Comparing labour market expectations and Vet qualification in the NecVET European project

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Abstract

This paper presents the results of a research in the field of Vocational Education and Training (VET) undertaken in the framework of the EU project named "New approaches to strengthened cooperation facilities for VET institutions and labour market" (NecVet). The NecVET project has the aim of setting up a network between vocational education institutions and enterprises to explore the effectiveness of training programmes for VET students. Moreover, the expectations of labour market have been compared with the learning programmes provided by the vocational education institutions through a questionnaire composed by two sections. The first section collects information about the opinions of representatives of the labour market about competences and skills of employees as well as the level of communication between educational institutions and labour market. The second section collects information about skills and personal capabilities needed in specific enterprise sectors. The questionnaire has been delivered to a sample of 500 interviewed composed by 10 labour market representatives in 10 different sectors (Health, Electronics and electricity, ICT, Textile, Mechanics, Construction, Agriculture, Tourism, Business and administration, Cosmetics) and in 5 European countries (Turkey, Italy, Spain, Greece, Poland). The years of experience in the specific sector of the representatives have been also considered in the evaluation of questionnaires. The significance differences between the opinion of the entrepreneurs for countries and sectors are presented in this paper. In particular, the results highlight the needs to improve the training programmes in order to enhance the qualification and competitiveness of students in the labour market.

Keywords: VET, labour market, comparison analysis

Introduction

Vocational Education and Training is a strategic area for the qualification and competitiveness of professionals in the labour market in a European dimension.
Strengthening the links between vocational education, training institutions and enterprises is crucial to create new training opportunities and to make students more competitive in the labour market. In this perspective, it is important to promote and stimulate the dialogue between public and private schools, institutions in the field of research and innovation, and the labour market on topics regarding the development of new models of vocational education and training in a European perspective. In addition, exploring the development of effective policies of Vocational Education and Training at both regional and European level led to identify best practices and effective models for the improvement of vocational education system and curriculum.
In this direction, the NecVET project (New approaches to strengthened cooperation facilities for VET institutions and labour market), funded by European Commission in the framework of the Erasmus+ Strategic Partnership KA2 call, aims at strengthening connections between VET institutions and enterprises. The project identifies and studies: (i) the characteristics of different European educational VET systems, (ii) professionalism required by labour market and suggested by entrepreneurships, (iii) the professional skills useful in different sectors of employment, (iv) the requirements of new professional standards of the labour market.
The project results contribute to the reinforcement of the educational offer by improving the quality of professional qualification and bridging the gap between skills demanded by labour market and vocational education supply.
The NecVET project provides the implementation of research study at local level taking also into account the overview of the educational policies implemented in the partner countries. Moreover, the project contributes, in collabouration with local and regional social players, promotion of standards in VET programme, such as EQAVET (European Quality Assurance in Vocational Education and Training)[1]. Additionally, one of the most important characteristic of NecVET project is the structure of the partnership that brings together local and regional actors at different levels, such as institutions, associations, vocational education centers, enterprises, schools and public research organizations. Such a partnership is relevant to be effective in reaching the project goals in relation with the expectations and needs on local communities in each participant country.
As reported by the report from OECD (OECD, 2013) there is a lack of the skills needed to be successful in innovation-driven environments amongst the adult population in Europe, with particular respect to Southern European and peripheral countries as highlighted by the (European Commission, 2012) report.
In particular, technical competencies and "soft" skills, including leadership and teamwork capabilities are the most relevant missing skills.
As reported by (Tijdens, 2012) and (Hasanefendic, 2016) the reason of this condition has to be ascribed to the gap between the educational offers and the enterprises' needs.
These reasons are at the basis of the work presented in this paper. In fact, in the research studies undertaken in the NecVET project a questionnaire has been defined to investigate the differences between local labour market expectations in partner countries, in connections with the educational system. Next section presents an

[1] http://www.eqavet.eu/

overview of the different VET qualification systems in NecVET partner countries. Following, a detailed discussion about the research study carried out is also presented.

VET qualification systems in NecVET partner countries

The analysis of the relationships between the labour market and the educational system - developed in the NecVET project - started with the analysis of the differences of the VET educational system in partner countries.
In order to shape the local contexts in VET education, in the NecVET project the national qualification systems in partner countries have been investigated. In fact, local VET contexts are influenced by national policies, for this reason it was interesting to highlight the different approaches that the national governments have adopted.
In Italy, the qualifications released under the regional system are recognized at national level. In 2011, it was established a National Register of qualifications for VET professional figures. This Register describes two professional figures: named professional operator and professional technician, these two macro categories are, in turn, organized into specializations (ISFOL, 2014).
In Greece, a specific national authority named "National Organisation for the Certification of Qualifications and Vocational Guidance (EOPPEP)" has been established. The main objective of this authority is the development of lifelong learning and certification of qualifications at national level in Greece. Moreover, this authority has the aim of linking VET education with labour market needs by improving people's professional qualifications (EOPPEP, 2014).
In Poland, the VET system is organized in three levels. At national level VET is managed by Ministries, at regional level there is a "school superintendent – curator", to implement a pedagogical supervision, and finally at district level there are upper secondary schools specialized on VET[2].
In Spain, particular relevance has been done to the quality of VET system, and a specific quality network has been created to support regional governments. Moreover, indicators to evaluate the quality of VET have been identified with the aim of strengthening the relationship between educational centers[3].
In Turkey, theoretical and practical aspects play a key role in the organization of VET education. Schools are specifically focused on theoretical training, while the practical training is mainly implemented in enterprises. The management of VET policies is mostly demanded to the Ministry of Education, and particular relevance is done in establishing strong co-operation between enterprises and schools (Turkish MoE, 2010).

Method

This study presents preliminary results of a questionnaire aimed to explore the entrepreneur expectations and perceptions in the partner countries of NecVET project in relation with:

- professional qualification level of employees;
- professional qualification and labour market agreements;
- vocational education supply and skills demand by labour market;

[2] http://www.eqavet.eu/gns/what-we-do/implementing-the-framework/poland.aspx

[3] http://www.eqavet.eu/gns/what-we-do/implementing-the-framework/spain.aspx

- practical and technical knowledge of graduate students;
- professional skills required in different sectors of labour market;
- skills required by different sectors of NecVET partner countries.

Each partner organization of NecVET project has identified the priorities to investigate according to the labour market and vocational education system of their countries. All research activities and proposals have been discussed within workshops and transnational project management meeting. NecVET project workshops involved local institutions and national organizations with the aim to identify the sectors to investigate in the questionnaire.
The survey has been developed with the contribution of each partner organization. Coordinator institution has developed the validation of the survey. Stakeholders have carried out tests validity and reliability. Final version of the questionnaire has been shaped in line with reliability analysis.

Participants

A sample of 500 companies (10 labour market representatives in 10 different sectors) has been selected in the 5 European partner countries (Turkey, Italy, Spain, Greece, and Poland). A face-to-face meeting has been used as a method of interview to collect data. The questionnaire collected, as a demographic data, the years of experiences of the entrepreneurs interviewed in their own sector.
The mean number of years of experiences is 14.58 years (*SE* = 9.17). The Figure 1 and Figure 2 show respectively the means for each country and sector.

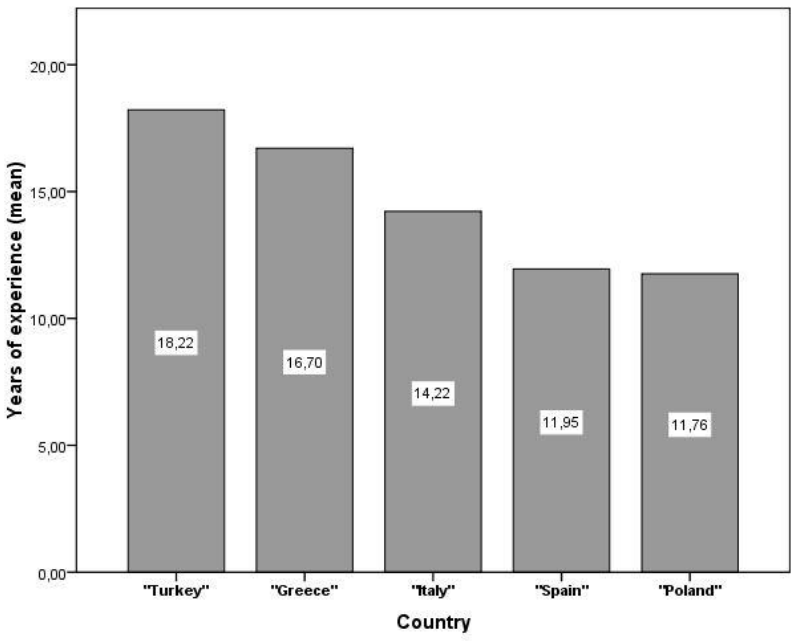

Figure 1. Years of experience for countries

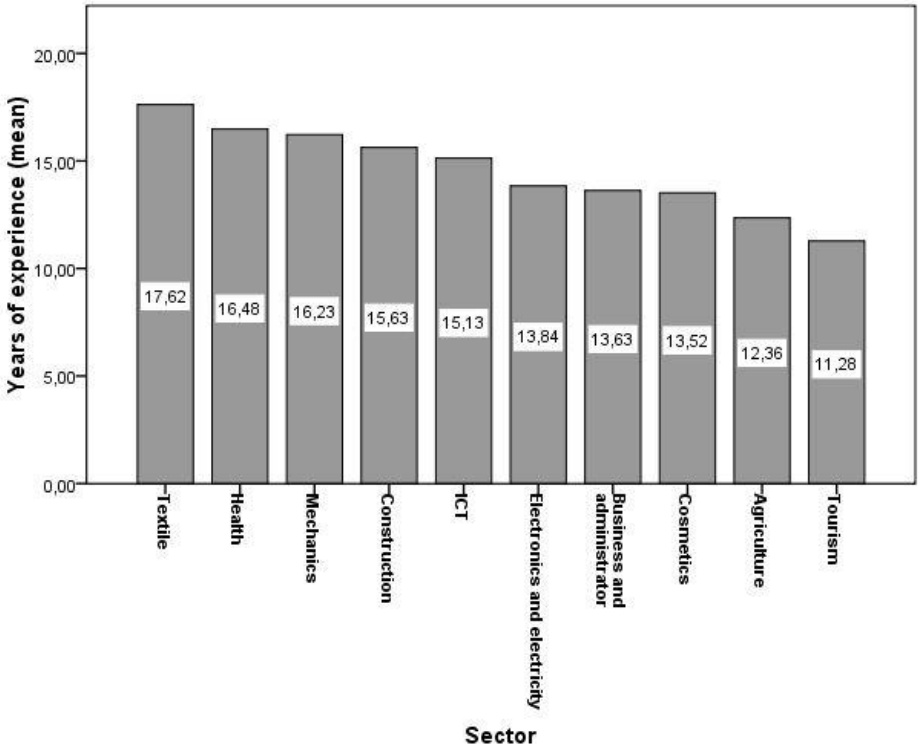

Figure 2. Years of experience for sectors

Material and procedures

The questionnaire is composed by two sections named A and B. The section A is composed by a five point Likert scale indicating to what extent respondents agree or disagree to each item. A generic response continuum is 1 = Strongly Disagree, 2 = Disagree, 3 = Undecided, 4 = Agree, and 5 = Strongly Agree. The section A reported in annex 1 shows a set of 10 items defined for investigating the opinion of entrepreneurs about:

- The level of professional knowledge, skills of graduate students, employees and entrepreneur knowledge of topics in professional training curricula (item 1, 4, 6, 7, 9, 10);
- The level of agreement between professional needs of labour market, enterprises, training program and VET institutions (item 2, 3, 5, 8).

The section B is composed by a set of 12 items identified for exploring the opinion of entrepreneurs about the priority of basic skills required in an enterprise of a specific sector expressed in a scale from 1 to 5. The basic skills identified by the partnership are: communication skill, team-working, development sense of belonging to the workplace, vocational ethics and awareness of responsibility, problem solving, flexibility, self-working skills, ICT skills, vocational foreign language competencies, self-confidence, learning by oneself and self-development, entrepreneurship and management skills.

Results and discussion

A Kruskal-Wallis test (Kruskal & Wallis, 1952) was used to perform a preliminary analysis of each item and to find differences between countries in the opinions of entrepreneurships. The first set of items are focused on the following topics:

- vocational knowledge and qualification of people working in companies (item 1);
- entrepreneurs knowledge about vocational training program (item 4);
- practical skills in graduate students (item 6);
- theoretical skills in graduate students (item 7);
- work health and safety rules in trainees (item 9);
- hierarchical structure of enterprises during VET training (item 10).

The independent variable represented five different country groups of entrepreneurships wherein the study has been implemented in different regions of the countries;
1) Turkey – Çubuk District and Ankara Province
2) Italy – Palermo province
3) Spain – Madrid province
4) Greece – Trikala province
5) Poland – Lodz province
The dependent variables were the perceived knowledge levels expressed on a scale from 1-5 and according to the items described before. Table 1 shows the medians of five countries.

Table 1
Medians of items for countries

Country	*n*	*Medians*				
		item 1	item 4	item 6	item 7	item 9
Turkey	100	2	3	2	3	3
Italy	100	4	3	3	3	3
Spain	100	3	3	3	3	3
Greece	100	4	3	3	4	3
Poland	100	4	4	4	4	4

The responses track differences about countries in the perceived level of agreement expressed by respondents. The frequencies of each item are shown for countries in Figure 3.

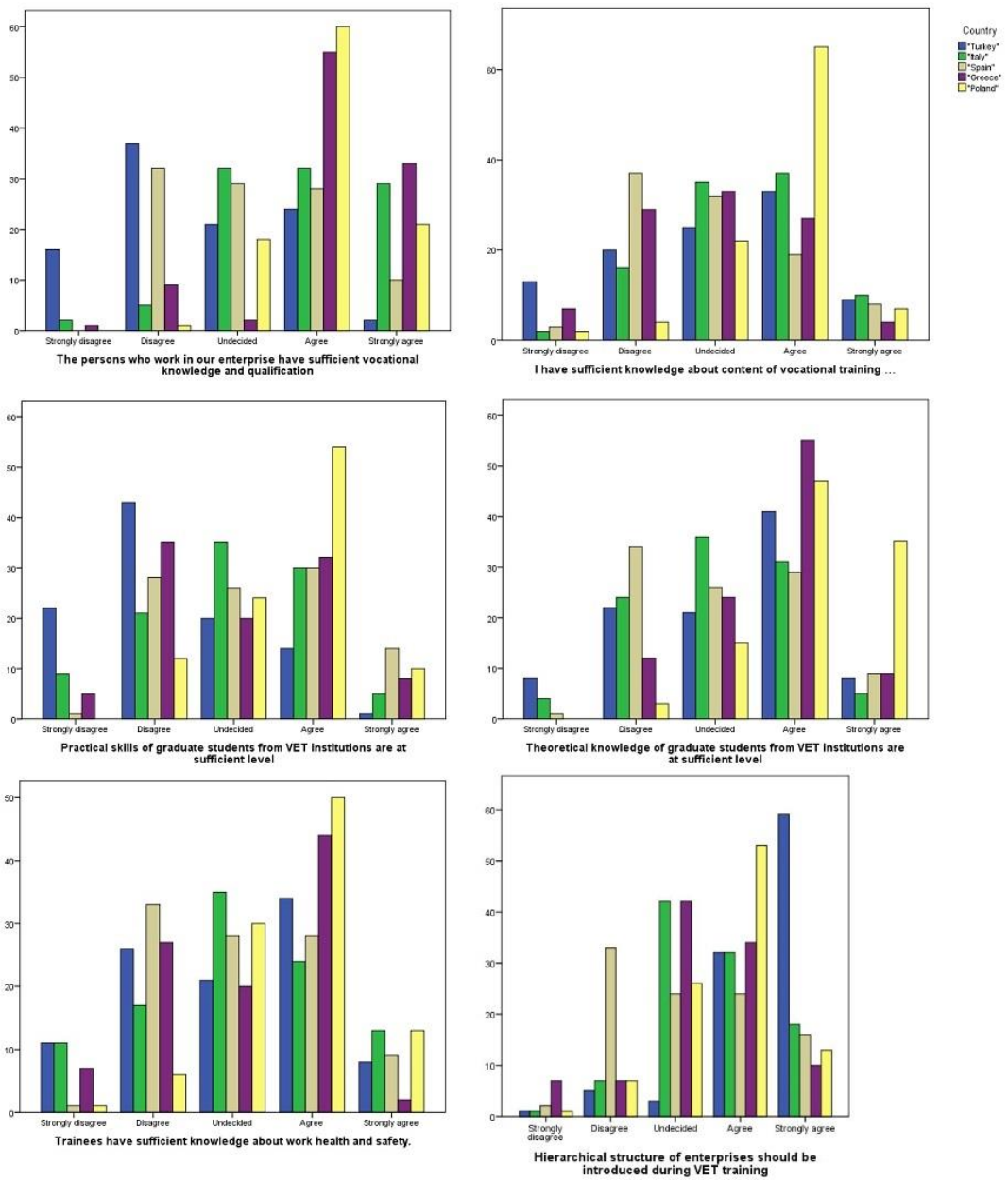

Figure 3. Frequences of different variables

The test conducted in the item 1 highlights significant difference between countries for the opinion about vocational knowledge and qualification of people work in companies $\chi^2(4, N = 500) = 131.06$, $p = .000$. While Italy Greece and Poland agreed with the opinion that peoples who work in the enterprise have sufficient vocational knowledge and qualification respectively (61%, 88%, 81%). Turkey are not satisfied of vocational qualifications when compared with other countries. This result emerges from Follow-up tests that indicated a significant difference between Turkey and each other country. In particular in Turkey the 53% of cases express a disagree opinion and the 21% have an undecided opinion.

A significant difference is detected between countries in the opinion of entrepreneur's knowledge about vocational training program $\chi^2(4, N = 500) = 49$, $p = .000$.

The entrepreneurs evaluate their knowledge about vocational training program as sufficient, especially in Poland with the highest level of agreement equal to 72%

respect to the others countries. Italy and Turkey follow with 47% and 42%. Spain and Greece entrepreneurs are prevalently unsatisfied with a percentage of 40% and 36% while the undecided opinions are the 32% and 33%.
The level of practical skills in the graduate students is perceived differently between countries χ^2 (4, N = 500) = 49, p = .000
Follow-up tests indicated a non-significant difference in Italy, Spain, and Greece. They have a prevalence of disagree and undecided opinions respectively in the 65%, 55,3% and 60% of respondents. Turkey has the lower level of disagreement of each countries equal to the 65%. At the opposite side the Poland express the maximum level of agreements respect to the other countries equal to the 64%
A significant difference is found between countries in the opinion of theoretical skills in graduate students χ^2 (4, N = 500) = 78.52 p = .000.
A positive agreement emerges in Poland with the 82% and Greece with 64% about the opinion of the sufficient level of theoretical skills in graduate students. Italy Spain and Turkey have respectively the 64%, 61% and 51% of disagreement and undecided opinions.
The opinion of interviewed about the knowledge level in work health and safety rules of trainees is significant different in the partner countries χ^2(4, N = 500) = 25.14 p = .000. The Poland is significantly different from each other countries with a level of agreement equal to 63%, Turkey Italy Spain and Greek show an undecided and lower percentage of agreement characteristics.
A significant difference in the partner countries was found in the need to introduce hierarchical structure of enterprises during VET training χ^2(4, N = 500) = 93.55 p = .000. The Turkey has the higher percentage of agreement (in particular strong agree) with the introduction of hierarchical structure of enterprises as educational content during VET training programs with the percentage of 91%. This agreement decreases respectively in Poland 66% and Italy 50% and next in Greece 44% and Spain 40%.
The second set of items explores whether the VET institutions and educational program take into consideration the needs or indications of the labour market. The items have as topic the following facts:

- improving of relationship and communication between VET institutions and enterprises (item 2);
- alignment of National Education Agencies program guidelines with the need of enterprises (item 3)
- upgrading of VET programs with the purposes to create qualified staff useful to enterprises (item 5);
- exploitation of VET professional qualification in the personnel selection processes (Item 8).

A significant difference is found between countries in all of items respectively χ^2(4, N = 500) = 36.18 p = .000 for item 2, χ^2(4, N = 500) = 65.76 p = .000 for item 3, χ^2(4, N = 500) = 58.11 p = .000 for item 5, and χ^2(4, N = 500) = 58.82 p = .000 for item 8.
Poland agrees with the opinion that the relationship between VET institutions and enterprises are at sufficient level with a percentage of 62%. Italy has a prevalence of undecided equal to 38% respect to the undecided level expressed in other countries. Turkey, Spain and Greece have a prevalence of unsatisfied and undecided opinion respectively of 46% and 23%, 36% and 23%, 37% and 33%.

The opinions expressed by entrepreneurs highlight that the National Education Agencies programs does not follow the highlighted needs of enterprises during the updating of guidelines of curriculum. The 36% and 34% of sample have respectively disagree and undecided opinion. In particular, the Turkey has greater percentage of disagree with the 62% while the Greece has the greater level of undecided equal to 41%.

At the same time emerge an undecided and disagree characteristic in the opinion that the curriculum is in line with the purpose of well-trained staff in Turkey, Italy Greece and Spain. Only the Poland is significantly different from other countries with a 66% of agreement responses.

The Spain shows an undecided and disagree characteristics (38%, 27%) with the opinion that students who have VET diploma, have priorities in employment process of their enterprises. The Poland has the 80% of agreement follows the 74% of Greece, the 52% of Italy and the 40% of Turkey.

The second part of this analysis shows which are the preferred basic skills sought in a person who is graduated from a VET educational institution in the different business sectors. The mean value was used as index for sorting all basic skills for countries and sectors.

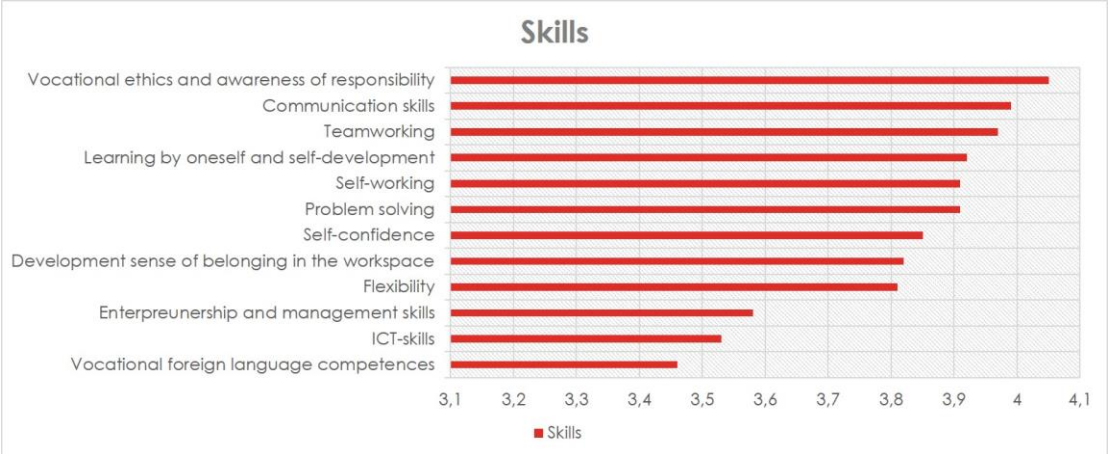

Figure 4. Basic skills sought in a VET graduate student

Figure 5. Basic skills sought in a VET graduate student for countries

The Basic Skill priorities in all sectors are reported as bar charts in Figure 4. The first three skills required and preferred by entrepreneurs are vocational ethics and awareness of responsibility, communication skills and team working. The basic skills organized for countries are shown in Figure 5.
Table 2 summaries the top three basic skills for each sector while the top three basic skills for each country are presented in table 3.

Table 2
The top three basic skills for each sector

Sectors	*Means*
Health	
Vocational ethics and awareness of responsibility	4.56
Communication skills	4.02
Teamworking	4
Electronics and Electricity	
ICT-skills	3.96
Problem solving	3.94
Vocational ethics and awareness of responsibility	3.86
Textile	
Problem solving	4.18
Teamworking	4.08
ICT-skills	4.04
Mechanics	
Communication skills	4
Vocational ethics and awareness of responsibility	4
Teamworking	3.96
Construction	
Teamworking	4.24
Development sense of belonging in the workspace	4.06
Vocational ethics and awareness of responsibility	4.06
Agricolture	
Communication skills	4.2
Vocational ethics and awareness of responsibility	4.06
Teamworking	3.96
Tourism	
Teamworking	4.38
Communication skills	4.34
Learning by oneself and self-development	4.24
Business and administrator	
Teamworking	4.1
Problem solving	4.08
Communication skills	4.04
Cosmetics	
Vocational ethics and awareness of responsibility	4.14
Self-working	4.02
Communication skills	4.02
ICT	
Problem solving	4.18
Team-working	4.08
ICT skills	4.04

Table 3
The top three basic skills for each sector

Countries	*Means*
Turkey	
Communication skills	4.49
Vocational ethics and awareness of responsibility	4.45
Teamworking	4.45
Italy	
Vocational ethics and awareness of responsibility	3.94
Communication skills	3.93
Flexibility	3.93
Spain	
Entrepreneurship and management skills	3.45
Self-working skills	3.42
Teamworking	3.40
Greece	
Vocational ethics and awareness of responsibility	4.56
Communication skills	4.37
Self-confidence	4.34
Poland	
Problem Solving	4.12
Teamworking	4.05
Learning by oneself and self-development	4.05

Conclusion

The analysis reported in the previous section has led to the extraction of relevant insights about the differences in local contexts under investigation about the level of professional knowledge of graduate students, employees and entrepreneurs. A summary of the insights identified in our study is reported below.

Italy, Greece and Poland agree with the opinion that peoples who work in the enterprise have sufficient vocational knowledge and qualification. Turkey is not satisfied of vocational qualification when compared with other countries.

In Poland and Italy entrepreneurs declare a sufficient level of knowledge about vocational training program, while Spain and Greece entrepreneurs are unsatisfied of their knowledge.

In Poland and Turkey the comparison between theoretical knowledge and practical skills has highlighted differences at significance level. As an example in Turkey practical skills of VET students are considered not at sufficient level.

With respect to the introduction of hierarchical structure of enterprises as educational content during VET training programs, Turkish entrepreneurs expressed a positive opinion. On the contrary, this trend is in the opposite direction in the other countries. Greece and Spain revealed a strong bias towards the disagreement.

The analysis of the professional needs of the labour market, enterprises and training program has highlighted relevant differences in the countries.

For instance, in the analysis of the results of the item related to the relationship between VET institutions and enterprises emerge wide differences between countries: in Italy and Spain we detected a prevalence of undecided answers, Greece and Turkey demonstrated an high level of unsatisfied answer while in Poland the entrepreneurs declared a positive opinion.

The study of the basic skills required by the enterprises has revealed that the vocational ethics and awareness of responsibility, communication abilities, team working, learning by oneself and self-development play a key role in all sectors of the enterprises represented by the interviewed. However, as reported in previous section significance differences emerges in the priority order of these vocational skills across the different sectors and countries.
To conclude the results highlight the needs to enhance the training programmes in order to improve the qualification and competitiveness of students in the labour market to create an effective European open space of vocational education able to dialogues with the specific needs of the labour market. Moreover, enterprises needs and training program require a major level of integration, in particular, training programs require an enhancement of topic and content in order to prepare more specialized workers.

References

EOPPEP, National Organization for the Certification of Qualifications & Vocational Guidance (2014), Greece EQF Referencing Report, Greek Ministry of Education & Religious Afairs, Athens.

ETUI (2015). Benchmarking Working Europe 2015. ETUI publishers, Brussels.

European Commission, (2012a). New skills and jobs in Europe: Pathways Towards Full Employment. Directorate-General for Research and Innovation, Brussels.

European Commission, (2012b). Social Inclusion of Youth on the Margins of Society: Policy Review of Research Results. Publications of the Office of the European Union, Luxembourg.

Hasanefendic S., Heitor M., Horta H. (2016). Training students for new jobs: The role of technical and vocational higher education and implications for science policy in Portugal. Technological Forecasting and Social Change, Available online 2 February 2016, ISSN 0040-1625, http://dx.doi.org/10.1016/j.techfore.2015.12.005

ISFOL (2014). First Italian referencing report to the European Qualifications Framework. Ed. ISFOL – Roma, 2014. ISBN: 978-88-543-0214-3

Kruskal, W. H., & Wallis, W. A.. (1952). Use of Ranks in One-Criterion Variance Analysis. *Journal of the American Statistical Association*, *47*(260), 583–621. http://doi.org/10.2307/2280779

Tijdens, K. G., De Ruijter, J., & De Ruijter, E. (2012). Measuring work activities and skill requirements of occupations: Experiences from a European pilot study with a web-survey. *European Journal of Training and Development*, *36*(7), 751-763.

Tüncel, M., Akyüz, Ü., Altin, R., Yalçin, O. (2010) Turkish Ministry of National Education. Reforming Turkish vocational education and. Training. An overview on Turkish VET.

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Annex - 1

EXPECTATION QUESTIONNARIE FOR ENTERPRISES

Dear Representative,

This questionnarie has been prepared for determination of expectations of enterprises from VET institutions in order to provide contribution to development process of quality of VET curriculum and programmes as a part of Erasmus + Strategic Partnership Project "New approaches to strengthened cooperation facilities for VET institutions and labour market - NecVET" which is financed by European Commission. The answers you provide will be valuable assessment for existing VET curriculum and programmes, beside of this, it will be significant contribution to the determination process of VET strategy and content. Private information about enterprises and persons definitely won't be shared in any conditions with third sides. Thanks for your contributions.

NecVET Team

Sector		Experience in the sector (years)	1-5 ☐ 5-10 ☐ 10-20 ☐ 20-30 ☐ +30 ☐

A- Vocational Qualifications

Clarification: 1 Strongly Disagree -2 Disagree- 3 Undecided,- 4 Agree, - 5 Strongly Agree					
Please provide most available point(s) for following cases	**1**	**2**	**3**	**4**	**5**
1-The persons who work in our enterprise have sufficient vocational knowledge and qualification					
2-The relations between VET institutions and enterprises are at sufficient level					
3-Ministry of National Education applies opinions of enterprises while they are updating training programme and curriculums in VET					
4-I have sufficient knowledge about content of vocational training programmes					
5-The curriculums of VET institutions are convenient to serve the purpose of well-trained staff of our enterprise					
6-Practical skills of graduate students from VET institutions are at sufficient level					
7- Theoretical knowledge of graduate students from VET institutions are at sufficient level					
8-Students who have VET diploma, have priorities in employement process in our enterprise.					
9-Trainees have sufficient knowledge about work health and safety.					
10-Hierarchical structure of enterprises should be introduced during VET training					

B- Basic Skills

Which of following skills have priority in your enterprise while you employ a person who is graduated from a VET institution?	**1**	**2**	**3**	**4**	**5**
1-Communication skills					
2-Teamworking					
3-Development sense of belonging to the workplace					
4-Vocational ethics and awareness of responsibility					
5-Problem solving					
6-Flexibility					
7-Self-working skills					
8- ICT skills					
9-Vocational foreign language competencies					
10-Self-confidence					
11-Learning by oneself and self-development					
12-Entrepreneurship and management skills					