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Potentials of Apprenticeship within School-Based VET Systems

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Abstract

Dual Vocational Education and Training (VET) or apprenticeship schemes as a promising approach to overcome economic crisis in south Europe and to adapt the handling of new technologies when these reach the "world of work" (and not yet VET-schools) is since years high on the agenda of European and national policies. Consequently a manifoldness of approaches and projects have been started to support Work-Based Learning (WBL) in all of its forms, for a comprehensive overview see for example WBL-toolkit (2018). However, being honest, most of these measures are rather far away from "real" apprenticeship schemes; most approaches are internships, learning projects, simulations, etc. In our current ERASMUS+ project "Integrating Companies in a Sustainable Apprenticeship System" (ICSAS 2017), we are focusing on the sector of industrial shoe production and are working on the question, whether an approach, being close to apprenticeship scheme in Germany, is of benefit within and for school-based VET-systems of Portugal (PT), Romania (RO), and Spain (ES).

Keywords

industrial shoe production; VET curricula; work-based learning (WBL); tutor training; sector qualification framework

1 Background

While southern European countries are coming through the economic crisis, industry 4.0 is increasingly settling in manufacturing sectors. Now the main concern of these countries is not only to achieve the economic upturn and provide as many workplaces as possible, but also to count on updated and highly qualified workforce. This new requirement has caused many countries to witness a shortage of skills in their human resources and an obsolescence of their national curricula, which prevents them to catch up with today's hectic technical evolution. As a result, new approaches for the learning process of future workers are arising in the form of VET-oriented projects that are already having an impact on the ways both training centres and companies are tackling the training of the workforce.

In line with this, one of the projects contributing to face the skills gap is the ERASMUS+ project "Integrating Companies in a Sustainable Apprenticeship System" (ICSAS), which mainly focuses on the high-added value of work-based learning (WBL), meaning a combined training provision shared between VET schools and actual companies. This training method brings about manifold advantages such as a faster and effective empirical consolidation of technical knowledge, a skills transfer from experienced workers to trainees or the access to complex and sophisticated production equipment and processes, among others.

In our project, apprentices are trained in real working environments and are supported by skilled workers for approximately one year. Our main criterion is being "close" to German (DE) apprenticeship scheme (being aware that there are many other criteria like legal preconditions, workshare between stakeholders, etc. – but those cannot be affected by an ERASMUS+ project). To such end we adhere to the following principles:

1 Length (piloting in RO and PT lasts 1 year);
2 Real work places: Learning takes mainly place in a real working environment, not in special departments like learners' workshops;
3 Daily contact persons of apprentices are be skilled workers; not educationally skilled staff;
4 Curriculum-driven: Differing from internships, where often the company decides in which departments placements are offered, spheres of activities (learning objectives of work-processes) chosen for our project are fully in-line with the VET-curricula of RO respective PT;
5 Duality: Learning Outcomes (LO) from WBL, which are often exemplarily, are complemented by structured lessons in VET-schools respective training centres.

Our main research question: "What are the main supporting and hindering factors of using the learning potentials of real work processes in countries with school-based VET-systems", has been operationalised in three pragmatic questions:

- What could be learnt in real work-processes?
- What should be learnt in real work-processes?
- How can learning be facilitated by tutors?

2 LSA

In order to identify what *could* be learnt in real work-processes, the 'LSA' (Learning Station Analysis) method was developed to support the training organisation at places of learning within a work process in an effective way, taking into regard business needs as well as work process requirements. Essentially, this analysis helps users to identify places of learning that are important both in terms of their significance for the business process and for the learning opportunities they provide. This approach emphasises the value of training taking place at work places where the most significant operations are being carried out.

The main features of the LSA (for details: cp. Saniter et al. (2016)) can be summarised as follows:

- The LSA method wass jointly developed by researchers and trainers and, ideally, a LSA is conducted by a skilled worker and an external colleague.
- Its primary objective is to evaluate learning potentials of work processes.
- It helps to set up training plans according to work processes, and fosters the acquisition of skills and competences by the learners.
- Evaluation and documentation of the analysis (the results serve for developing a training schedule respecting a logical sequence of progression through learning stations).
- The skilled workers involved in the interviews should proofread and give their approval for publication of the documentation of a LSA before further circulation.

- It should answer which skills and knowledge a trainee should already have acquired before entering a new learning station in order to achieve optimal learning outcomes.
- The manual for analysis should be used as a toolbox, not as a rigid rule.
- Findings are recommendations; concrete implementation might be affected by frame conditions (e. g. number of placements at a time).

In this project LSA has been carried out at the companies Gabor in Germany, Carité in Portugal and Papucei in Romania at all relevant Learning Stations (10-15 have been identified) in order to see which learning potentials can be found within work processes of these companies. Findings reveal, not very surprisingly, enormous and comparable learning potentials within shoe-producing companies from the three countries.

Each vocation can be described by a series of "spheres of activity". These spheres of activity describe the respective skilled work on the basis of purposeful and meaningful work contexts. Spheres cover a complete vocation and are typical for a particular *métier*. We identified 9 ICSAS-spheres, (5 core and 4 peripheral) describing the most common tasks of industrial shoemakers on a transnational level.

Table 1 Updated Spheres of Activity of industrial shoemaker according to findings of ICSAS-project.

Core spheres	Cutting	Stitching	Lasting	Assembly	Finishing
Peripheral spheres	Design	Technical development	Production planning		Quality assurance

3 Concept of the one-year pilot phase

Determining what *should* be learnt via WBL is based on a comparison of findings from LSA and the respective national curricula in PT and RO.

Currently (12.2018) we can report the implementation approaches of the WBL pilot phase that has already been initiated by our PT and RO colleagues (10.2018) and their first impressions and conclusions, which will be updated until our presentation in 05.2019.

The Romanian strategy was highly influenced by the current situation footwear companies are facing: A lack of qualified labour force and a poor VET offer for the footwear sector (on EQF levels 2-4). The solution was to use the degree programs (EQF 3) in the TCF sector (textiles, clothing, footwear) in order to implement WBL in the footwear sector. Within this curriculum there are a number of hours provided which are covered by the Locally Developed Curriculum (LDC). This LDC is a specific curriculum of each VET school and is developed in cooperation with economic operators. After the County School Inspectorate of Iasi approved the curriculum, the ICSAS apprenticeship-like scheme was implemented. RO project partners announced this program and they received a row of applications by interested students.

The Portuguese strategy aims at upgrading an existing level 2 curriculum to a level 4 curriculum by adding 6 months WBL training (35 hours per week). It will consist of 80% WBL (supervised by tutors) and 20% theoretical learning (taught by certified trainers from VET school); both components will be delivered in the company. PT partners delivered a proposal to competent bodies to create the job profile and qualification referential of the level 2 "Footwear Manufacturing Operator" into level 4 "Footwear Industrial Manufacturing Technician".

4 "Train the tutor" manuals

As regards the third question "how can learning be facilitated by tutors?" we have prepared 11 "train-the-tutor manuals" focused in the 9 spheres of activities identified in the project (4 peripheral spheres and 5 core spheres; 2 spheres with 2 manuals) related to each specific department or process in shoe manufacturing. These reinforce the role of skilled in-company personnel as tutors, offering sector-specific guidance. They follow established didactic principles to ensure the efficient knowledge transfer from tutor to apprentice, as they are not pedagogically specialised staff but subject matter experts. These manuals are available in EN, RO, PT, DE and ES languages, and are in the piloting.

5 Conclusion

Shoe producing companies in Portugal, Germany, Romania, and Spain are facing the problem that it is getting harder to recruit skilled workers. Besides, in order to promote the employability of youngsters it is of utmost importance that they acquire a qualification that matches the companies' needs to increase the opportunities of them entering the labour market. By implementing the work-based learning modality, on the one hand apprentices will develop the necessary skills trough a comprehensive learning shared by a VET school and a company, and on the other, companies will ensure their competitiveness by providing specifically sector-oriented training to the apprentices that will become tomorrow's workforce.

The objective is to compare the experience and the legal framework of countries that have already implemented this system with those with traditionally school-based VET regimes. We do expect that there is the option of a step by step implementation of WBL into national VET programmes of shoe producers in Romania, Portugal, and Spain. This iterative approach is chosen not only due to legal restrictions (curricula); but also to have all (partial very critical) stakeholders on board. Moreover, a transparent implementation of (firstly) few elements of dual education minimises the risks of exploitation of VET learners and offers evidence for the fact, that apprentices are not cheap substitutes for skilled workers. The pilot phase already undertaken by PT and RO colleagues will help contrast the expected learning potentials with the experience of companies, apprentices, VET schools and institutions to agree on the best practices and prove the advantages of this method.

Our presentation will focus on the findings on hindering and supporting factors of the implementation of "apprenticeship-like" schemes in RO and PT – and on potential consequences for similar approaches in the school based VET-system in ES.

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