Assessment of Electro-mechanic Technician Qualifications in the Context of European Transparency Tools*

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ARTICLE INFO	ABSTRACT
	Purpose: This study explores the applicability and transferability of tools developed for the realization of comparability and transparency of qualifications across Europe. It relates to the implementation of the European Credit System for Vocational Education and Training (ECVET) and the European Qualifications Framework (EQF) in the automotive sector. **Research Methods:** This study was carried out according to the case-study model in order to investigate further operationalization and transferability of the previously developed VQTS matrix in Automotive Electro-mechanics to different national contexts. The working group of this study consists of 34 car service employees from Germany, Turkey and Italy.

Findings: The data analysis indicated that the participants were moderately motivated to learn English as a foreign language (*M=92.62*). There was not a significant gender-related difference in students' motivational orientations. Furthermore, female students' self-efficacy scores were significantly higher than those of the male students. Lastly, a positive correlation was found between students' motivational orientations and self-efficacy beliefs. **Implications for Research and Practice**: According to the findings of the study, the qualifications required for the work processes of the automotive electro-mechanic technician profession and the knowledge, skills and competencies required by these qualifications were confirmed by the service employees to a great extent.

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Introduction

European instruments such as EQF and ECVET aspire to increase comparability, transparency and mutual recognition of learning. This aims to increase upward mobility and lifelong learning among European citizens. At the same time in many European countries these instruments are considered to be a starting point for reforms within vocational education and training (VET) systems. Those who hold this view intend to improve the coherence, quality and relevance of VET or, based on learning outcomes orientation, to develop new learning pathways, programs, qualification standards and/or procedures (CEDEFOP, 2012).

In today's rapidly changing world, matching the needs of the labor market and the labor force is of great importance. A qualified labor force must be trained, not only with vocational competencies but with other competencies such as communication, interpersonal relationship, foreign language, and computer skills. This supply-and-demand relationship between the labor market and the labor force could only be achieved with a strong connection between educational institutions and the labor market (Burgaz, 2008). VET should support development that is sustainable for an individual's wellbeing and play a crucial role in challenging and transforming society and labor (McGrath & Powell, 2016, 12).

Competence-based VET, which integrates knowledge, skills and competencies, has become popular in European countries (Nissilä, Karjalainen, Koukkari, & Kepanen, 2015, 25). The Copenhagen process aims to improve the performance, quality and attractiveness of VET in Europe. The goals of the process are the reinforcement of the European dimension, the establishment of mutual trust, the development of tools for the mutual recognition and validation of competencies and qualifications and the improvement of quality assurance in the context of VET in Europe. Within the framework of this basic policy, the European Parliament and the Council released in 2008 (EQF) and 2009 (ECVET) the recommendations on the establishment of an EQF (Official Journal of the European Union [OJC], 2008/C 111/01) and an ECVET (OJC, 2009/C 155/02). Although they are just recommendations, putting the proposal for an EQF and ECVET on the table has stirred much discussion among stakeholders in VET (Bouder, 2008) and also has led to a number of reform movements across all of the implementing countries (CEDEFOP, 2013a; CEDEFOP, 2013b; CEDEFOP, 2014a).

The European project MASECVET, implemented by a multilateral partnership from Turkey, Italy and Germany and funded with financial support from the European Commission's Lifelong Learning Programme, investigated ECVET in the automotive sector in order to explore possible tools to facilitate the trans-national mobility of workers and learners as well as the recognition of prior learning by the means of ECVET tools and practices in the automotive sector.

EQF and ECVET are functional instruments in providing transparency and transferring abilities and recognition between the sectors and levels included in the national and European vocational training systems. The study at hand is part of this project and presents the results of a comparison of electro-mechanic technician

qualifications in the three countries participating in MASECVET based on the European tools EQF and ECVET.

The European Transparency Instruments EQF and ECVET

EQF is "a reference tool to compare the qualification levels of the different qualifications systems and to promote both lifelong learning and equal opportunities in the knowledge-based society, as well as the further integration of the European [labor] market, while respecting the rich diversity of national education systems" (2008/C 111/01).

ECVET "is a technical framework for the transfer, recognition and, where appropriate, accumulation of individuals' learning outcomes with a view to achieving a qualification. ECVET tools and methodology comprise the description of qualifications in terms of units of learning outcomes with associated points, a transfer and accumulation process and complementary documents such as learning agreements, transcripts of records and ECVET users' guides" (OJC, 2009/C 155/02). ECVET is supposed to be applied to all EQF levels in order to facilitate transnational mobility and recognition of learning outcomes independently from the context in which they have been obtained. Meanwhile, it is a method used to define a qualification in terms of transferable, savable and expressible learning outcome units (knowledge, skills and competence) (Altin, 2007). According to Rauner (2008), the experiences with ECVET and the EQF refer to the significant risk of an impending under-valuation of vocational competence. On the other hand, those European initiatives and the effects to which they lead are perceived to be a potential tool in order to increase the attractiveness of VET in Europe (CEDEFOP, 2014b).

Both European instruments build on the concept of learning outcomes orientation with learning outcomes being defined as "statements of what a learner knows, understands and is able to do on completion of a learning process, which are defined in terms of knowledge, skills and competence" (OJC, 2008/C 111/01). A qualification should only be certified when someone actually proves to have the requisite competencies at a specific point in time. The developmental context of qualifications and competencies is a system lacking in quality. A complete self-actualization of the education and training systems will be ensured, by virtue of the decoupling of vocational requirements by means of competitive mechanisms and other instruments of subjective economics, such as the EQF and the ECVET (Bremer, 2008).

The Vocational Qualification Transfer System (VQTS)

The award-winning VQTS model has been applied in the MASECVET project. This model has been developed and further articulated in the European VQTS projects led by the Austrian research institute 3s. VQTS provides a model that allows for the transfer of vocational abilities acquired abroad (geographical mobility in VET), transfer and recognition of abilities acquired within a formal VET system as well as achieved through informal or other kinds of prior learning by developing qualifications, composing job profiles and conducting personnel (human resources)

planning and enhancing the visibility of differences in qualifications to make qualifications comparable across borders.

In this context the model is regularly used within pilot projects in the framework of ECVET and EQF application throughout Europe. The core of the VQTS method uses a common competence matrix in order to display competences structurally in a table according to core work tasks in a specific occupational field and the progress of competence development" (Luomi-Messerer & Markowitsch, 2006, 9). This competence matrix is closely connected to the actual work done in the particular field of work at a shop-floor level rather than being based on a single qualification profile and should, therefore, be independent from existing qualifications/certificates. The VQTS approach is, however, explicitly not meant to harmonize qualifications across borders or to develop common qualifications/curricula; rather it only aims to make the competence level reached within a qualification/level or as a learner transparent and comparable. (Luomi-Messerer & Markowitsch, 2006)

The overall VQTS approach is strongly related to the world of work and therefore exclusively relies on and displays competences that also exist in practice. Further curricular elements not directly included in the core work processes may or may not be part of a VQTS matrix in order to view the work process as being the same or at least similar across organizational and national borders. Therefore, the VQTS matrix does not intend to replace a curriculum. Its intention is to be the basis for comparison of learning outcomes acquired in different kinds of learning processes including curricular learning (Luomi-Messerer & Markowitsch, 2006). This also makes it a very valuable tool in the context of integrating work-based learning elements into formal VET approaches such as those currently investigated and fostered through the European Alliance through Apprenticeship declaration (European Union, 2015).

Different kinds of competence profiles can be displayed on the matrix (see fig. 1). According to the level of competence reached by an individual learner (individual profile) or through attendance of a training program (organizational profile) within the identified competence areas/core work processes, the level of competence increases on the table from left to right. In this context, it must be noted that the VQTS definition of competence does not correspond to the definition of the term competence within EQF terminology. Within VQTS, the term competence refers to cognitive competences (knowledge), functional competences (skills) as well as social competences (behavior) and does not incorporate the autonomy and responsibility dimension as does the EQF.

The VQTS competence matrix approach has been tested, further explored and developed within VQTS and related projects in the framework of different vocations and in different application contexts.

Competence areas	Competence development steps/Level of competence development				
Competence area 1					
Competence area 2					
Competence area 3					
Competence area 4					
Competence area X					

Figure 1. Sample VQTS Matrix with Organizational Profile (Dark grey) and Individual Learner Profile (light grey)

The VQTS Matrix Car Mechatronics (CarEasyVET)

The project CarEasyVET explored core work processes in the field of car mechatronics in order to develop a competence development matrix according to the VQTS approach used as the basis of this investigation. The CarEasyVET consortium identified a horizontal differentiation of each individual core work process similar to the VQTS approach. This led to a matrix that reflects the VQTS model in its overall approach. Each work process has been split into three-to-five levels of increasing degree of difficulty. An example of one of these work process (which are described as competences) from the competence development matrix can be seen in Table 1. Work processes in the competence matrix reflect the competence development steps necessary to acquire mastery in the respective field (Spöttl & Ruth, 2011). The competence development matrix for car service and repair (Car Mechatronics) was taken from Spöttl and Ruth (2011, 155–160) and extended with the results of the MASECVET study on the applicability of the different steps of competence development/fields of competence in Germany (DE), Turkey (TR) and Italy (IT).

Table 1

A competence step in the Competence Development Matrix for Car Service and Repair

Core Work Processes	Fields of competency/ Steps of competency development		
(1) Standard service	(1.1) He/she receives the vehicle from the customer and prepares the service tasks. The customer order is more precisely defined and includes the identification of the vehicle. Customer advisory service must be carried out.	(1.2) He/she carries out all tasks relevant for service and ensures that the car remains functional with regard to traffic, operation and technical functions. The service adheres to service plans and customer requirements.	1.3 He/she carries out service tasks and hands the fully functional car over to the customer. He/she explains the performed service tasks. All of the manufacturers' provisions tor service have been adhered to.

The study at hand aims to explore the transferability of concepts and tools intended to facilitate the realization of these European instruments from one national context to another and, therefore, the realization of the intended increase in comparability and transparency of qualifications across borders. This will be done by investigating the applicability of the VQTS matrix for car mechatronics as a way of expressing qualifications in ECVET and the applicability of the further defined competence development steps in terms of the EQF learning outcomes descriptors—knowledge, skills and competence—in the context of the three countries involved in this study.

The sub-purposes of the study are as follows:

-    To determine if the competencies that were proposed for electro-mechanical technicians in the CarEasyVET project are valid for the three participating countries.

-    To discover the similarities and differences among the participating countries regarding the competencies determined for electro-mechanical technicians.

-    To develop a valid and reliable method for the correct determination of competencies.

Method

Research Design

This is a qualitative study. The case-study model that is used to produce results related to a definite situation has been applied (Yildirim & Şimşek, 2011). The study was designed to determine if the competence development matrix developed in the CarEasyVET project and its further operationalization in terms of learning outcomes is applicable and can be transferred to other national contexts. For this purpose, individual interviews were conducted with the participants of the study by the researchers by using the fully structured interview format.

Research Sample

Critical case sampling, which is a type of purposive sampling, was the chosen method of sampling used in this study. In critical case sampling, the purpose is to form sub-groups by including similar cases within the study (Yildirim & Şimşek, 2011). The working group of this study consists of car service employees, including an automotive electro-mechanic technician. By considering the accessibility situation of such services, 34 service employees who worked in a total 34 different positions— 10 in Germany, 14 in Turkey and 10 in Italy—from different car companies and independent providers were contacted. Demographic variables of the working group are shown below (Table 2).

Table 2

Demographic Variables of the Participants from Germany (DE), Turkey (TR) and Italy (IT)

Gender	Demographic Variables	DE	TR	IT
	Male	10	14	10
	Female	0	0	0
	High school	7	8	4
	Higher school	-	2	-
Graduate	Bachelor's	3	3	1
	Master's	-	1	-
	Other degrees	-	-	5
	1–5 years	-	-	1
	6–10 years	1	-	1
Career experience	11–15 years	4	2	2
	16–20 years	3	9	4
	21 years and above	2	3	2
	Electro-mechanic technicians	3	7	10
	Instructors	2	3	-
	Service chief	-	1	-
Position	Service director	3	2	-
	Education manager	1	1	-
	Other	1	-	-
Total		10	14	10

Research Instruments and Procedures

In order to create the qualification matrix, the competency matrix established within the CarEasyVET (Careasyvet) project carried out between 2007 and 2009 was used. This project was carried out with partners from Germany, Austria, Bulgaria, France, Italy and Slovenia. The established matrix covers the work processes required for the automotive mechatronics in these countries. Nine work processes included in the matrix were used as a basis for the study.

The work processes included in the competency matrix established for the automotive maintenance and repair and automotive mechatronics correspond to the training area carried out in Turkey under name of automotive electro-mechanics in the Sisli Vocational and Technical Anatolian School. At the formal and non-formal Vocational and Technical secondary education institutions, training is given in this field under the Automotive ElectroMechanic branch, and graduates of such institutions are being employed in automotive service facilities as technicians.

By considering these work processes, a qualification matrix expressing the already available competence development steps in terms of the EQF descriptors was established by three expert technical teachers. In this process, a total of nine main qualification fields (work process) and development steps under each main qualification field were determined.

Under each competency area, there are a number of competencies. In order for an individual to be considered to be in possession of a certain competency, it should be demonstrated that s/he has the knowledge, skills and competence related to that competency. If we take electro-mechanical technicians as an example, as seen in Table 1, the first competency listed under the standard service competency area is: "(1.1) He/she receives the vehicle from the customer and prepares the service tasks. The customer order is more precisely defined and includes the identification of the vehicle. Customer advisory service must be carried out." This competency has three sub-dimensions. The first one of these is the knowledge dimension, "s/he knows communication techniques;" the second one is the skill dimension, "s/he can use a PC;" and the third one is the competence dimension, "s/he should be able to examine the vehicle by checking the customer complaint forms."

The whole matrix was converted to the fully structured interview form by the researchers. The data was obtained from applicable/non-applicable questions. There is a total of 293 questions on this form; each of which pertains to a different knowledge, skill or competence related to the nine competency areas determined for electromechanical technicians.

Validity and Reliability

A pilot study was realized with five service employees to examine how the choices were understood and the fully structured interview form was prepared according to the qualification matrix. The interview form was translated into English and from there into German and Italian. The technical dimensions of the translation into English were assessed by two technical teachers. Firstly, the interview form was translated into English by two researchers. Consequently, the translated interview

form was translated from English to Turkish by two professional translators, and a comparison was made to understand the perception of the meaning of each clause. There were no differences between the two forms. This process was followed by German and Italian partners in their languages, and no difference were seen as well.

Data Analysis

The web-based LimeSurvey program was used to analyze the data obtained from the interview forms (LimeSurvey, 2017). This program was used for data input and to calculate the frequencies (f) and percentages (%). The percentages of choices collected under sub-dimensions were presented in tables. The validity and the reliability of the matrix used in this study has been checked within the CarEasyVET project carried out earlier.

Results

The following displays the results of the investigation with regard to the applicability of the competence development steps in different national and cultural settings and the applicability of the defined EQF descriptors for the individual development steps.

The first part of the study investigates the applicability of the competence development steps defined within the CarEasyVET project within different national contexts. Table 3 provides an overview of the research results differentiated by development step and national context.

Table 3

Results of The MASECVET Test Persons' Ratings on the Applicability of the Development Steps within Their Work Reality in Percent

Development Step	DE	TR	IT	Development Step	DE	TR	IT
1.1	100	57	100	6.1	20	78	100
1.2	100	78	100	6.2	100	100	100
1.3	100	50	100	6.3	100	92	100
2.1	100	100	100	6.4	100	92	100
2.2	100	85	100	7.1	20	85	100
2.3	100	57	100	7.2	100	71	100
2.4	100	92	10	7.3	100	78	100
3.1	100	78	100	7.4	100	92	100
3.2	100	100	100	7.5	100	92	100
3.3	100	92	100	8.1	100	71	100
3.4	90	92	100	8.2	20	78	100
4.1	100	64	100	8.3	20	85	100
4.2	100	78	100	8.4	100	92	100
4.3	100	85	100	9.1	100	71	100
4.4	100	92	100	9.2	100	85	100

Table 3 Continue

Development Step	DE	TR	IT	Development Step	DE	TR	IT
5.1	100	85	100	9.3	100	85	100
5.2	100	92	100	9.4	100	78	100
5.3	100	100	100				
5.4	100	92	100				
5.5	100	64	100				

There are three items within the standard service work process (1.1, 1.2, and 1.3). The table shows that participants from Germany and Italy agree with all the items (f=10; 100 %). Participants from Turkey meet the development step expressed as "Fulfills all the tasks related to the service and ensures that vehicle remains functional for traffic, operation and technical functions. Observes the service, service plans and costumer's needs" (f=11; 78%). However, according to data received from open-ended questions, a few of the participants from Turkey say that there were more positions like service advisor or damage consultant who performs some of these standard service work processes (Ozcan & Vuranok, 2013, 1962).

Four development steps are identified for the second work process, Repair of Corroded Parts. Participants from Germany and Italy meet the requirements for all of these items (f=10; 100 %). Participants from Turkey meet the development step expressed as "Changes the corroded parts. Functions of vehicle systems are secured. A new set of the corroded parts (brakes, V-belts, wheels, tires, clutches, lighting system, shock absorbers, water pump, etc.) are placed within the vehicle" (f=14; 100 %). However, just like the Standard Service work process, damage consultants perform some of this work process (Ozcan & Vuranok, 2013, 1962).

The third work process Standard Diagnosis, Diagnosis Processes,Malfunction Repair and Smaller Repairs contains four developmental steps. The participants from Germany meet the item of "Deals with more complex failures like production of fuel mixture, engine management, comfort and safety electronics, communication electronics and makes standard repairs in order to reinstate functionality. If necessary diagnosis and measuring devices are used" (f=9; 90 %) and fully meet the other items (f=10; 100 %). Participants from Turkey meet the development step expressed as "Makes a standard diagnosis and controls the failure notification. Necessary diagnosis routines are observed. Necessary minor repairs for troubleshooting are performed" (f=14; 100 %). Participants from Italy meet with all the items fully (f=10; 100 %).

Four items are related to the fourth work process inspection. Participants from Germany and Italy meet all the items (f=10; 100 %). Participants from Turkey agree with the development step expressed as "Carries out all the necessary inspection tasks through engine, engine management, chassis, traction and electronic system. Proper equipment is used. Adheres to technical standards during replacement of parts and prevents people from getting injured" (f=13; 92 %).

The fifth development step, Traction Repair and Suspension, contains five items. Participants from Germany and Italy meet all the items (f=10; 100 %). Participants from Turkey meet with the development step expressed as ”Determines the scope of the repair of the parts by considering failures and malfunctions.” Necessary repair measures are obtained from these findings. An exact damage assessment is made (f=14; 100 %).

Four items have been identified within the sixth work process, electric and electronic repair. Participants from Germany and Italy meet the requirement: "Defines the failures with the help of a diagnostic device and coordinates the scope of the repair with customer. Workshop's resources are planned according to this process. Based on the damage, the task is given to a certain team or a serviceperson who chooses proper equipment" (f=2; 20 %) and fully meet with the other items (f=10; 100 %). Participants from Turkey meet the requirements of the development step expressed as "Makes decisions for changing or repairing the parts of the vehicle by focusing on the restoration of the normal situation. This involves failure repair and partial modernization. Final determinations and information service are very important for determining the failures" (f=14; 100 %). It is seen that participants from Italy meet all the items' requirements (f=10; 100 %).

Five items are related to the seventh work process, Extended Diagnosis and Repair of Parts, Components and Elements. Participants from Germany meet with the item of "Makes accurate diagnosis in especially difficult cases. This means that unique, undocumented and random failures will be detected via diagnostic method. In the next step, the reasons for failures are reduced and their repair content is estimated" (f=2; 20 %) and fully adhere with the other items (f=10; 100 %). Participants from Turkey adhere with the sub-qualifications expressed as "Reduces failures in order to determine the exact causes by conducting experiments. Focuses on the findings analyzed by using different methods. Methods often focus on troubleshooting with measuring and diagnostic devices. When the failure is found, it is repaired in adherence with the technical standards and safety regulations" (f=13; 92.86 %) and "Documents the failure and repair. The manufacturer will be informed by current communication details and recommendations for the development of interworking of diagnosis will be sent" (f=13; 92.86 %). Participants from Italy adhere with all of the items (f=10; 100 %).

The eighth work process, Repair and Maintenance of Parts such as the Motor and Gearbox (automatic and mechanic), contains four competence development steps. Participants from Germany adhere with the following development step: "Deals with costumer complaints and results of the first diagnosis and defines the damage accurately. Based on this, decides which services should be performed (general maintenance, changing etc.). In order to facilitate the decision, components should be checked thoroughly (manual check, listening, visual check) if necessary parts should be ordered. Before the final decision in the troubleshooting process, customer should be informed and after clarifying all details, in order to decide on an effective repair resulting in customer satisfaction, foster more intensive communication between workshop and customer. This also involves meetings with the customer about

different options and prices. Repair is started after these decisions" (f=2; 20 %) and fully adhere with the other items (f=10; 100 %). Participants from Turkey adhere with the development steps expressed as "Performs repair in adherence to the legal provisions by using the proper tools after deciding the type of the repair. Should organize repair process systematically. Functionality and operability of the parts must be secured as far as possible. During repair, adheres to all quality and safety standards and focuses on the details of the repairs with highest precision possible" (f=13; 92.86 %). It is seen that participants from Italy adhere with all the items (f=10; 100 %).

Four development steps have been identified for the ninth work process "Extension of Standards and Mounting of Accessories" qualification. It is seen that participants from Italy and Germany adhere with all the items (f=10; 100 %). Participants from Turkey adhere with the development step expressed as "Deals with equipment in a manner that shows the best technical performance and adheres to all legal provisions and standards stated by manufacturer. Contradictions between the customer's interest and ecological compliance of vehicle and traffic and operational safety must be resolved These issues should be explained to the customer properly" (f=12; 85 %) and "Takes special extension measures and makes them serve a purpose. The effects of the all vehicles on vehicle systems and features should be checked. Necessary parts should be supplied before service process. Order planning should be made. Installations should not prevent the functionality and safety of the vehicle" (f=12; 85 %).

Discussion and Conclusion

This research on the car mechatronics matrix as a mean for the realization of ECVET conducted within MASECVET also emphasizes the applicability of the matrix within different organizational and national contexts. The validation of the matrix by stakeholders in all countries showed that the tasks and development steps identified within the CarEasyVET project are similarly evaluated by the stakeholders from Turkey, Italy and Germany. It can, therefore, be considered as similar in those countries and therefore suitable as a basis of comparison for related qualifications in the context of ECVET and EQF. The matrix can be seen as a complementary opportunity for comparing qualifications on EQF levels but without the necessity of actually comparing individual learning outcomes assigned to a qualification. It has, therefore, a clear added value in order to make qualifications transparent across borders. However, the validation also opened up some weaknesses of this specific VQTS matrix in terms of applicability of individual competence/responsibility areas on the shop-floor level, which need to be further investigated in order to increase the matrix' validity and therefore its practical usability.

The VQTS model was originally developed in the context of ECVET mobility. This application area has been further investigated in some of the VQTS transfer projects (MOVET I/II, SME MASTER Plus, Trift). In all of these cases, the application of the VQTS matrix proved to be feasible although additional tools such as the

MOVET-taxonomy table (Küßner & Drews, 2011) have been considered to be necessary in order to practice this approach. It can, therefore, be concluded that the VQTS matrix car mechatronic will be able to support the implementation of ECVET mobility activities, especially in the longer-term mobility of several months. However, for short-term mobility, it is recommended that evaluators further refer to the taxonomy table and the overall approach applied within MOVET or to the further elaborated approach chosen by the study at hand in order to express competence development steps in terms of the EQF descriptors in order to provide an additional tool for the realization of short-term mobility.

The study results, as well as the results of a number of other European projects in this context, also demonstrate the successful additional application of VQTS matrixes in making qualifications comparable across borders that complements the approach chosen within the EQF. The claim that "curricula can be 'translated' and compared, and one can identify equivalences and differences of learning outcomes" (Luomi-Messerer, 2009, 81) with the VQTS tools is therefore highlighted. The development of tools such as organizational profiles for relevant qualifications/certificates can, therefore, be considered as highly valuable in order to support comparability and transparency of qualifications in trans-national and national contexts (Blings & Spöttl, 2008).

The validation of informal learning in the context of EQF and ECVET is still an area with huge deficits with regard to testing and piloting tools such as the VQTS model. However, this ECVET application area seems to be especially important when considering the high youth unemployment rates, the shortage of skilled workers and the potential that is seen for work-based learning (European Union, 2015). In these cases, the ECVET application area recognition of prior learning can strongly contribute to increasing the formal qualification of workers and young people by creating the opportunity of receiving recognition for informally achieving learning outcomes when entering into formal learning environments and of receiving recognition of formal qualifications when seeking job placement (abroad) (CEDEFOP, 2015). This study confirmed the clear link between work processes and competence development steps the car mechatronics matrix is based on. This can be considered as highly valuable in the context of the recognition of informal learning and, therefore, for the realization of Council recommendation 2012/C 398/01 on the validation of informal learning with ECVET (CEDEFOP, 2013c).

It can be concluded that the application and implementation of European tools in combination with operational approaches such as VQTS (Becker, Luomi-Messerer, Markowitsch & Spöttl, 2008) can bring added value to VET systems not only by providing greater transparency and comparability of qualifications across borders, but also as a catalyst for quality, labor market responsiveness and innovation within VET in general and in the automotive sector in particular.

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Avrupa Şeffaflık Araçları Bağlamında Elektromekanik Teknisyenlerin Niteliklerinin Değerlendirilmesi

Atıf:

Özet

Problem Durumu: Otomotiv sektörü Avrupa ekonomisi ve işgücü piyasası için çok önemli bir sektördür. Bu sektör içerisinde küresel ölçekte bir rekabet söz konusudur. Dolayısıyla teknik ve beşeri yönden sürekli yenilenme bir zorunluluktur. Sektörde yer alan işgücünün becerilerinin sürekli olarak güncellenmesi gerekmektedir. Ayrıca sınır ötesinden işgücü satın alımı da yaşanan bir realitedir. Ülkelerin mesleki eğitim sistemleri arasındaki farklılıklar öğrenci ve çalışanların ülkeler arası hareketliliklerini zorlaştıran bir unsurdur. İşgücü piyasası ve Avrupa otomotiv sektöründeki rekabet, çalışanların niteliklerin ve hareketliliklerinin kıyaslanması ihtiyacını doğurmaktadır.

Araştırmanın Amacı: Bu araştırma Almanya, Türkiye ve İtalya için Otomotiv Elektromekanik Teknisyenliği yeterliliklerinin, European Credit system for Vocational Education and Training (ECVET) ve European Qualifications Framework (EQF) sistemlerine uyumunun değerlendirilmesi için yapılmıştır. Bu araçlar şeffaflığın sağlanması, ülke içi ve Avrupa mesleki eğitim sistemleri içinde sektörler ve seviyeler arasında becerilerin transfer ve farkındalığının sağlanması için işlevsel araçlardır. Bu çalışma Almanya, Türkiye ve İtalya'daki elektromekanik teknisyenliği yeterliliklerinin ECVET kapsamında uygulanmasını sağlayacak bir yeterlilik modeli geliştirmeyi amaçlamaktadır.

Araştırmanın Yöntemi: Araştırmada görüşme tekniğine dayalı nitel metot kullanılmıştır. Tam olarak yapılandırılmış görüşme formaları kullanılarak katılımcılarla bire bir görüşmeler gerçekleştirilmiştir. Çalışma grubunu amaçlı örnekleme yöntemlerinden ölçüt örnekleme yolu ile belirlenmiş toplam 34 otomobil servisi çalışanı oluşturmuştur.

Araştırmanın Bulguları: Araştırma bulgularına göre tüm katılımcılar kendilerine sunulan maddelere büyük oranda katıldıklarını ifade etmişlerdir.

Araştırmanın Sonuçları ve Önerileri: Hareketlilik ve yaşam boyu öğrenme faaliyetlerinin desteklenmesi ve bu kapsamda elde edilen öğrenme çıktılarının tanınırlığının sağlanması amacıyla Avrupa Komisyonu tarafından EQF ile eşgüdümlü olarak ECVET geliştirilmiştir. Bu çalışmalarının bir ürünü olarak gerçekleştirilen "Mobility in Automotive Sector through ECVET" projesi kapsamında "otomotiv elektromekanik teknisyenliği" yeterliliklerinin belirlenmesinde çeşitli aşamalardan oluşan bir yöntem ortaya koyulmuştur. Bu yöntemin yeterliliklerin belirlenmesinde etkin olduğu görülmüştür.

Araştırma sonuçlarına göre elektromekanik teknisyenliği iş süreçlerin yerine getirilmesi için ihtiyaç duyulduğu belirlenen yeterlilikler ile bu yeterlilikleri gerektirdiği bilgi, beceri ve yetkinlikler büyük oranda servis çalışanlarınca da onaylanmaktadır. Türkiye'nin iş süreçlerinin işgücünün hareketliliği ve kredilendirilmesi konularında diğer AB ülkeleriyle uyum içinde olduğu görülmüştür.

Anahtar Kelimeler: ECVET, yeterlilik, otomotiv, elektromekanik teknisyeni.