Developing Innovative and Attractive CVET programmes in industrial shoe production

Quality Guidelines

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Editor: Andreas Saniter

Authors: DE: Sabina Krebs, Tatjana Hubel (PFI Pirmasens);
Klaus Ruth, Andreas Saniter, Vivian Harberts (ITB);
PT: Rita Souto, Cristina Marques (CTCP), Fátima Martins,
Ricardo Sousa (CFPIC), André Fernandes (CARITÉ);
RO: Aura Mihai, Bogdan Sarghie, Arina Seul (TU Iasi).

Content

1 Introduction

Quality assurance activities in VET projects are not desirable add-ons to the operative project works, neither can they be assigned to a single work package. Rather, quality assurance is always a crucial integrated activity across all phases of various kinds of research and development projects. Therefore it is essential for the DIA-CVET project to implement quality assurance measures that are applied during all major work steps.

Generally speaking, quality assurance aims to ensure that defined quality requirements are met for products, services as well as for the processes employed to produce both. During the last decades a number of quality assurance systems, measures and international standardisations such as ISO 9000 have been developed. A rather influential quality assurance concept was developed by W.E. Deming in the USA in the 1940s. It was successfully adapted by Japanese industrial companies in post-war Japan and amalgamated with the kaizen principle it spread globally as Total Quality Management. The core of Deming's concept, the so-called Plan-Do-Check-Act (PDCA) cycle, can still be found in many variations in today's QA systems as we will see when having a closer look to the EQAVET system (European Quality Assurance for Vocational Education and Training, see: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009H0708(01)&qid=1611571795661) in the following paragraphs.

Although QA systems claim to be in principle suitable for all types of production and service provision, there are some sectors that do not correspond to the structures of (industrial) production and general service sectors. The exceptions indicated include particularly software development, the medical sector and the sphere of vocational education and training – especially continuing vocational education and training (CVET).

The CVET sector differs from other sectors in that there is an almost uncountable number of providers of courses and learning programs, and at the same time there are only uniform quality standards for very few courses. The main reason for this is that, in contrast to the industrial production of products for the outcomes of educational processes, i.e., competencies or learning aims, it is much more difficult to establish standards. For one thing, learners are a very heterogeneous group in terms of motivation, performance and previous learning experiences. In response, the pedagogical-didactic concepts of the courses have to take this into account by using adapted – and that means non-standardized – contents and teaching/learning concepts.

For the DIA-CVET project, it follows that the quality assurance measures used must take into account the special features of the development and exemplary implementation of a further training program for industrial shoe production in 3 European countries. At the same time, the QA measures propose a quality framework for CVET programs in industrial shoe manufacturing.

The following outlines the functions that the QA system must fulfil. Then the QA principles guidelines and the measures that might be applied are explained. Finally, the tools that might be used are presented.

2 Functions

The quality assurance measures in the DIA-CVET project essentially serve two functions. Firstly, they are intended to ensure the quality of the operational work in the project, i.e. the development of a CVET concept for shoe makers at EQF level 5-7 and the piloting of the concept in the three countries involved. In second place, but no less important, is the documentation of the quality of the developed concepts in order to create transparency and to make the quality of the developed, implemented and evaluated CVET concept verifiable. This not only exposes the quality, but also lays a foundation for the recognition and validation of learning outcomes and a transparent basis for possible certifications. The joint development work on the CVET concept and the pilots in three participating countries as well as the consensual agreement on a quality framework for CVET in the footwear industry play an important role in this.

3 Essential QA principles

For the reasons mentioned above, the QA principles underpinning the DIA-CVET project are building on the framework concept developed by EQAVET, which is based on the Quality Assurance Cycle (QAC). The QAC represents, easily recognisable, an adaptation of the Deming Cycle to the specifics of vocational education and training. The QAC also defines four work steps, namely planning, implementation, evaluation and review (see Figure 1). The EQAVET concept foresees to go through all steps to generate a high level of quality and to continuously improve it, and to apply appropriate measures in each step of the process, such as stakeholder involvement, establishment of quality circles or similarly.

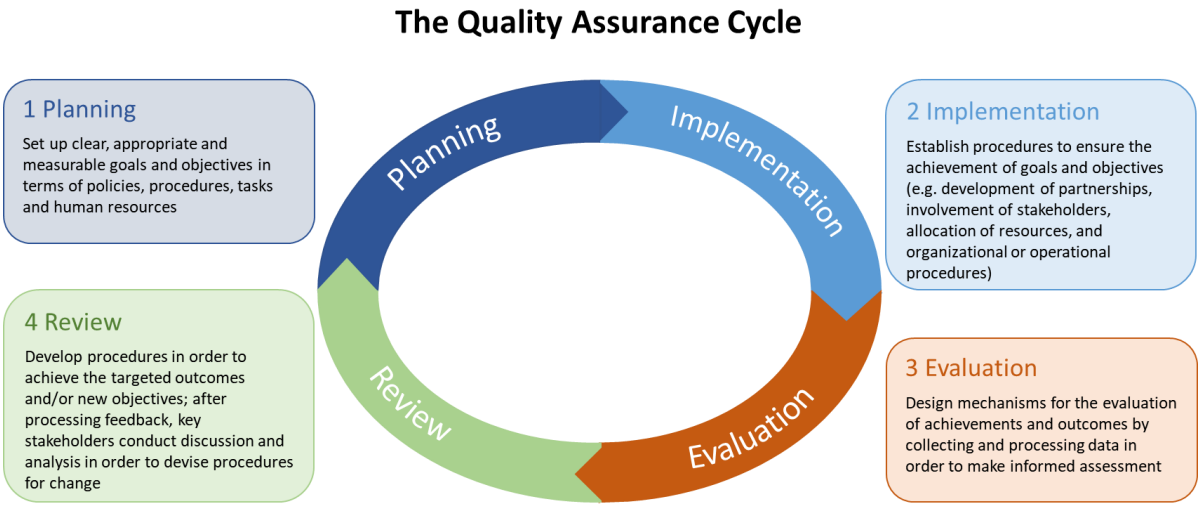

Fig. 1: The EQAVET Quality Assurance Cycle
Source: https://ec.europa.eu/social/main.jsp?catId=1546&langId=en 13-12-2021

This model is applicable for quality assurance on different levels, e.g. on the system level (of vocational education and training) as well as for training providers (of CVET courses). The DIA-CVET project is comparable to the latter in that its core task is to develop and implement a continuing education curriculum for workers in the footwear industry.

The guiding principles for quality assurance are therefore designed along the *criterion of appropriateness*. This means on the one hand the appropriateness of the developed CVET curriculum for qualification requirements at technician level in the footwear industry, and on the other hand it includes the suitability of the measure related to a sectoral training concept (CVET) for the European footwear industry. In addition to this general alignment, all procedures (incl. sub-processes) and QA tools developed in the project must also be assessed for their appropriateness.

Another fundamental orientation of the quality assurance implemented in the project is the focus on both *formative and summative* QA procedures. The formative approach, in the sense of the EQAVET quality cycle (see figure 1), aims to involve stakeholders in the essential work phases of the project in the form of workshops. In essence, the aim is to validate intermediate results developed in the course of the project, which are reflected in documents or materials. For all four phases of the QA cycle, this approach provides the most comprehensive feedback, and as an in-process instrument, formative QA is basically designed as a tool for improving outcomes and as a basis for interventions.

The summative approach has a very special significance for DIA-CVET, since it touches the core task of the project, i. e. implementing/piloting and evaluating courses for technical and managerial competences for shoe makers at EQF level 5-7. At this point, it is extremely important to determine the expansion or broadening of competencies of the learners in order to validate the courses (content and pedagogical principles) developed on the basis of expertise from professionals and project participants. Different instruments to implement this are explained in detail in the following section on measures and instruments.

At this point, the central role of a SWOT analysis should be pointed out. During piloting the developed courses all stakeholders involved will be invited to participate at workshops directly after the termination of the training courses, in the frame of which a SWOT analysis is conducted. The detailed feedback collected in this way will be used to develop suggestions for improving the CVET courses and, at the same time, provide recommendations for further sectoral CVET measures.

Eventually, another key concept of QA includes a comprehensive assessment of developed CVET programmes and a transparent account of the results which will also stimulate the *critical reflexion*. Furthermore, it will contribute to increasing the acceptance of the CVET courses in the sector and at the same time provides the basis for transfer measures into the footwear sector.

4 Measures and Instruments in detail

The basic QA principles translate into a bundle of different measures. As mentioned in the previous sections, the overall quality of the essential final outcome of the project, which will be an exemplarily implemented CVET programme for specialist workers of the footwear industry, strongly depends on the quality of preceding project steps insofar as they are prerequisites for achieving and assuring the quality of the final outcome.

In this sense, the development and exemplary implementation of CVET courses for the competence development of skilled workers in the footwear industry on EQF level 5-7 builds on a *critical path* consisting of different planning, information collecting and development steps. In the following sub-chapter, these steps are described with regard to the respective measures and instruments for quality assurance.

In the subsequent chapter 4.2 QA measures and instruments for competence assessment are presented, which are crucial for the project success, since the evaluation of the competence development of the shoe workers in the course of the piloted CVET training measures can assess the validity of the training units and the project success as a whole.

4.1 Measures and instruments in the survey and development phase

To determine the competency requirements for an industrial footwear manufacturing specialist at an advanced level (technician or specialist level), the DIA-CVET project identifies the core work areas. These are elaborated by so-called Task Analyses (TA), whose orientation is based on the elicitation of the skill needs of work processes and tasks, on the potential learning outcomes when learning in a work process, and on the necessary prior skills for succeeding in a concrete learning environment.

The TAs are preceded by the identification of so-called Spheres of Activity. These describe typical work areas for qualified personnel at technician level and are oriented to existing requirements, while at the same time also attempting to prospectively incorporate emerging requirements. Using an instrument already developed in the ICSAS project and adapted to the conditions of CVET in DIA-CVET, the project partners in the participating countries were able to consensually determine 13 relevant Spheres of Activity. To validate the taxonomic definition, external experts (stakeholders) were also consulted and, if necessary, changes were made to the description of the SoA (see: https://dia-cvet.eu/wp-content/uploads/2022/02/IO-01_EN.pdf).

Based on the classification of the Spheres, Task Analyses are carried out for the different SoA (see: https://dia-cvet.eu/wp-content/uploads/2022/02/IO-01_LSA-Manual_EN.pdf). For quality assurance, a multi-step procedure was developed that uses semi-standardised instruments. Different instruments and measures for QA are used in the individual process steps (preparation/planning, implementation and evaluation). In the preparation phase, the learning environments to be analysed in companies are selected roughly according to their representativeness with regard to the core characteristics of the SoA. The composition of the analysis team follows the guiding principle of a mixed team, consisting of a company expert and a vocational researcher, in order to exclude biases and integrate different perspectives. The resulting diversity of perspectives is an important contribution to quality assurance. A template with guiding questions along different analysis categories is used for the implementation. This structured, semi-open questionnaire was developed cooperatively in the partnership and tested before use, so that

on the one hand national differences are taken into account and on the other hand a high degree of validity can be ensured. The findings of the TA are entered into a semi-open template, which corresponds to the analysis categories.

By using the TA instrument, which has already been successfully used in previous projects in industrial shoe production, but modified for the purposes of the DIA-CVET project, a high quality of results can be ensured. The standardised instruments (templates) and the cooperative collaboration in the project consortium – for example in the adaptation of the instruments – have contributed to this. The involvement of stakeholders in the implementation of the TA is also an essential factor for quality assurance.

With the results of the Spheres and TA a deeper insight into the competences required to successfully work in one (or some) of the 13 spheres identified is provided. But even more, also the tasks to be performed, work content, environmental conditions of the workplace, the organisational integration and the required competence prerequisites/qualification requirements surveyed by the TA are included in the curricula of the CVET courses (for filled-out templates of SoA see: https://dia-cvet.eu/wp-content/uploads/2022/03/IO_01_TA_DE_EN.pdf). The curriculum development for the CVET courses to be implemented again relies on the involvement of stakeholders who contribute their expert knowledge in the framework of 3 national workshops and thus contribute to the validation and improvement of the curricula developed through mutual understanding within the partnership. This also means introducing the completed templates as a basis for discussion in the workshops. The course of the discussions as well as the results of all workshops are carefully documented and serve as a basis for the discursive understanding in the project consortium about the contents of the CVET courses to be developed, e.g. which core competences should/must be promoted. In addition, the workshops also provide information on necessary adjustments to the instruments (templates).

4.2 Measures and instruments in the piloting and evaluation phase

The piloted implementation of the curricula into training courses will be evaluated through short workshops. Five short workshops are planned in each country, following five CVET courses. Over the piloting period of one year, 5 of the 13 spheres will be covered in each country. Immediately after the completion of the sphere-specific CVET courses, course participants, trainers and stakeholders will take part in workshops aimed at assessing the appropriateness of the course contents and whether or not the competence level of the course participants is raised (in their self-assessment and in the assessment of the trainers). At the current stage it is not yet decided, which instruments will be used, a decision will be made among the project consortium. So far the following options for a skills and competence assessment exist:

- The course participants may fill out questionnaires on the quality of the course (didactic and content) and provide a self-assessment of the learning outcomes (lessons learned) and the achieved level of competences.
- Testing the learning outcomes through questionnaires.
- Assessing the learning outcomes and extension of competence level by qualitative interviews.
- Assessing learning outcomes and improvement of competence level by portfolios
- Assessing learning outcomes and improvement of competence level by carrying out a practical examination in a work place.

Obviously, a mix of these approaches is also conceivable, but above all there is the feasibility within the given time frame and the conditions of applicability in the countries involved.

Overall, these workshops including the instruments used for competence assessment serve the purpose to initiate and to foster a reflexing on the lessons learnt through the workshops. As the workshops follow each other at longer intervals, conclusions from the previous workshops can be taken into account in the design of subsequent CVET courses in all participating countries - as long as the conclusions are not Sphere-specific. This is linked to the expectation of improving the pedagogical-didactic as well as the content quality of the CVET courses in the course of the pilot phase. From a cross-sectional perspective, the national workshops conducted can provide feedback and advice for adapting the technical content of the CVET courses. For this reason, this aspect, i.e. the mutual exchange of experiences and feedback from the workshops, will be the subject of discussion at one or more partnership meetings.

In the final stage of the project there will be carried out a final workshop in each country, which will serve the purpose of a summative quality assurance measure; more specific: With the participation of all actors involved during the course of the project the developed CVET curricula and the implemented courses will be assessed along a SWOT analysis and evaluated regarding

a) their appropriateness for qualification requirements at technician level in the footwear industry, and

b) the suitability of the measure related to a sectoral training concept (CVET) for the European footwear industry.

The inclusion of all project-relevant actors as well as the relatively strong structuring of the workshop through the SWOT analysis and the clear target of proposing practical recommendations for further CVET in the sector at the end of the workshop will safeguard a high quality level.

All the QA measures and instruments listed so far ultimately serve to ensure the transparency and credibility of the proposed, developed and exemplarily implemented CVET programme for the European footwear industry at the highest possible level. At the same time, the novel instruments such as SoA and TA lay the foundation for an innovative quality assurance framework for CVET in the footwear industry.

A high degree of transparency of the process quality and the results will be ensured through a continuous assessment of the appropriateness of the instruments accompanying the piloting and with the validation of the findings, which will be reflected in the medium term in an improved recognition, validation and accreditation of learning outcomes of CVET courses in the footwear industry. Table 1 provides an overview of all QA tools implemented and the actors involved.

	Project phase	Implemented QA instruments	Agents
chap. 4.1	Analyses	- Spheres of Activity (SoA) - Task analyses (TA) - Workshops	Project partners, Experts Project partners, Experts Stakeholders, Experts
	Curriculum Development	- Workshops	Project partners, Stakeholders, Experts
chap. 4.2	Assessment of Competence Development	- Questionnaire on course quality and outcomes - Testing outcomes - Qualitative interviews on learning outcomes and competence level - Portfolio on learning outcomes and competence level - practical examination on learning outcomes and competence level	Project partners, Experts, Stakeholders, Learners
	Final Project Assessment	Workshop (SWOT analysis)	Project partners, Experts, Stakeholders, Learners

Tab. 1: Synopsis of the most important QA measures

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