – Understanding taxation
	2.5 Mobilizing others	Inspire, enthuse and get others on board	1.3.6 – L3 - Persuade 1.2.7, 1.3.9 – L2 - Communicate effectively

Source: data from “*Technician in Economic Activities*” Professional Training Standard, processed by the authors. Table heading as in Dumitrache et al., 2018.

All the 5 competences from *Resources* area of EntreComp, are covered by the Professional Training Standard to some extent, as following:

The sixth entrepreneurial competence, named Self-awareness and self-efficacy is covered by the Standard in 1 of the 4 threads: *Shape your future* (L3). The other 3 threads are not covered at all: *Follow your aspirations*, *Identify your strengths and weaknesses* and *Believe in your ability*.

The seventh entrepreneurial competence, called Motivation and perseverance, is covered by the standard in 1 out of 5 threads: *Be resilient* (L2). The other 4 threads are not covered at all: *Stay driven*, *Be determined*, *Focus on what keeps you motivated* and *Don't give up*.

The eighth entrepreneurial competence, called Mobilizing resources, is covered by the Standard in 1 out of 4 threads: *Manage resources* (L4). The other 4 threads are not covered at all: *Use resources responsibly*, *Make the most out of your time* and *Get support*.

The ninth entrepreneurial competence, called Financial and economic literacy, is covered by the Standard in 3 out of 4 threads: *Understanding economic and financial concepts* (L5), *Find funding* (L4), *Understanding taxation* (L4). The only uncovered thread is *Budget*.

The tenth entrepreneurial competence, called Mobilizing others, is covered by the Standard in 2 of the 4 threads: *Persuade* (L3) and *Communicate effectively* (L2). The other 2 threads are not covered at all: *Inspire and get inspired* and *Use media effectively*.

Only 8 out of 21 threads under Resources area are covered by the Standard.

Table no. 3 Curriculum analysis – 3rd area “Into action”

Competences of EntreComp Framework (EU, 2016)			Level of each competency in the Professional Training Standard according to EntreComp Framework
Area	Competences	Hints	
3. Into action	3.1 Taking the initiative	Go for it	2.3.3 – L1 – Work independently 2.3.5 – L1 – Take responsibility 3.3.2, 3.3.3 – L1 – Take responsibility 4.3.4, 4.3.6 – L1 – Work independently 5.3.2 – L2 – Take responsibility 6.3.3, 6.3.6 – L1 – Take responsibility 7.3.2 – L1 – Take responsibility 8.3.3 – L1 – Take responsibility 11.3.2 – Take responsibility 13.3.4 – Take responsibility
	3.2 Planning and management	Prioritize, organize and follow-up	8.2.15 – L2 – Define goals 14.2.4 – L4 – Monitor your progress
	3.3 Coping with uncertainty	Make decisions dealing with uncertainty, ambiguity and risk	11.2.6 – L5 – Manage risk
	3.4 Working with others	Team up, collaborate and network	1.2.14, 1.3.10 – L4 – Develop emotional intelligence 4.3.8 – L1 – Team up 7.3.3, 7.3.5 – L1 – Team up 8.3.2, 8.3.5 – L1 – Team up 10.3.3 – L1 – Team up 11.3.3 – L1 – Team up
	3.5 Learning through experience	Learn by doing	

Source: data from “Technician in Economic Activities” Professional Training Standard, processed by the authors. Table heading as in Dumitrache et al., 2018.

Out the 5 competences under Into action area of EntreComp, 4 are covered by the Professional Training Standard to some extent, as following:

The eleventh entrepreneurial competence, called Taking the initiative, is covered by the Standard in 2 out of 3 threads: Work independently (L1) and Take responsibility (L1). The thread which is not covered at all is *Take action*.

The twelfth entrepreneurial competence, called Planning and management, is covered by the Standard in 2 out of 6 threads: *Define goals* (L2) and *Monitor your progress* (L4). The other 4 threads are not covered at all: *Plan and organize*, *Develop sustainable business plan*, *Define priorities* and *Be flexible and adapt to changes*.

The thirteenth entrepreneurial competence, called Coping with uncertainty, ambiguity and risk, is covered by the Standard in 1 out of 5 threads: *Manage risk* (L5). The other 2 threads are not covered at all: *Cope with uncertainty and ambiguity* and *Calculate risk*.

Working with others, which is the fourteenth entrepreneurial competence, is covered by the Standard in 2 out of 6 threads: *Develop emotional intelligence* (L4) and *Team up* (L1). The other 4 threads are not covered at all: *Accept diversity*, *Listen actively*, *Work together* and *Expand your network*.

The fifteenth entrepreneurial competence, called Learning through experience, is not covered at all by the standard, in all of its 3 threads: *Reflect*, *Learn to learn* and *Learn from experience*. Only 7 out of 23 threads under Into action area are covered by the Standard. Overall, out of the 15th competences of EntreComp, 12 are covered (or addressed) by the Standard in at least 1 thread. Breaking competences and going at threads' level, out of the 62 threads, only 19 are covered by the standard.

Conclusions

The research shows that the Professional Training Standard for Technician in Economic Activities specialization covers to some extent only 12 out of the 15 entrepreneurial competences identified through EntreComp – more specifically, only 19 out of the 62 threads of EntreComp have an correspondent knowledge, skill or attitude in the Standard.

We pointed out the gap between the Training Standard and EntreComp and we expect to create awareness among VET policy makers, so further amendments to the current Standard may take entrepreneurial competences into consideration especially now, as we know exactly which of them are part of the Standard and which are not. The uncovered competences and threads can be covered by revising the Standard. The added value of this paper is that it can be used as a reference for revising the current Standard.

The following research may also be focused on the effectiveness of the learning content and the methods applied in different teaching subjects, as well as on new approaches for enhancing the entrepreneurial learning effectiveness.

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