



## Discussion Papers

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Christiane Eberhardt (Eds.)

### ECVET AS A VEHICLE FOR BETTER MOBILITY? MOVING FROM RECOMMENDATION TO PRACTICE

Experiences and results gained from the pilot projects SME Master Plus, AEROVET, CREDCHEM und VaLOGReg (2009-2012)



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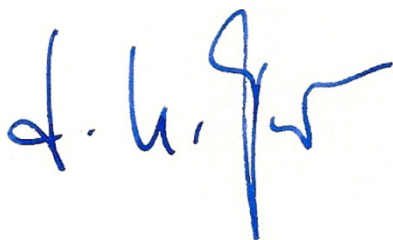
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## Preface

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The demand for greater transparency of vocational qualifications and competences has been on the European agenda for many years. The EU Member States have set themselves ambitious goals in the form of the Copenhagen Declaration of 2002 and subsequent related agreements and The Education and Training 2020 Work Programme, which have once again given rise to the question of how international connectivity of educational systems in Europe can be ensured. This is also an issue which is occupying us in Germany due to the fact that demographic change, globalisation and European integration are all exerting direct effects on the securing of skilled workers.

Vocational education and training needs to become more international if it is to counter the new economic and social challenges it faces. A high degree of expectation has been invested in the introduction of the European Credit System for Vocational Education and Training (ECVET) within this context. The aim here is to create the conditions which will enable mobility of learners to be improved, both between and within the national educational systems. The Federal Institute for Vocational Education accords both thematic areas addressed here – Europeanisation and permeability – a high degree of priority for the further development of VET. This is reflected in the diverse range of advisory, development and research activities in which the institute has participated within the ECVET piloting process. The National Agency Education for Europe at the Federal Institute for Vocational Education and Training (NA at BIBB) has been funding and evaluating BIBB projects on ECVET since 2007. The establishment of the ECVET National Coordinating Agency in November 2010 has created a central point of contact via which a specialist target audience can receive information about the ECVET concept and which can also provide potential users with support in the application of ECVET. Alongside these programme implementation and project support tasks, BIBB has also been involved in a lead management or partner capacity in a number of ECVET pilot projects selected by the European Commission via various calls for proposals. The main focus of work is on the question of whether and how concepts associated with ECVET function within the respective contexts in order to provide a contribution towards monitoring the European “Recommendation on the Establishment of a European Credit System for Vocational Education and Training”. The present publication portrays the approaches and results of ECVET projects which have received European funding and invites discussion on the issue of whether – and if so how – ECVET can be applied within the dual system. Although the papers included here indicate that the intended ECVET accumulation mechanism based on credit points will have no part to play in this regard, the shift to outcome and competence orientation completed in the European partnerships is echoed by current educational policy developments in Germany. A further stage of investigation would need to take place in order to examine how and in terms of which aspects transfer potential exists between the existing approaches developed at a European level and the concepts related to the Recognition Act, training modules and the validation of informal and non-formal learning currently forming an object of debate in this country.



Prof. Dr. Friedrich Hubert Esser

President of the Federal Institute for Vocational Education and Training (BIBB)

## ECVET

### Piloting between the poles of European requirements and German application practice

Birgit Thomann/Christiane Eberhardt

"The internship was a very valuable experience for me both professionally and personally. (...) It was also very important for me to realise that, despite some initial difficulties, I can speak the language well enough to be able to communicate both in my private life and at work. This took away my inhibitions. I can easily imagine that I will spend a longer period of time abroad in the future."<sup>1</sup>

"I (...) had a really adrenaline-charged time (...) and, despite the insecurity and anxiety I felt at the start, I came out at the end feeling sure of myself (...)! Although I did not learn any new craft trade skills, for someone like me who was confused about my future career and unwilling to make decisions, the one thing I have learned is that I now know what I want and what I don't want!"<sup>2</sup>

"To be quite frank from the outset, the experiences which have remained with me from my internship abroad are not all wine and roses. There were some extremely difficult situations I needed to overcome. Nevertheless, these have, in retrospect, enormously enriched my life experience (...)"<sup>3</sup>

"I had a wonderful time (...), during which I learned a lot about the people there. I would recommend anyone to undertake the same experience. It leaves its mark on you for life."<sup>4</sup>

Anyone seeking online field reports from young people who have spent part of their training abroad will find a uniform picture. *"Although such an internship abroad lasts for only a few weeks, it stays with you for a lifetime!"*<sup>5</sup> Phases of training spent abroad seem to provide both personal and professional motivation. This picture is also confirmed from the point of view of companies offering their trainees mobility phases, as is shown by the study "Hidden mobility in vocational education and training", which was published in 2011. 94 of the companies surveyed observed that time spent abroad strengthens the autonomy of trainees, and 74 percent reported a "boost in motivation" leading to greater commitment to training by young people following their return (KÖRBEL/FRIEDRICH 2011, p. 74). "Mobile trainees" are, however, still the exception. In Germany, which in terms of the provision of practical opportunities for the implementation of mobility measures is in the leading group of countries in Europe together with Denmark, Sweden and the Netherlands (WORDELMANN 2009, p. 4), approximately three percent of trainees are currently able to enjoy such an experience. One of the declared aims of European educational policy is to increase the mobility of VET learners. The target is for 6 percent of those aged between 18 and 34 to spend at least 10 days abroad as part of their training by 2020 (EUROPEAN COUNCIL 2011, p. 11). As a country with nine neighbouring states and little in the way of natural resources, Germany is particularly dependent on European cooperation agreements. This means that the promotion of mobility is high on the German agenda (THIELE 2008, p. 3). The assumption here is that international competences provide a foundation which enables people to improve their occupational options on both sides of national borders and that companies require employees who are mobile, flexible and internationally experienced in order to expand business activities on the international markets via the deployment of teams which are increasingly international in terms of their composition.<sup>6</sup>

<sup>1</sup> [http://www.chemie-biologie-ausbildung.de/Ebeling/Teilnehmerbericht\\_Robert\\_Bittner.pdf](http://www.chemie-biologie-ausbildung.de/Ebeling/Teilnehmerbericht_Robert_Bittner.pdf).

<sup>2</sup> [http://www.goforeurope.de/index.php?id=633&tx\\_adobbq\\_pi1\[showUid\]=2574](http://www.goforeurope.de/index.php?id=633&tx_adobbq_pi1[showUid]=2574).

<sup>3</sup> *Erfahrungsbericht Rom von Angela Buhl* <http://www.leonardo.ar.tum.de/erfahrungsberichte.html>.

<sup>4</sup> [http://www.goforeurope.de/index.php?id=633&tx\\_adobbq\\_pi1\[showUid\]=2236](http://www.goforeurope.de/index.php?id=633&tx_adobbq_pi1[showUid]=2236).

<sup>5</sup> [http://www.goforeurope.de/index.php?id=633&tx\\_adobbq\\_pi1\[showUid\]=2238](http://www.goforeurope.de/index.php?id=633&tx_adobbq_pi1[showUid]=2238).

<sup>6</sup> See here also the initiative undertaken by the [German Confederation of Skilled Crafts](#) (ZDH), the [Association of German Chambers of Industry and Commerce](#) (DIHK) and the [Federal Ministry of Labour and Social Affairs](#) (BMAS) in which more than 30 so-called "mobility advisors" in the chambers of industry and commerce and

The promotion of mobility in this way constitutes human resources and organisational development. In Germany, the updating of the Vocational Training Act (BBiG) in 2005 created the legal conditions under which parts of training may be completed abroad (§2, BBiG). The prerequisites are that the mobility phase serves the objective of the training and that its total duration does not exceed one quarter of the period of training stipulated in the training regulations, i.e. up to 9 months.

The study undertaken by KÖRBEL and FRIEDRICH and already mentioned above shows that companies with 500 or more employees are much more likely than SMEs to take part in mobility programmes (KÖRBEL/FRIEDRICH 2011, p. 60). Of the total of 189 companies surveyed, ten percent declare that training placements abroad are a fixed component of training (KÖRBEL/FRIEDRICH 2011, p. 74). The extent to which they exploit the opportunities offered by the Vocational Training Act (BBiG)<sup>7</sup> in this regard is unknown.

Although both a legal basis (BBiG) and (mainly European) funding programmes are in place, the preparation and implementation of mobility phases abroad are associated with a series of pedagogical, structural and also financial hurdles (EBERHARDT/SCHWARZ 2011, p. 7).

- Companies hesitate to send trainees abroad during training if it is not clear whether contents imparted abroad cover relevant parts of training.
- Partners and learning venues need to be found which are able to secure implementation at a local level in organisational and pedagogical terms.
- It is often the case that additional finance needs to be found to cover language preparation and back-up services for the periods spent abroad.
- The young people themselves need to be interested in and prepared for a placement abroad.

For these reasons, the realisation of periods of training abroad is not solely dependent on statutory stipulations. It is also important that cross-border learning venue cooperation agreements are in place to facilitate the execution of mobility measures and provide quality assurance. The last few years have seen the instigation of a whole host of European instruments for the fostering of transnational mobility. One of these is ECVET, the European Credit Transfer System for Vocational Education and Training. The aim is for ECVET to provide learners completing part of their training outside their home country with an opportunity to transfer proven learning outcomes abroad to training in their own country and obtain a credit for such achievements. The plan is that such a mechanism will lead to an increase in the number of learners taking advantage of the chance to complete parts of their training abroad. Annex II of the “Recommendation of the European Parliament and of the Council of 18 June 2009 on the establishment of a European Credit System for Vocational Education and Training” (EUROPEAN COMMISSION 2009) specifically views ECVET, as a “technical framework” for the “transfer, recognition and, where appropriate, accumulation of individuals’ learning outcomes with a view to achieving a qualification” based on units of learning outcomes capable of credit transfer (i.e. units which can be examined, evaluated, certified and assigned credit points) and a credit transfer and accumulation procedure. This specification outlines the area of conflict which arises from an attempt to apply ECVET within the scope of German regulations and legal stipulations.

The present publication investigates the question of the extent to which the European ECVET approach is capable of implementation from a German perspective and which of its aspects are suitable for the facilitation of cross-border mobility. The frame of reference is provided by four pilot projects selected by the European Commission in 2008 in the first wave of “Testing and Development of the European Credit System for Vocational Education and Training (ECVET)” (EACEA/14/2008) and

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chambers of crafts and trades are supporting both companies and trainees in the planning, execution and evaluation of cross-border stays. For more information, visit [www.mobilitätscoach.de](http://www.mobilitätscoach.de).

<sup>7</sup> § 76 “Monitoring, guidance” states that the implementation of stays abroad pursuant to § 2 Paragraph 3 should be monitored and supported in an appropriate way by the competent body. If the duration of a period of training spent abroad exceeds four weeks, a plan agreed with the competent body is required. The average duration of a mobility measure is 3 weeks (KÖRBEL/FRIEDRICH 2011, p. 73).

delivered under German lead management or with German involvement.<sup>8</sup> The testing grounds chosen by the pilot projects clearly demonstrate the need for mobility, transparency and European partnership.

- SME Master plus links elements of ECVET with the tradition of journeymen and uses these to “internationalise” master craftsman training (cf. BORN/SPERLE in the present volume, pp. 7-19).
- In CREDCHEM, the piloting of ECVET serves as the impetus for the establishment of a permanent mobility network for the chemical sector (cf. EBERHARDT/SCHLEGEL in the present volume, pp. 29-40).
- The AEROVET Project focuses on training within a sector which is already aligned and regulated along European lines, the European aviation industry (cf. SANITER in the present volume, pp. 20-28).
- VaLOGReg examines opportunities and routes for how ECVET can be used to improve mobility in border areas (cf. BERG in the present volume, pp. 41-45).

The papers illustrate that the piloting of ECVET was linked in with a specific application context for transnational mobility in each respective case (initial training, continuing training, cooperative training, border regions) rather than merely being considered as an end in itself. All four papers address the practical benefits which ECVET can bring against the background of the German system (concept of the regulated occupation, integrated final examination). For this reason, it comes as no surprise that none of the papers makes positive mention of the intended use of ECVET on the European side for the accumulation of learning outcomes and the attendant principle of recognising learning outcomes achieved abroad as an independent qualification with a view to the acquisition of an overall qualification. The same applies to the awarding of “credits”, the practical effect of which the pilot projects view as secondary, or even as a risk “*to the readiness of specialised companies to provide training within dual systems*” (SANITER in the present volume, p. 28).

If we turn our consideration to the Vocational Training Act mentioned above, the emphasis from a German point of view is far more on structuring phases spent abroad within the scope of training in a “more tailored” way and thus providing better integration of such phases into the training process instead of accumulating them on the basis of credit points (see the papers by EBERHARDT/SCHLEGEL and BERG in the present volume). A glance at the situation in Austria shows that this perspective is also shared by our neighbours (see the paper by LUOMI-MESSERER).

The experiences and evaluations emerging from the pilot projects make it clear that the “added value” delivered by ECVET for purposes of mobility lies in the elements of the system which are aligned towards transparency, learning outcomes orientation and partnership (cf. BORN/SPERLE, EBERHARDT/SCHLEGEL). ECVET oriented elements of mobility take on a predominantly pedagogical dimension in this regard. Units of learning outcomes are viewed as a “*structuring element*” and are clearly delineated from “*qualification units as an examined element of a qualification*” (cf. SANITER in his paper, p. 28). The projects unanimously reinforce the view that the establishment of transparency via learning outcomes creates trust between partners and confidence in the effectiveness of other systems. In addition to this, the example of VaLOGReg shows that this fundamentally provides a basis via which credit transfer and certifiability of qualifications from abroad are rendered possible (cf. BERG in the present volume). Mutual trust is an essential basic principle for the equal partnerships which are required if mobility phases are to be implemented in a way which is integrated into training. The support instruments developed within the ECVET context (Memorandum of Understanding, partnership agreements, learning agreements) formalise cooperation and secure mobility. The significance and quality assurance function of these instruments is explicitly highlighted in the papers by KÜßNER, BERG and BORN/SPERLE.

The results of the pilot projects indicate a further important point which will need to be addressed in future debates. ECVET is not something which sells itself. ECVET-based mobility elements require general conditions to be in place which are aligned towards avoiding duplication of work and making

<sup>8</sup> A summary of all projects funded and the results produced is available at [www.ecvet-projects.eu](http://www.ecvet-projects.eu).

existing ECVET approaches available for subsequent use by companies, schools or educational providers. Simple, manageable and practical implementation instruments such as guides, templates, summaries etc. are necessary for this purpose. In this regard the work of KÜßNER and LUOMI-MESSERER can be considered good practice.

The German pilot projects presented here have helped ECVET to “gain momentum” (cf. LE MOUILLLOUR, 2011) and indicate which of the ECVET elements may exert an effect and which elements still need to demonstrate their practical functionality.

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## Opportunities for and limitations of applying ECVET within the context of master craftsman qualifications in the craft trades sector:



### Results of the ECVET pilot project SME MASTER Plus

Volker Born/Christian Sperle

#### 1. Transnational mobility as a core element of European educational cooperation

Bringing about an improvement in transparency both with regard to national VET systems and vocational qualifications is a central objective of the “Copenhagen Process for Enhanced European Cooperation in Vocational Education and Training” initiated in 2002 by 32 European ministers of education together with the European social partners. The aim is for transparency and comparability to serve as a basis for creating a stronger degree of participation in transnational mobility by learners undertaking initial and continuing vocational education and training. This objective is emphasised in the form of the “Europe 2020 Strategy for smart, sustainable and inclusive growth” (cf. EUROPEAN COMMISSION 2010), which includes the realisation of lifelong learning and mobility as one of the essential educational policy goals to be pursued. The educational policy pilot initiative “Youth on the move” explicitly recommends that EU member states should support periods of learning spent abroad as an effective instrument via which young people can improve their employability, acquire new occupational skills and expand their knowledge of languages and intercultural competences (cf. EUROPEAN COMMISSION 2010a, p. 8). This recommendation corresponds with the growing requirement companies have for internationally trained staff. Such a need is, however, also discernable in the case of small and medium-sized firm rather than merely being on the increase for companies operating at a global level, as may be the assumption. Between 1994 and 2007, for example, craft trade companies primarily operating at a local or regional level more than doubled their foreign trade links (cf. GERMAN CONFEDERATION OF SKILLED CRAFTS 2007, pp. 4 ff.). Around 50,000 craft trades companies currently have business relations abroad, and this is also a tendency which is rising. The consequence is that company work and business processes are requiring international competences to a greater degree. Notwithstanding this, transnational mobility needs to be able to offer specific added value for all those involved within the scope of company-based initial and continuing training if it is to meet with the broadest possible acceptance amongst the various VET stakeholders. This applies to companies as well as to their employees and trainees.

The benefits for trade and industry are obvious. Periods of work and learning spent abroad offer an outstanding opportunity for companies to provide their trainees and staff with both international and intercultural training. Secondly, mobility projects provide a vehicle via which skilled workers are sometimes able to establish business contacts abroad and thus tap into new markets. In addition to this, the integration of mobility phases into training provision enables companies to present themselves as attractive employers to high-ability young people. At a time when there is an impending shortage of skilled workers, this helps companies to acquire and motivate good trainees and skilled workers and obtain longer-term loyalty. Only larger companies have, however, generally availed themselves of this opportunity hitherto. Notwithstanding this, in the organisation of mobility projects companies fundamentally expect specific support services which are closely linked to their business interests (cf. KÖRBEL/FRIEDRICH 2011, pp. 68 ff.).

For young people, the acquisition of international and intercultural competences is an important prerequisite for a successful working life. The best way of obtaining these competences and of securing an edge over other applicants on the labour market is via a period of learning and/or work abroad. Alongside more detailed knowledge of foreign languages, mobility projects provide a framework in which young people can learn new work techniques and procedures and new forms of

company and work organisation as well as familiarising themselves with new products. Specific work situations enable them to experience directly what it means to learn, work and not least to assert themselves within an international environment. A long and widely held view that mobility projects mainly assist in the fostering of core skills and personal development rather than in the acquisition of professional competences has been refuted by a recent study (cf. KÖRBEL/FRIEDRICH 2011, pp. 53 ff.).

Nevertheless, the specific implementation of transnational mobility within vocational education and training involves considerable administrative and organisational commitment and financial expense. To name a few examples, suitable partner companies, schools or training centres abroad need to be found, agreements need to be made between the home and host institution regarding competences to be imparted, consideration needs to be accorded to employment law aspects and technical insurance matters need to be clarified. A further problem is the acquisition of funding to finance stays abroad. This is usually associated with an extremely bureaucratic application and documentation procedure and involves a disproportionate amount of time and effort on the part of companies. For this reason, small and medium-sized companies in particular require appropriate advisory and support structures as well as a system which facilitates the organisation, implementation and follow-up of mobility projects (cf. KLIMMER 2010, pp. 224 ff.; KRISTENSEN/WORDELMANN 2010, pp. 177 ff.). Notwithstanding this, the mobility advisory programme “Vocational education and training without borders”<sup>1</sup> initiated by the German Confederation of Skilled Crafts (ZDH), the Association of German Chambers of Industry and Commerce (DIHK) and the Federal Ministry of Labour and Social Affairs (BMAS) in March 2009, however, represents an initial important step in the right direction in this regard (cf. SPERLE 2011a, pp. 19 ff.; DIEKMANN/SPERLE 2010, pp. 137 ff.).

## 2. European transparency instruments

Alongside the absence of a professional mobility infrastructure,<sup>2</sup> the lack of transparency and comparability of qualifications within the European Union and the resultant inadequate structure for recognition and credit transfer within the domestic learning context of competences acquired abroad are considered to be further obstructions to mobility. The European Commission believes that the reasons for the lack of recognition practice are the diverse range of European educational systems and the specific legal foundations, areas of responsibility, training courses and profiles these involve and procedures for the evaluation and certification of learning achievements. A European survey conducted in 2009 within the scope of the “Green Paper Promoting the learning mobility of young people”, however, revealed that “only” 38% of those surveyed believed that this was a serious hindrance to mobility (cf. EUROPEAN COMMISSION 2010b, p. 14). This may be connected with the fact that the re-testing of knowledge and skills obtained abroad within a domestic learning context, as is for example the case in Germany with the holistic final examination in initial vocational education and training, is not fundamentally viewed as an obstacle to mobility. Secondly, the motivation for spending a period abroad may in particular lie in the acquisition of competences which cannot be obtained within the home learning context, such as manufacture of products typical to the country in question, rather than necessarily being recognition for or credit transfer of what has been learned abroad to a domestic training course.

The lack of comparability of qualifications does exert an adverse effect, however, if the specific execution of mobility projects is affected. Periods of learning completed abroad are normally only

<sup>1</sup> Within the scope of this programme, 37 so-called mobility advisors at chambers of crafts and trades and chambers of industry and commerce as well as a programme coordination office were financed using funding from the European Social Fund and the German Federal Government ([www.mobilitaetscoach.de](http://www.mobilitaetscoach.de)).

<sup>2</sup> The Mobility Advisory Programme currently represents somewhat of an exception. Apart from countries such as Denmark or Austria, only a few EU states have an advisory network closely linked to trade and industry in place for transnational mobility in vocational education and training.

viewed as a regular component of training if these encompass contents which correspond with those of the national training course. Transparency is, therefore, an essential prerequisite for the successful planning and organisation of periods of learning spent abroad.

In order to present qualifications in a way which is comprehensible right across Europe and thus make learning phases abroad easier or to facilitate such learning phases in the first place, the European Commission has over the past few years presented EU member states with a range of implementation instruments underpinned by various recommendations, the aim being to provide targeted support for transnational mobility in initial and continuing vocational education and training. Some of these instruments are directly related to and mutually dependent on one another. The essential elements of this so-called EU VET package are as follows.

1. The Europass, which offers a portfolio of standardised documents with a uniform format for the whole of Europe ([www.europass-info.de](http://www.europass-info.de)). The aim is to make it possible for learners to document all the competences and qualifications they have acquired. Plans are in place to develop the Europass Mobility further to create a so-called Skills Pass which will also in future take account of skills which have been obtained in a non-formal or informal manner.
2. The European Qualifications Framework for Lifelong Learning (EQF), which is intended to act as a vehicle for linking the various national qualifications systems via so-called National Qualifications Frameworks<sup>3</sup> in order to create greater understanding of national qualifications profiles at a European level (cf. EUROPEAN COMMISSION 2008).
3. The European Quality Assurance Reference Framework for VET, EQARF), which aims to support the EU member in promoting and observing the continuing improvement of their vocational education and training systems via the voluntary use of European benchmark indicators (cf. EUROPEAN COMMISSION 2009b).
4. The European Credit System for Vocational Education and Training (ECVET).

### 3. European Credit System for Vocational Education and Training (ECVET)

The European Commission Proposal for the Establishment of a European Credit System for Vocational Education and Training (ECVET) was published on 9 April 2008. The aim is to create a framework for better transparency of qualifications and easier transferability of learning achievements within Europe. The essential objectives of ECVET are the promotion of cross-border mobility for trainees and young skilled workers for purposes of education and training and improved permeability between various educational systems. The aim is for this approach to make an active contribution towards the implementation of lifelong learning (cf. EUROPEAN COMMISSION 2009a).

In accordance with the Recommendation, ECVET is initially based on the principle of voluntarism and on mutual trust between the various VET stakeholders. It also encompasses a range of further principles which facilitate:

- the learning outcomes oriented description of qualifications;
- the structuring of qualifications in so-called units of learning outcomes;
- the allocation of credit points or learning credits to learning units as a type of numerical descriptor;
- the implementation of individual periods of learning abroad within the scope of institutional mobility partnerships between the competent bodies responsible for vocational education and training and training providers;
- the evaluation, recognition and transfer of learning outcomes acquired abroad (cf. for example KÜSSNER/DREWS 2011, pp. 29 ff.).

In the same way as the European Qualifications Framework for Lifelong Learning, ECVET is based on a learning outcomes oriented approach. Whereas the EQF serves as a translation instrument which uses eight standardised reference levels as a vehicle to relate complete qualifications such as

<sup>3</sup> For information on the status of implementation of the EQF in Europe, cf. CEDEFOP 2010a.

journeyman or master craftsman to one another at a European level, the focus of ECVET is on the evaluation, recognition and credit transfer of individually acquired learning outcomes or partial qualifications. By the same token, learning outcomes are statements of what learners know, understand and are in a position to do following the conclusion of a learning process. They are defined in terms of the three EQF descriptors knowledge, skills and competence. *The EQF describes “knowledge” as theoretical and/or factual knowledge and “skills” as cognitive and practical skills. “Competence” is solely described within the meaning of assumption of responsibility and autonomy* (cf. EUROPEAN COMMISSION 2008, p. 18).

In accordance with the recommendations made by the European Commission, the plan in future is for the description of a qualification to be based on identifiable learning outcomes rather than solely on input criteria such as learning times in particular. The main consequence of this outcome oriented approach is that the focus will no longer be on where and for how long someone has learned something but on what he or she can actually do at the end of a phase of education and training. This represents a major difference to the credit point system for higher education – the European Credit Transfer and Accumulation System (ECTS) – which has its main foundations in average learning times (workload), although it has exerted a material influence on the structure of ECVET. Its chief effect is, however, to bring about a fundamental paradigm shift for those responsible for vocational education and training. This means that learning outcomes take on the function of a kind of “educational Esperanto”, which is understood by education and training practitioners across country and system borders and which serves as a vehicle for rendering the qualifications within the various European educational systems comprehensible. Such a construct makes it easier to identify intersections of qualifications with regard to joint mobility projects than via a matching of existing national curricula. Transitions from one learning context to another are thus easier to structure.

The position which the umbrella associations of German trade and industry have taken up with regard to ECVET has been adopted within the scope of a European consultation process. The added value which a European Credit Point System can bring for companies is clearly perceived in terms of promoting transnational mobility for learning purposes via better legibility of qualifications. Despite the fact that the relevant documents produced by the European Commission sometimes communicate ECVET as a system, it cannot be seen in such terms. ECVET constitutes a set of fundamental principles which can be used by education and training providers on a voluntary basis in accordance with national stipulations if they so wish. As far as German trade and industry is concerned, consideration also needs to be accorded to the cost-benefits relation when implementing ECVET. The notion of establishing a new and cost-intensive administrative structure has been rejected. The focus is much more on using existing structures for the application of ECVET (cf. GERMAN EMPLOYERS’ ORGANISATION FOR VOCATIONAL AND FURTHER TRAINING 2006).

The aim is for ECVET to be piloted by the EU member states until the end of 2012 and then be applied on a step-by-step basis (cf. CEDEFOP 2010b, p. 11; LE MOUILLOUR 2011, pp. 13 ff.). As already mentioned, the hope is that this will give rise to significant impetuses for the fostering of transnational mobility in vocational education and training. ECVET is, however, also recommended to the EU member states as a suitable instrument to facilitate permeability within a national educational system via the creation of transitions between the different educational areas on the basis of the ECVET elements (cf. EUROPEAN COMMISSION 2009a, p. 12). The consequence of this application context is, however, as the Finnish implementation project FINECVET ([www.finecvet.fi](http://www.finecvet.fi)) shows, a modularisation of educational and training courses, something for which there is no consensus in Germany with regard to initial vocational education and training. For this reason, the plan is for the piloting of ECVET in Germany to be restricted to the area of transnational mobility<sup>4</sup>. In order to support the introduction of ECVET, the European Commission has since March 2009 been funding ten pilot projects which aim to develop specific implementation proposals for the application of ECVET in the area of transnational mobility within initial and continuing vocational education and

<sup>4</sup> Notwithstanding this, within the scope of the DECVET pilot initiative the Federal Ministry of Education has since 2008 been funding ten individual projects aimed at piloting credit point systems with the proviso that permeability in vocational education and training is fostered (cf. BMBF 2010).

training ([www.ecvet-projects.eu](http://www.ecvet-projects.eu))<sup>5</sup>. One of these pilot projects is SME MASTER Plus ([www.sme-master.eu](http://www.sme-master.eu)).

#### **4. Piloting the ECVET principles within the scope of the European pilot project SME MASTER Plus**

##### **4.1 Project partners and objectives**

Within the framework of SME MASTER Plus, the German Confederation of Skilled Crafts (ZDH) has joined forces with the Association of French Chambers of Crafts and Trades (APCMA), the Norwegian Craft Trades Organisation (Mesterbrev), the Austrian Institute for Training Research in Trade and Industry (ibw) and the Slovenian Chamber of Crafts and Trades (OSZ) to pilot the opportunities for using ECVET within the scope of training leading to the qualification of master craftsman (cf. also SPERLE 2011b in this regard). Given the fact that international competences are becoming increasingly important in the light of a continually rising number of craft trade companies with foreign trade contacts, one of the aims is to make an active contribution towards the “internationalisation” of the master craftsman qualification. Secondly, there is also an expectation that a positive effect will be exerted on the rate of mobility in initial training, where the figure is currently approximately 3% (cf. KÖRBEL/FRIEDRICH 2011, p. 10) and where plans are in place to increase this quota to 6% by 2020 in accordance with a new European benchmark. Experience shows that company owners who have themselves completed periods of learning or work abroad are convinced of the added value transnational mobility can deliver and support the learning mobility of their trainees to a greater degree.

The acquisition of experience abroad within the scope of master craftsman training is very much a traditional approach. The convention of travelling journeymen spending a period of up to three years abroad in order to gather foreign experience has persisted down to the present day. It was not until the emergence of modern national states and the associated country specific regulation of craft trade and commercial vocational education and training in the 19th and early 20th centuries that the international component of master craftsman training came to be increasingly suppressed. In a certain way, therefore, ECVET offers an opportunity to link in with this “transnational tradition” of master craftsman training.

##### **4.2 Pilot occupations and “benchmark data” relating to the master craftsman qualification**

The project SME MASTER Plus is piloting the various elements of ECVET on the basis of the example of master craftsman qualifications in the occupations of baker, hairdresser, joiner and florist<sup>6</sup>. At the outset, the project was faced with the question of how the various master craftsman qualifications can be depicted in a generally comprehensible manner. The first stage involved collecting and systemising the relevant benchmark data for this purpose:

- designation/title of the qualification,
- reference level within the National Qualifications Framework (if already available)/ISCED level,
- legal foundations,
- access requirements,
- competent bodies/institutions responsible for the qualification,
- information on the examination modalities,
- duration of training,

<sup>5</sup> Since 2010, a second generation of European pilot projects has been pursuing the testing of ECVET in the area of permeability within an educational system.

<sup>6</sup> Whereas all project partners were integrated in the case of the master baker qualification, only some of the partners were involved in the other three occupations. This was also partially due to organisational reasons. Unlike in Norway and France, for example, the occupation of florist does not fall within the remit of the craft trades in Germany.

- information on the course of training.


This introductory summary, which can be extended as required, was supplemented by a list of all occupations in which a master craftsman qualification can be achieved in the five partner countries. Although this represented a compilation of initial basic information on the various master craftsman qualifications, it was not yet possible to make information visible on the learning outcomes imparted within the framework of a certain master craftsman training course.

#### 4.3 From input to output: the learning outcomes matrix as a central instrument of transparency

The next stage of work undertaken involved implementing the learning outcome oriented presentation of the learning content pursued by ECVET. The methodological basis here is the so-called learning outcomes matrix, in which all competences imparted in the five partner countries within the scope of master craftsman training courses have been listed in structured form. The aim is for the learning outcomes matrix to serve as a vehicle for creating the necessary transparency for the organisation, implementation and follow-up of the transnational placement. Occupational experts from the chambers and associations first of all identified so-called learning units.

**Figure 1: Learning units of the Master baker qualification**

Figure 1: Learning units of the Master baker qualification

Title of the qualification:	Master baker				
Total number of ECVET learning credits					
EQF reference level					
NQF reference level	AT	DE	FR	NO	SI
Learning units	U1	Accounting and controlling			
	U2	Budgeting, calculation and financing			
	U3	Establishment, management and organisation of craft trade companies			
	U4	Human resources management			
	U5	Training			
	U6	Marketing and sales			
	U7	Manufacture of bread and biscuits			
	U8	Manufacture of cake and pastries			
	U9	Hygiene and food safety			
	U10	Quality management and health and safety at work			
	U11	Specific occupational management			
	U12	Manufacture of light dishes and snacks			
	U13	Communication within an international context			
Cross-occupational learning outcomes	<p>In order to secure comprehensive acquisition of the learning outcomes identified in the matrix, the following cross-cutting competences are required:</p> <ul style="list-style-type: none"> <li>• he/she is in a position to act in a socially and ecologically responsible manner;</li> <li>• he/she is in a position to introduce a quality management system;</li> <li>• he/she is in a position to use information and communication technologies.</li> </ul>				

Source: SME MASTER Plus

In accordance with the ECVET Recommendation, a learning unit forms a meaningful cluster of competences and thus a coherent and logical component of a qualification. In the case of SME MASTER Plus, one unit encompasses various competences or learning outcomes which are necessary for the execution of core work tasks within a certain field of master craftsman activity. Depending on the occupation, this enabled the identification of between 10 and 18 units which in exceptional cases correspond with the respective course modules of the partner countries. Although this is also due to the differing form of the courses in the partner countries, the main reasons are methodological in nature. Whereas didactic principles often dictate that course modules are divided into theory and practice, such as Parts I and II of the master craftsman examination in Germany or Slovenia, the aim

is for learning units to include equal amounts of theory and practice. The scope of a learning unit depends in turn upon the complexity of the field of activity. Figure 1 shows the cover page of the learning outcomes matrix for “Master Baker” on which all learning units are listed in introductory fashion. These include both occupationally specific learning units such as “Manufacture of bread and biscuits” as well as commercial business management learning units such as “Establishment, management and organisation of craft trade companies”.

**Figure 2: Learning unit “Training” from the Master baker learning outcomes matrix**

Figure 2: Learning unit Training from the master baker learning outcomes matrix					
Title of the qualification	Master baker			U5	
EQF reference level					
Title of the learning unit	Training				
ECVET learning credits/relative weighting	AT	DE	FR	NO	SI
Learning outcomes					
He/she is in a position to <ul style="list-style-type: none"><li>state the statutory regulations and collective wage agreement regulations regarding apprentices,</li><li>prepare a training contract.</li></ul>	He/she is in a position to check the suitability of the company for the training of apprentices.			He/she is in a position to <ul style="list-style-type: none"><li>organise company-based training,</li><li>draw up a training plan,</li><li>organise training cooperation agreements with vocational schools, training centres and other educational providers.</li></ul>	
	He/she is in a position to <ul style="list-style-type: none"><li>judge the apprenticeship entry maturity of young people,</li><li>act autonomously in recruiting apprenticeships.</li></ul>				
	He/she is in a position to <ul style="list-style-type: none"><li>train and instruct apprentices both professionally and pedagogically,</li><li>teach basic work techniques and impart knowledge, skills and competences typical to the occupation,</li><li>act in a responsible manner in addressing the particular needs of young people.</li></ul>			He/she is in a position to <ul style="list-style-type: none"><li>carry out evaluations of performance,</li><li>prepare apprentices for examinations.</li></ul>	
				He/she is in a position to mediate in conflicts with or between trainees.	

Source: SME MASTER Plus

The contents of the qualification were formulated in a holistic manner in the form of learning outcomes. This took place on the basis of national ordinances and curricula whilst also taking account of the typical work and business processes for the occupations forming the object of investigation. This represented a conscious decision not to adopt a presentation of learning content divided up according to the three descriptors of the EQF, knowledge, skills and competence. This enabled the avoidance of redundant elements and of alignment problems, particularly between the descriptors “Skills” and “Competence”<sup>7</sup>. This holistic approach is also largely in harmony with the principle of employability skills. In order ultimately also to be able to visualise the competence development of learners, learning outcomes were mapped in the form of successive “learning outcome levels”. This progressive representation of learning outcomes, which was inspired by the VQTS Model (cf. LUOMI-MESSERER/MARKOWITSCH 2006, pp. 39 ff.) is, so to speak, the dynamic element of the learning outcomes matrix and serves the purpose of fostering “learner mobility”. Such an approach enables

<sup>7</sup> Within the scope of the European EQF pilot project ZOOM ([www.zoom-eqf.eu](http://www.zoom-eqf.eu)), in which the German Confederation of Skilled Crafts (ZDH) was involved in a partner capacity, it was ascertained that vocational experts have often had difficulties in the definitive alignment of learning outcomes to the two descriptors stated above. Solutions for this problem included aligning learning outcomes to both “Skills” and “Competences”, the consequence of which has been duplications. The project was coordinated by the Austrian Institute for Training Research in Trade and Industry (ibw), which is also a project partner SME MASTER Plus.

the performance status of a learner to be rendered visible, and this in turn facilitates the structuring of individual mobility projects in terms of content.

Figure 2 shows the learning unit “Training” from the learning outcomes matrix for “Master Baker”, in which learning outcomes are aligned across three levels (from left to right). In order to ensure the greatest possible simplicity of legibility for the learning outcomes matrix, a conscious decision was taken largely to omit stating technical details and other specifications. If necessary, both units and individual learning outcomes can be appropriately supplemented in the form of annexes. The learning outcomes matrix pursues the objective of presenting all learning outcomes which the master craftsman qualification of the five partner countries encompasses in a comprehensible manner and does not replace the national curriculum. This approach is, however, also of considerable use for the competence oriented structuring of curricula<sup>8</sup>.

#### 4.4 Use of credit points

The introduction of credit points proved problematic from the outset. According to the ECVET Recommendation, credit points should provide additional information in numerical form on the relative weighting of a learning unit compared to the whole of the qualification. SME MASTER Plus was unable to comply with the convention proposed in the ECVET Recommendation that 60 credit points should be awarded for one year within a formal learning context due to the fact that in some partner countries a significant part of the master craftsman qualification is acquired via a non-formal route, meaning that there is a considerable deviation between the formal periods of learning. The development of a system to establish a ratio between these non-formal and formal learning elements would have been beyond the framework of the project. For this reason, the initial decision was taken to adopt a pragmatic “interim solution” whereby the plan was merely to accord credit points the function of a percentile indicator rather than basing them on a certain workload. The total number of credit points (100) was separately distributed across the various learning units by the project partners on the basis of expert surveys in order to provide a means of visualising the “relative weighting” of a learning unit compared to the master craftsman qualification in the respective partner country. Although this permitted conclusions to be drawn as to the different weighting of a learning unit within the various master craftsman training courses, albeit to a limited extent, no actual added value for the support of mobility projects became discernable. In addition to this, doubts were raised at an early stage with regard to the validity of the results of the subjective approach adopted by the expert surveys. For this reason, this approach was also abandoned.

Due to the fact that no credit point system for master craftsman training is currently in place in any of the partner countries, no account at all was taken of a further function of credit points (planned in the ECVET Recommendation), namely accumulation and transfer to the domestic learning context. Notwithstanding this, as soon as credit points are introduced or as soon as countries which already operate a credit point system wish to make use of this system they may be applied. In such a case, however, the awarding of the points must take place according to the stipulations of and under the exclusive responsibility of the competent bodies within the relevant country.

#### 4.5 Mobility partnerships and transfer of learning outcomes

Partnership agreements between two or more organisations responsible for master craftsman examinations and/or master craftsman training in their home countries constitute a further core element of ECVET.

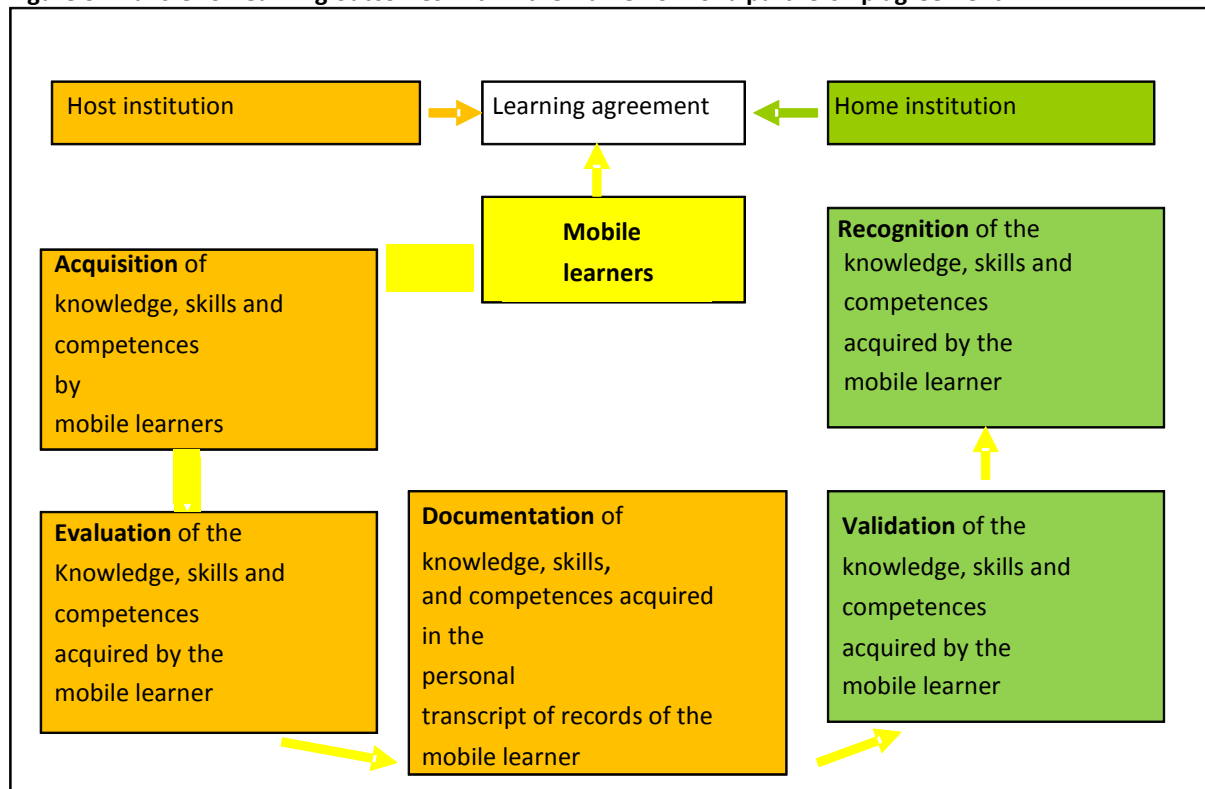
Such a partnership agreement (Memorandum of Understanding) maps out the operational framework of a mobility partnership, covering such aspects as tasks and obligations of the respective institution in its capacity as home or host organisation, opportunities for monitoring, evaluating, recognising and where appropriate certifying learning performance, issues of quality assurance etc. An appropriate guide, which has recommendation status, has been developed for this purpose and

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<sup>8</sup> The learning outcomes oriented representation of the master craftsman qualification for motor vehicles technician, which was developed within the scope of the ZOOM pilot project already mentioned, will, for example form the basis of the new skeleton curriculum.

includes such elements as a checklist for the preparation, execution and follow-up of mobility projects.

**Figure 3: Transfer of learning outcomes within the framework of a partnership agreement**



Source: 3s/ibw

Various templates for the implementation of mobility projects have also been drawn up:

- learning agreements,
- personal transcripts of records,
- recommendations for assessment of competence,
- certificates for participants and host institutions.

Alongside information on learners and their training course, learning agreements list the learning outcomes to be acquired within the scope of the mobility project. These need to be agreed in advance between the learner, the home institution and the host institution. Learning outcomes actually acquired are ascertained by the host institution within the framework of an assessment and documented in a personal transcript of records. This transcript of records is validated and recognised by the home institution following completion of the mobility project. The ultimate plan is for the EUROPASS Mobility to be used for the documentation of learning outcomes acquired abroad. A further option is for the home institution to issue certificates of participation.

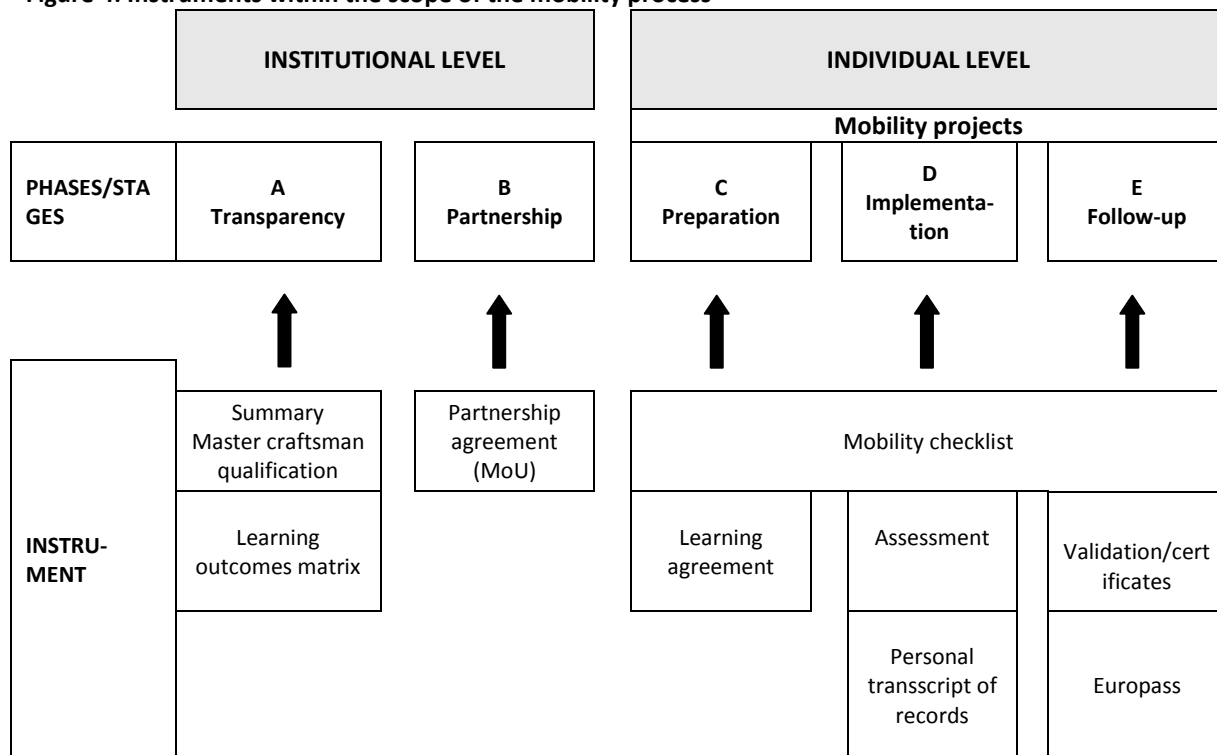
No standardised procedure has been developed within the scope of SME MASTER Plus for the assessment of learning outcomes. Only general recommendations have been issued. The reason for this is that each partner country already has its own principles, methods and instruments in place for the identification and assessment of competences or learning outcomes, and these can also be deployed within the scope of ECVET. Notwithstanding this, it is important that the relevant methods and instruments which an institution intends to use within the framework of a mobility partnership are made transparent to and accepted by the partner institution. In addition to this, bilateral agreement should be reached regarding assessment criteria.

The function of an assessment is to serve as an element for securing the quality of mobility projects rather than to replace a national examination or parts of an examination. The introduction of an

assessment also fosters mutual trust between the various institutions involved in an international mobility partnership.

The following figure portrays in which section of the mobility process the various instruments developed within the scope of SME MASTER Plus are deployed.

**Figure 4: Instruments within the scope of the mobility process**



Source: SME MASTER Plus

#### 4.6 Results of the pilot phase

During the course of the project, all instruments were practically tested within the scope of various mobility projects in the fields of baker and hairdresser between Germany, France and Slovenia. Further tests focusing on the area of floristry are planned between Norway and France at the beginning of 2012. Results up until now show that most of the instruments developed are capable of practical deployment.

The organisers of mobility projects view the improved legibility of the various master craftsman qualifications provided by the learning outcomes matrix in a particularly positive light. Learning outcomes are especially useful to occupational practitioners in according easier access to the qualifications contents of a foreign master craftsman qualification and thus facilitating the identification of content intersections which can in turn form the basis for mobility projects. Notwithstanding this, it must be said that this approach needs some getting used to. A complete abandonment of input oriented standards in the representation of learning and training processes, especially with regard to learning times but also in respect of a fixed learning venue, tends to be viewed critically.

The drawing up of partnership agreements is considered to be time consuming but necessary. Notwithstanding this, the administrative effort involved is only perceived as being worthwhile if there also is a readiness between educational and training institutions to implement mobility projects on a regular basis. There is, however, usually a lack of capacity on the part of the competent bodies and the training institutions in this respect. This further underlines the urgent requirement for a pan-European mobility infrastructure for vocational education and training. There will otherwise be

virtually no prospect of realising the establishment of a European mobility network<sup>9</sup> to serve as the operative basis for achieving a quantitative and qualitative increase in mobility in the field of initial and continuing vocational education and training.

Learning agreements and personal transcripts of records are viewed as useful tools for securing the quality of a mobility project. If, however, mobility projects are financed via funding programmes such as “Leonardo da Vinci”, which is usually the case, the associated documentation obligations give rise to a large number of redundant elements. In the interests of avoiding any kind of unnecessary additional expense, the EU Leonardo Programme in particular should also be coordinated with ECVET projects in future. This would be something which could be realised with the scope of the realignment of the Programme for Lifelong Learning for the period following 2014.

Both home and host institutions also viewed the introduction of an assessment positively. It was pointed out that the principle of proportionality needed to be maintained with regard to the scope of principles. Mobility projects which are of short duration (approximately up to three weeks) may not require any assessment, whereas medium to long term periods of learning spent abroad make it necessary to undertake a more extensive recording of learning outcomes. A flexible approach should be chosen in this regard.

The mobility checklist was particularly viewed as useful by companies which have had either very little or no experience of mobility projects. Like a number of the other tools developed within the scope of the project, however, this instrument is not a component of the ECVET Recommendation.

## 5. Conclusion

According to previous findings, the main strength of the ECVET approach lies in the improvement in transparency and comparability of qualifications. The output oriented representation of qualifications in the form of learning outcomes is, however, a time intensive process which is also not accepted without reservation by all VET stakeholders. It is thus unlikely that input criteria will be entirely abandoned in the representation of qualifications in future. The supposition may be put forward that a mixture of output and input criteria will become established.

There is no doubt that ECVET can serve as a conceptual basis for the establishment of sustainable mobility projects. Its application will result in both a qualitative improvement in the mobility projects themselves and in time and cost savings in the planning, organisation and implementation of such projects. This creates an important foundation for broader acceptance of transnational mobility for learning purposes on the part of the competent bodies, training providers, companies and learners. This is one of the essential strengths of ECVET. With regard to the crediting and transfer of learning units or learning outcomes, ECVET clashes with national regulations, as experiences from other pilot projects also show (cf. EBERHARDT/SCHWARZ 2011, pp. 7 ff.; SANITER 2011, pp. 23 ff.). Actual added value for the fostering of transnational mobility is, however, not discernable. The same also applies to the deployment of credit points, something which has revealed itself to be one of the weakest principles of ECVET during the piloting process. The fact that the very element which gives ECVET its name shows itself to be of little practical use is not without a certain irony.

One weakness of ECVET which became apparent within the scope of the pilot projects is its close conceptual dependence on a full-time school-based learning context. (Course) modules for which credit points are awarded and a modular examination structure aligned towards such an approach which have established themselves in the higher education area across Europe (after considerable initial difficulties) are only transferable to a very limited extent to initial and continuing training systems with a high proportion of company-based training and which require a high degree of flexibility. A modularised examination fails to meet one of the central premises of the vocational education and training system, its integrality. The consequence would be a lack of understanding by trainees with regard to complete work and business processes and thus a lack of employability skills.

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<sup>9</sup> An attempt to establish a corresponding network in Europe for the areas of craft trades and SME's is currently underway in the form of the Euro Apprenticeship Project ([www.euro-apprenticeship.eu](http://www.euro-apprenticeship.eu)), in which the German Confederation of Skilled Crafts (ZDH) is also involved. This project is being coordinated by the Association of French Chambers of Crafts and Trades (APCMA), which is also a project partner in SME MASTER Plus.

The introduction of modular examinations would also mean that companies would incur not inconsiderable additional costs and would doubtlessly overburden the system of chamber examinations supported by voluntary examiners. For these reasons, “systemic” implementation of ECVET, particularly within the area of dual vocational education and training, will not be possible without the loss of the “brand core” of the system.

Against the background of the results of the piloting process, the appropriate course of action is to exploit the potential of the ECVET instruments which have shown themselves to be of practical use on a step-by-step basis within the framework of a “bottom-up” approach. This means that the tendency would have to be to depart from the concept of a holistic, timely and overall implementation in some areas. However, in light of the extensive resources which the European Commission has been devoting to the introduction of ECVET for some considerable time (cf. LE MOUILLOUR 2011, pp.13 ff.), there can be no expectation that there is (as yet) any willingness to do so.

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**AEROVET:****“Inner flexibility of training occupations instead of fragmented modularisation”**

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Andreas Saniter

**Introduction**

The AEROVET project focuses on the development and piloting of learning outcomes oriented units within the context of the transnational mobility of trainees. The first part of the paper presents the findings and further considerations with regard to the project goals. Projects with a limited term and involving a small number of partners always harbour the inherent risk that results will simply seep away following completion, i.e. no further structural developments will follow. In the case of AEROVET, we enjoy the rare fortune that the German social partners initiated a realignment of technical occupations within the aviation sector which coincided with the term of the project. This meant that we were able to develop the *contents* of the *units of learning outcomes* for transnational mobility in conjunction with those for the *competence fields* of the new structure of training occupations. The second part of the present paper will outline the realignment approach whilst also debating the framework agreement of the German social partners with regard to the further development of the ECVET Recommendation.

**Background**

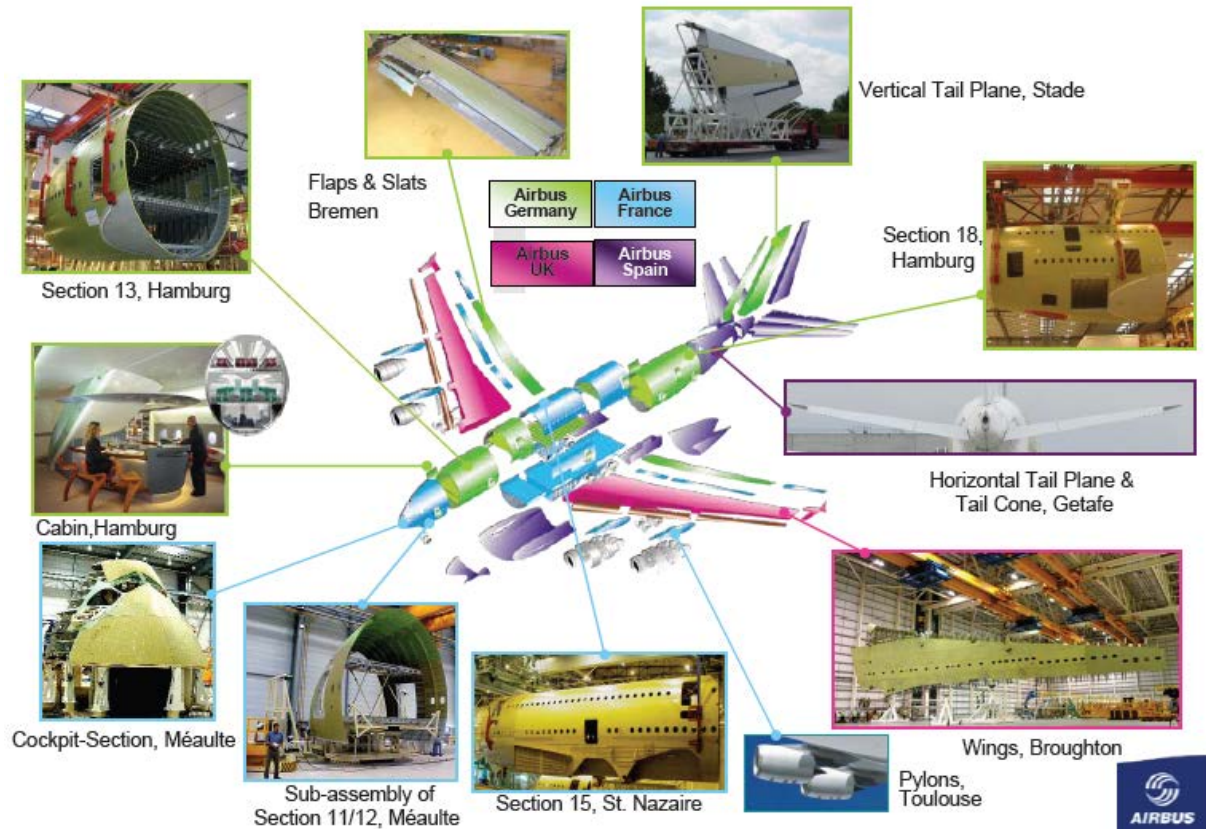
The AEROVET project is one of the 11 pilot projects selected within the scope of the 2008 EACEA-Leonardo da Vinci “European Call for Proposals to “Test and Develop the Credit System for Vocational Education and Training (ECVET)”<sup>1</sup>. The main piloting framework of the project, the term of which is from March 2009 to February 2012, is the transnational mobility of trainees in the sector of technical aviation occupations. This sector is doubly suited for a consideration of the possibilities offered by European, units-based approaches. In the field of production, it is dominated in Europe by a single transnational company (Airbus). In its capacity as a joint venture between several EU countries, Airbus effectively offers a blueprint in the field of vocational education and training for the opportunities and threats of European cooperation and the principle of subsidiarity. Whereas there is convergence between contents and forms of professional work and therefore between training objectives, the structures of vocational training are subject to the respective national laws and traditions – and these vary greatly.

Within the field of maintenance of civil commercial aircraft, a unit-based system of modules already exists, albeit at certification level. The EASA (European Aviation Safety Agency) has established a multi-level modular system (EASA Part 66)<sup>2</sup> for the approval of work on aircraft in civil use within the EU. Irrespective of the respective national educational systems, successful examination of the modules is a prerequisite for work on aircraft (licensed for commercial transportation of passengers).

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<sup>1</sup> The text of the ECVET Call for Proposals is available at [http://eacea.ec.europa.eu/about/call\\_tenders/2008/call\\_tenders\\_02\\_2008\\_en.php](http://eacea.ec.europa.eu/about/call_tenders/2008/call_tenders_02_2008_en.php).

<sup>2</sup> For more information, please visit <http://easa.europa.eu/home.php>.

**Figure 1: Division of labour at AIRBUS**

### Approach

The AEROVET project involves the four countries of France, Germany, the United Kingdom and Spain, the principal nations which participate in the Airbus Group. Initial analyses of the national curricula within this sector in the four countries were enough to show that these could not serve as a basis for joint learning units. Spain, for example, does not have any occupation in the area of production. Work is carried out by workers from associated occupations (e.g. vehicle mechatronics technicians) who have been trained for the specific construction sites. Within the field of maintenance, Spain only trains higher level technicians (EQF Level 5). In Germany, on the other hand, some skilled workers in the sector undergo a 3,5 year training programme to qualify in one or two occupations. The occupation of electronics technician for aviation systems forms part of the occupational group of electrical occupations, whereas the occupation of aircraft mechanic is a mono-occupation divided into three specialisms (maintenance engineering, production engineering and engine technology). Despite the different training approaches, it comes as very little surprise that the occupational work tasks, i.e. the competence fields of qualified workers are similar. Regardless of whether a landing flap is fitted at Airbus Bremen (DE) or Airbus Broughton (UK) and irrespective of whether the functionality of the onboard communication system is tested and repaired where necessary at a Spanish or French airport, work contents, processes, manuals and types of documentation are identical with each other or at least similar. Expert-skilled worker workshops have thus been able to draw up a total of 22 learning units which cover the essential work tasks carried out by both electronics technicians and mechanics within the sector and which, potentially, could be learned in a mobility phase.<sup>3</sup> The main products of the AEROVET project are a description of the competences, elements of knowledge and skills which each of the 22 units contains<sup>4</sup> (cf. Figure 2), and a matrix comprising the mobility units which are an integral component of the unit and of the evaluation system which has been developed (cf. Figure 3).

<sup>3</sup> Details of the learning units are available at [www.pilot-aero.net](http://www.pilot-aero.net).

<sup>4</sup> Cf. [www.pilot-aero.net](http://www.pilot-aero.net).

**Figure 2: Description of Learning Unit 12****12. Production of bunched circuits for aircraft systems**

The production of wires and bunched circuits (for energy, signals and data) for aircraft systems is one of the principal tasks of the profession. The basics of the production of bunched circuits are engineering drawings, technical regulations and dimensional sketches. Examples of activities are to crimp and to plug contacts and connectors and to seal connectors. The requirements concerning functionality and quality of wires or bunched circuits have to be considered and checked during production. Two examples of these checks are isolation and continuity tests. The rigorous rules (by VDE, Electrical engineers syndicate) concerning “health protection” and “safety at work” have to be considered during the checks, especially when working with high voltages.

Source: AEROVET (2010)

**Figure 3: Mobility Pass (excerpt)**

Unit 12:							
Production of bunched circuits for aircraft systems							
Remarks							
Mobility unit	Bewertung				Learning venue	Date	Signature
	Observed	Under instruction	Under surveillance	Independently			
Prepare bunched circuits in copper							
Prepare bunched circuits in glass fibre							
Read and interpret the order							
Work in a way which conserves resources							
Obtain and prepare the material required							
Have knowledge of material properties							
Cut cable to size and plug contacts							
Cooperate with colleagues and ask for support							
Quality control and preparation of bunched circuits for dispatch							
Prepare bunched circuits in aluminium							

<i>Prepare bunched circuits</i>					
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Source: AEROVET (2010)

With regard to the issue of recognition and examination, the project developed a 2-stage procedure due to the fact that many learning outcomes within the sector cannot be acquired within a single phase of learning (with or without mobility activities). Even mastery of a seemingly simple skill such as “riveting” requires repeated longer-term phases of practice in variable contexts. The learning outcomes from the individual mobility units are assessed by the relevant support staff from the host institution using a qualitative performance oriented scale. Certifiable evidence of successful learning does not take place until after acquisition of the respective mobility units relevant to the unit in question within the scope of the applicable national examination regulations.

### Reactions of participants

The added value of the approach outlined is perceived to be the fact that both the trainee and the relevant teachers and trainers at the home or host institution can agree on the units which will form the object of the respective mobility phase *before* the mobility phase takes place. (Even if the 22 units are not evenly distributed in practice, freedom of choice is of crucial significance in the case of deployment in the company). *During* the mobility phase, clarity and simplicity is of particular advantage. Probably the most common reaction we received was “please do not burden us with any additional paper work”. *After* the mobility phase, the completed matrices show the mobility units on which the learner has worked (company requirements may mean that prior agreements may not be adhered to in all cases) and how well he or she has performed, i.e. which prior knowledge or skills the teaching staff at the home institution can take as their starting point.

### The EASA modules

It is not the intention of the present paper to give rise to the impression that AEROVET or the ECVET Recommendation was the reason behind the application for the realignment of the technical aviation occupations. This was, in fact, due to the requirements of another European authority, EASA (European Aviation Safety Agency). These requirements, which are formulated within the structure of modules, will be outlined below. They form the essential reason behind the application for realignment whilst also being the cause of a considerable degree of scepticism on the part of teaching staff in the sector with regard to modular based approaches. In contrast to EACEA, EASA is not subject to any prohibition on harmonisation. It enacts, modifies and monitors safety requirements in civil aviation within the EU and from and to airports in the EU. Its most high profile public act is probably the ban on taking more than 100 ml of a liquid on board a commercial aircraft. EASA Part 66, which forms the object of consideration here, affects only skilled maintenance and repair workers on licensed civil commercial aircraft, i.e. both military maintenance and production (and modification prior to licensing) are explicitly not included. In the interests of horizontal permeability, this restriction is certainly regrettable. Highly qualified skilled workers from these two branches need to undergo extensive retraining if they switch to a civil airport. Part 66 describes the conditions required to achieve a maintenance staff licence and is formulated in 17 modules.<sup>5</sup>

The licences themselves are divided into three categories A, B and C depending on the complexity of the maintenance. The respective certification authorisation rises accordingly:

- Category A: Line Maintenance Certifying Mechanic
- Category B: 1 Maintenance Certifying Technician Mechanical
- Category B: 2 Maintenance Certifying Technician Mechanical
- Category C: Base Maintenance Certifying Engineer

The formulation of the modules was based purely on technical requirements. No didactic or educational system related considerations were accorded.

<sup>5</sup> Cf. EASA: <http://easa.europa.eu/home.php>.

### Structure of the licences

Within the context of initial vocational training, no further consideration will be accorded to Category C (Engineer). The mechanic categories A and B 1 have been subdivided by EASA according to the type and drive of the aircraft.

- **Licence A1 or B1-1** for mechanics with the additional qualification aircraft with turbine engines
- **Licence A 2 or B1-2** for mechanics with the additional qualification aircraft with piston engines
- **Licence A3 or B1-3** for mechanics with the additional qualification helicopters with turbine engines
- **Licence A4 or B1-4** for mechanics with the additional qualification helicopters with piston engines

Including the Licence B2 for electricians, this means that 9 licences need to be considered. The joint reference framework for these 9 licences is formed by a total of 17 modules of extremely differing scope (e.g. Module 8, Basic Aerodynamics, at only 14 hours Module 7, Maintenance Practices, at 257 hours in all CAT A licences).

The individual licences differ in terms of various learning times within the individual modules. For example, Module 15 “Gas Turbine Engines” is a component part of Licences A1, A3, B1.1 and B 1.3, but not of the other 5 licences.

The modules are divided into sub-modules and sub-sub modules. The excerpt (Figure 4) states the sub-modules 6.4 (Corrosion) and 6.5. (Fasteners) from Module 6 (Materials and Hardware) and the respective sub-sub modules for Licence CAT B1.

**Figure 4: Excerpt from the EASA modules**

Module	CAT B1.1							
	Complete course					462 hours		
	Level CAT A	Level CAT B1	Theory Require- ment (hrs)	Practice Require- ment	Number of question s MMC	Theory Require- ment (hrs)	Practice Require- ment	Number of question s MMC
6.4 Corrosion								
a) Chemical fundamentals	1	1	5	3	2			
b) Types of corrosion and their identification	2	3	10	10	6	3	2	3
6.5 Fasteners								
6.5.1 Screw threads	2	2	5	4	3			
6.5.2 Bolts, studs and screws	2	2	5	4	3			
6.5.3 Locking devices	2	2	5	4	3			
6.5.4 Aircraft rivets	1	2	12	20	4	2	1	2

Source: EASA

The sub-sub modules may each be obtained at 3 levels. The respective level is reflected in the learning time per sub-module and the number of multiple choice questions (final column). The excerpt (Figure 4) documents, for example, that the sub-module 6.4.b) (Types of corrosion and their identification) needs to be learned at Level 2 for Licence CAT A and at Level 3 for Licence B1. The whole of the learning time for Level 3 is 20 hours, and the sub-sub module is examined via 6 questions. If the candidate is already in possession of a CAT A1 Licence and has two years of occupational experience, he or she thus needs to learn for an additional 5 hours only and only answer 3 questions. If the levels of the sub-sub modules correspond as in the case of 6.4.a. (Chemical fundamentals), a CAT A1 licensed candidate does not need to demonstrate any further hours of learning with regard to this module and is not required to answer any extra questions.

Within the context of the AEROVET project, the question which naturally occurs at this point is why the EASA modules are not used as learning units for mobility. They have been institutionally legitimised, their assessment is stipulated (multiple choice and open questions to be answered in writing for 3 of the modules), relative weighting corresponds to duration of learning and would be creditable and they are binding across the EU, learning venue independent and identical. The AEROVET partners are, however, of the view that they do not fulfil 2 essential criteria of the ECVET approach.

- Learning outcome orientation: the EASA modules are strongly input aligned – learning time and materials are the relevant criteria for admission to the multiple choice test.
- Learning venue independence: in order to be able to issue licences, the training providers themselves need to undergo an extensive certification process (Part 147) operated by the respective national aviation authorities. Since the modules only apply to trainees who are undergoing civil maintenance training, training providers save the costs and effort of certification in the areas of production, private aviation and military aviation and are therefore not entitled to issue (partial) licences.

### **Reaction of the educational systems to the introduction of the EASA modules**

The reaction of the fragmented systems in the United Kingdom and Spain can be summarised very briefly. New training providers or courses are being established within existing institutions to offer training in accordance with the EASA modules. In Spain, for example, there are 10 vocational schools, eight of which provide training both for higher level technicians for maintenance in the field of onboard electronics (avionics) and higher level technicians for maintenance in the field of aircraft mechanics and two of which offer only the latter. On the other hand, there are 15 EASA recognised training centres which provide preparatory training for licensing. Because the qualifications achieved by the Spanish learners are the highest considered within the project due to the fact that they are aligned to EQF Level 5, there is an additional special rule which is not offered in the other systems. Those who have successfully completed vocational education and training within the Spanish qualifications system may apply for a licence, although they are required to pass a so-called ‘free examination’ as stipulated by the ‘General Directorate of Civil Aviation’ (Dirección General de Aviación Civil - DGAC). This means that the relevant EASA training and VET as stipulated by the Spanish Ministry of Education are functionally equivalent to B licensing according to EASA.

The occupationally organised training systems in France and Germany find it more difficult to react to these requirements. On the one hand, training providers offering specific training in the modules are also establishing themselves alongside the VET system in these two countries, whereas on the other hand there is a desire to integrate the certification into the regulatory instruments. The situation is very unsatisfactory at present. *“Current regulations do not permit people who have completed an outstanding course of vocational education and training of 42 weeks’ duration to be afterwards licensed to work on aircraft. This means that they are able to do a lot, but are not permitted to do anything, whereas it is perfectly possible that there are people elsewhere who may know a lot but cannot do anything and yet are permitted to do everything”* (quotation from a training coordinator). The current situation in France also involves a mixed form comprising recognition, additional learning and examination and is similar to that faced by German aircraft mechanics.

Part of the teaching programme for those completing the “Bac Pro” in the sector is validated by the GSAC<sup>6</sup> as recognition for Licences A and B, the consequence being that two cultures for the evaluation of competences and knowledge exist in parallel: the traditional French examination-based evaluation and the EASA multiple choice procedure. An equivalent situation pertains in continuing training as a technician, where partial validation for Licences B1-1 and B2 is awarded to the teaching programme leading to the BTS<sup>7</sup>.

In Germany too, even though the curriculum covers large parts of the B licences in terms of content, qualifications are not recognised as adequate. In the case of aircraft mechanics, the German Federal

<sup>6</sup> Groupement pour la Sécurité de l’Aviation Civile – Association for Safety in Civil Aviation.

<sup>7</sup> Brevet de Technicien Supérieur = Higher level technician certificate.

Aviation Office recognises a delta of 98 hours for CAT A (cf. Figure 5, until September 2010 the duration was only 55 hours). No learning outcomes are currently recognised in the case of electronics technicians for aviation systems. The main cause for the removal of partial certification here is the structuring of the school-based parts of training in the form of learning fields. The Federal Aviation Office certifiers are of the view that the open employability skills oriented formulation of such learning fields cannot be transferred to the contents of the modules. A further problem is due to the dual principle and lies in the certification of the training providers. Because significant elements of the training take place within the companies, these companies would also need to be certified pursuant to Part 147. The German Federal Aviation Office does not believe it has the necessary capacity to do so. As in France, there is also the problem of the different examination forms: the very specific “company order” which may apply in training and the highly standardised multiple choice tests in the case of the modules.

**Figure 5: German Federal Aviation Office “Delta Report”, status August 2010,**

Zielgruppen u. Voraussetzungen	Erfahrung in Jahren	Module													Stunden ges.	Tage ges.	Lg.-Nr.
		1	2	3	5	6	7	8	9	10	11a	15	17				
Fluggerätmechaniker/ -elektroniker mit IHK-Abschluß an einer Part-147 zugelassenen Schule (duale Ausbildung)	1			X	X	X	X	X	11	11	33	X	X	55	9	FJA1003-01	
Fluggerätmechaniker/ -elektroniker mit IHK-Abschluss	1			22	6	44	44	11	11	11	112	37	7	305	50	FJA1002-01	
Förderliche Berufsausbildung außerhalb der Luftfahrt	1 <sup>1</sup>			22	6	58	85	16	17	22	264	72	7	569	90	FJA1001-01	
Teil-66 Forderung für „Certifying Mechanic Cat A1“	1 <sup>1,2</sup>	20	45	22	6	126	183	16	17	22	264	72	7	800	123	FJA1000-01	
Differenzschulung von Cat. B2 zu Cat. A1	0,25					19	42				141	72	7	281	46	FJA1xB2-01	
X = Abschluß mit Prüfung in diesem Modul  1 Die praktischen Erfahrungen können nach dem Grundlagenlehrgang erbracht werden  2 Für andere technische als förderliche Berufe mit IHK-Abschluß entfallen die Module 1 und 2		Mathematics	Physics	Electrical Fundamentals	Digital Techniques	Materials & Components	Maintenance Practices	Basic Aerodynamics	Human Factors	Aviation Legislation	Aerodynamics, Structures & Systems, Turbine Aeropl.	Gas Turbine Engines	Propeller				

Source: Lufthansa Technical Training

Current practice of recognition of training performance seems arbitrary in parts. Modules 1 and 2 (Mathematics and Physics) are, for example, recognised without an additional examination, whereas Module 3 (Electrical fundamentals) is only recognised with an additional examination. And, as already outlined above, the training of electronics technicians for aviation systems is now no longer recognised at all. This intolerable situation provided a direct reason for initiating a realignment of the technical aviation occupations. The approach adopted by the AEROVET project is also being brought to bear in the formulation of the German Key Issues Paper. The targets set out by the German Aerospace Industries Association (BDLI) and the trade unions IG Metall and Ver.di included the following.

- Orientation towards transnational employability skills fields (the AEROVET learning units)
- Integration of the contents of (at least) the CAT A Licences
- Demonstration of (at least) equivalence of final examinations and the EASA tests
- Certification of the training course not the training centre

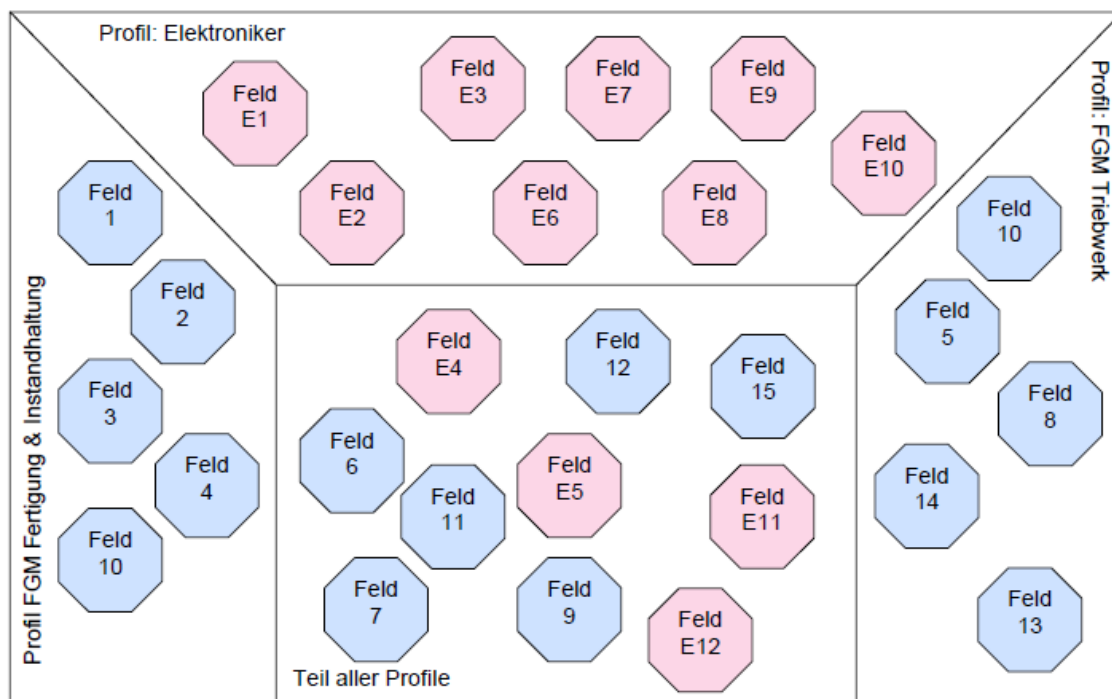
### The key issues and the framework agreement

The lines in italics in this section are quotations from the “Framework Agreement for the realignment of technical aviation occupations between the BDLI, IG Metall and ver.di” (November 2010). The full text of the agreement can be viewed on the project homepage at [www.pilot-aero.net](http://www.pilot-aero.net). Without being specifically written as such, this agreement can also be read as a response to the elements contained within the ECVET Recommendation. The following emphasis is, for example, placed regarding mobility.

*“The descriptions of the competence fields and associated competences contained in the regulations should help create transparency of training contents and thus fulfil the prerequisite for completing parts of training abroad in other European countries and obtaining a credit transfer in respect of the relevant contents. The social partners support international exchange programmes for trainees and recommend that companies should take part in appropriate programmes”* (p. 4, emphasis by the author). At the same time, the recommendation is made that regulatory instruments be aligned to the AEROVET competence fields as learning units (cf. Figure 6), remarks being appended under the same programmatic heading taken as the title of the present paper *“Inner flexibility of training occupations instead of fragmented modularisation”*.

*“The signatories to the present framework agreement understand competence fields to be the useful collation of the contents of individual competences required to deal professionally with typical occupational work requirements within defined work processes (e.g. assembly and disassembly of devices and systems in/to the airframe). Although competence fields describe individual components of an occupational profile, they do not constitute a completed qualification within the meaning of modules. The vocational qualification arises from mastery of all associated competence fields. (...) The time structure of the general training plan takes place in accordance with the time frame method in line with the present occupation electronics technician for aviation systems”* (p.3, emphasis by the author).

**Figure 6: Desired structure of occupations in the group “Technical aviation occupations” – Learning Unit 12 listed above corresponds to field E1.**



Source: AEROVET (2009)

There is also a rejection of the examination of individual units proposed in the ECVET Recommendation. The aim is for the prevailing examination regulations largely to remain in place. *“The examination takes place in the form of an extended final examination. It is divided into two examination areas. Investigation needs to take place as to the extent to which Part 1 of the final examination can be appropriately structured for the identification of employability skills”* (p.3).

## Conclusion

Especially in the case of the examinations, a considerable difference arises between the interests of the project partners and the Recommendation. Alongside the expected consequences in educational law, this part of the ECVET Recommendation represents a dramatic pedagogical paradigm shift.

Should overall employability skills be tested or a cluster of partial qualifications? This is an area where the experiences in the sector with the EASA modules are of relevance. For the schools affected, additional expenditure for documentation and examination is considerable.

According to the experiences from AEROVET and the preparatory realignment discussion, a differentiation needs to be made between learning units (as a structuring element) and qualification units (as examined elements of a qualification). Whereas the former seems to be useful in advancing the goals of transparency, mobility and permeability within a vocational education and training system, the latter has the potential to bring about a schism in the VET system.

The determination of the relative weighting of learning units within the meaning of ECVET credit points is not practical or useful at the abstraction level of a qualification. The relative weighting of the units as such is not a valid object of evaluation. The only thing which is capable of evaluation is the relative weighting within a specific programme, as the following examples from the United Kingdom and Germany show.

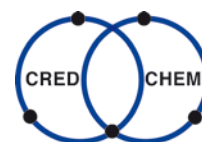
- In the United Kingdom, the learning units are a component of many qualifications of a wide range of breaths and depths. This means that their weighting depends directly on the scope of the qualification.
- The German vocational education and training system works with minimum standards rather than norm standards. The regulatory instruments provide for “suggested time allocations” or “time frameworks”. In this way, time frames of “2 to 4 months” are allocated to sections of training, i.e. approximately between 5% and 10% of the learning time. The business fields of companies providing training are the reason for this possible variation. The experts from Premium AEROTEC in Nordenham (main focus: manufacture of shells) accord a far lower weighting to the unit “Assembly and disassembly of devices and systems in/to the airframe” than do their colleagues at Airbus Hamburg (where main focuses include final assembly lines).

Beyond possible pragmatic solutions within specific mobility projects, the AEROVET Consortium expressly recommends revising the relevant statements in the ECVET specifications. The fear is that rigid or negligent assumption of the aspect of fixed points in possible national implementations will bring about a long-term reduction in the readiness of specialised companies to provide training in dual systems.

Parts of this paper have already been published in *berufsbildung* 128 (April 2011).

## Is ECVET fostering the establishment of a European mobility network?

### The example of CREDCHEM



Christiane Eberhardt/Beatrice Schlegel

#### 1. Background: the European chemical sector – global, networked and dependent upon training

The chemical industry turns over €537 billion a year and employs just under 1.2 million workers (2007), making it the largest industrial branch within the European economy (EUROPEAN COMMISSION 2009a). More than 290,000 workers are employed at chemical companies in Germany alone and account for approximately 25% of European chemical production.<sup>8</sup> In 2003, more than half of all chemical exports worldwide were manufactured in Europe. This makes it clear just how significant the chemical industry is in overall economic terms at a national level. Whereas the chemical industry is amongst the three largest manufacturing branches in more than half of all EU states (LÖBBE 2004, p. 9), its economic significance has declined in the countries of Central and Eastern Europe (POPOVA 2010, p. 178). Against this background, the availability of well qualified skilled workers fulfils a dual function. It provides the foundation for securing innovative products and production processes for the long term and for facilitating connectivity to the European and international market. The interplay between the requirement for skilled workers and internationalisation is the reason behind the demands which German employers in the chemical sector are presenting to European educational policymakers. These demands may be summarised via the keywords of “improvement of quality, permeability, transparency and comparability in national educational systems” and “promoting mobility”. Fostering mobility amongst trainees, skilled workers and training staff is seen as the key to promoting international competence and communication skills. When mobile trainees and students spend time abroad, they are able to familiarise themselves with different living and work conditions and put their professional knowledge to the test as well as facing a challenge in intercultural terms. In short, they develop a degree of potential “*which chemical companies operating in a global market very much value*” (OGRINZ 2010, p. 57). The interests of the European chemical industry are in harmony with the endeavours being undertaken within European educational policy. Since March 2009, the CREDCHEM project<sup>9</sup> has been piloting the European ECVET instrument, the central objective of which is to reduce barriers to mobility.

#### 2. The goal: using ECVET to establish a European Mobility Network for the chemical sector

In the same way as the projects SME Master plus, AEROVET and VaLOGReg, CREDCHEM was selected in 2008 as part of the European Call for Proposals “Testing and Development of the European Credit System for Vocational Education and Training (ECVET)”. The requirements made of these “1st generation” projects were high, the aim being for them to pilot all the aspects of ECVET contained within the Recommendation. The aims therefore were to develop units of learning outcomes and the “points score” to be awarded to such units and equally to accord due consideration to procedures for the transfer of the learning outcomes (including evaluation, validation, accumulation and recognition) and to the drawing up of correctly tailored implementation instruments (cf. text of the Call for Proposals EACEA/14/2008). For this reason, two requirements formed the main focus of

<sup>8</sup> For more information, visit <http://www.igbce.de/portal/site/igbce/chemie/>.

<sup>9</sup> CREDCHEM is a German language acronym based on the project’s full title of: “Development and piloting of a credit system to improve mobility in skilled work within the chemical sector”.

CREDCHEM. The first aim was to develop a model which facilitates the mobility of individual persons by enabling evidenced learning outcomes achieved abroad to be recognised at home in the context of qualification. The second objective was to investigate whether, and if so why, the European ECVET instrument is actually suitable for improving and consolidating European mobility phases in the long term. In order to be able to tackle the tasks associated with these goals effectively, the CREDCHEM partnership comprises stakeholders representing vocational pedagogy, vocational education and training practice and VET structuring/policy advice. CREDCHEM is a collaboration between the vocational education and training institutes from Bulgaria (NAVET), the Czech Republic (NUV), Slovakia (SIOV) and Germany (BIBB) working in conjunction with institutions involved in educational and training practice, the latter being represented by the learning venues ITAS Scalcerle Padua and the Saxony Training Association for Environmental Protection and Chemical Occupations (SBG) as well as piloting institutions in Italy, the Czech Republic, Bulgaria and Slovakia. Pedagogical support for the project is provided by the Institute for Chemical Technology, Environmental Protection and Environmental Technology, part of the Faculty of Education at the Technical University of Dresden. The main focus of consideration for CREDCHEM was that mobility phases in skilled work within the chemical sector can only be consolidated in the medium to long term

- If they are capable of integration into national qualifications and training pathways and
- if they take place within an organisational framework which is capable of securing implementation of stays abroad within an agreed procedure and in accordance with stipulated standards – i.e. a network.

The aim of the project is the initiation of a “CREDCHEM Mobility Network” which offers units of learning outcomes specially developed for deployment abroad in the form of practical internship phases in the partner institutions. In specific terms, this means that learners are able to attend selected courses in other European countries which are considered to form an integral component of their training at home.

### 3. Methodological approach: from the work task to the learning outcome unit

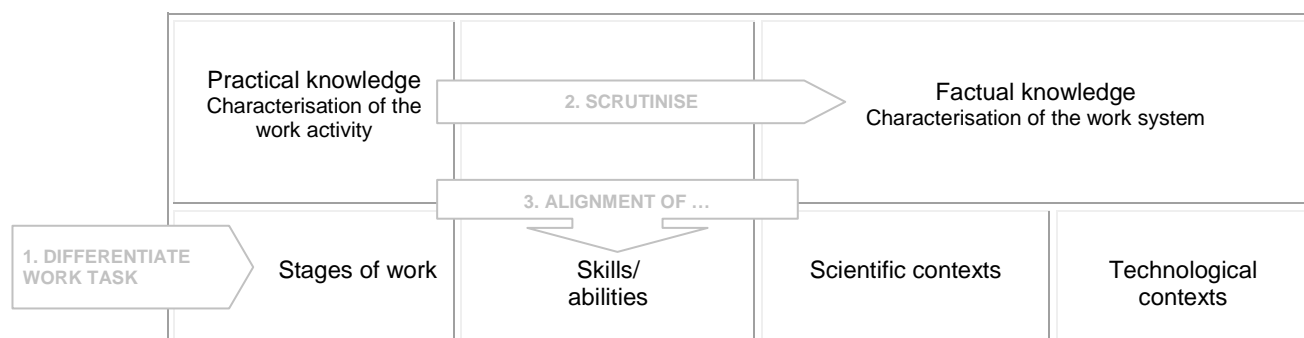
One of the core tasks of the project was to describe learning outcomes from skilled work within the chemical sector and collate these in appropriate units. A comparison of the national curricula forming the basis of this skilled work did not prove to be a productive approach to adopt. Although existing occupational profiles in the partner countries bear similar names, there are considerable differences in the actual performance profiles associated with these designations. For this reason, a way needed to be found which made it possible to integrate the units of learning outcomes precisely into national training/qualifications. In CREDCHEM, the units of learning outcomes were developed with reference to the world of work because real work processes and the work requirements to which these give rise are comparable and transferable across system borders regardless of what title is given to an occupation or qualification in the different educational systems of the countries. For this reason, the learning outcomes described by the project partnership on this joint basis and clustered into units of learning outcomes are in their totality able to map a complete occupation, whereas in other countries they merely represent parts of an occupational profile or an additional qualification. In CREDCHEM, proposals were drawn up as to how learning outcomes in the occupational activity of “Work in the laboratory” can be described and how units of learning outcomes can be defined and represented for subsequent use by new network partners. Each unit of learning outcomes has its foundations in typical work tasks which have been evaluated and documented on a division of labour basis by CREDCHEM partner institutions<sup>10</sup> in the participating countries in accordance with a standardised analysis grid. The knowledge, skills and competences which are of significance to the completion of a work task thus form the scaffolding for the definition of units of learning outcomes.

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<sup>10</sup> In order to complete the work associated with this process, further learning venues were added to the CREDCHEM partnership, and “Communities of practice” were formed.

In selecting or delineating the work tasks, care was taken that such tasks encompass a complete work action and thus reflect the complexity of the world of work. The following approach was selected for the analysis of work tasks. In the case of knowledge, a differentiation was made between practical knowledge (knowledge of stages of work) and factual knowledge (the scientific and technological contexts which form the basis of the stages of work). A further distinction was drawn between routine and non-routine skills due to the fact that such a differentiation is relevant to the evaluation of employability skills.

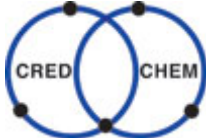
**Figure 1: Analysis of typical sample work tasks – the basis for the determination of characteristic knowledge, skills and competences as learning outcomes**



Source: NIETHAMMER (2010), p. 155

A further stage involved generalising work tasks and aligning them to professional thematic areas which form the basis of the individual units of learning outcomes. A total of ten units of learning outcomes were defined to map the field of occupational activity of “Work in the laboratory”.

**Figure 2: CREDCHEM units of learning outcomes in the field of occupational activity of “Work in the laboratory”**

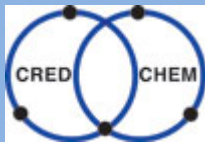
Field of occupational activity	Work in the laboratory		
Total number of credits			
EQF reference level			
Learning units	LU 1	Separate and mix substances	
	LU 2	Determine constants or properties of substances	
	LU 3a	Analyse substances spectroscopically (UV/VIS spectrography, AAS, AES)	
	LU 3b	Analyse substances spectroscopically (IR, NMR spectrography, MS)	
	LU 4a	Analyse substances volumetrically	
	LU 4b	Analyse substances gravimetrically	
	LU 5a	Separate and analyse substances chromatographically (DC, PC, SC (IC))	
	LU 5b	Separate and analyse substances chromatographically (HPLC, GC)	
	LU 6	Produce inorganic and organic substances chemically	
	LU 7	Synthesis procedures	

Source: SCHLEGEL (2010), CREDCHEM

During the course of the project, the partners have agreed that the units of learning outcomes should be based on competence levels which exhibit differences in terms of scope of knowledge, skills and competences, depth of understanding and availability of knowledge and skills from a range of perspectives (Niethammer, 2010). *Competence level A*: the person performs the analysis or synthesis autonomously. The important factors for this competence level are routines and an understanding of the stages of work. *Competence level B*: the person deals with typical procedural

problems whilst applying problem solving strategies. *Competence level C*: the person optimises the procedure within a team or adapts the procedure via team work. Alongside an understanding of deeper correlations regarding the procedure, this competence level requires the ability to work as part of a team and communication skills. The differentiation of the units of learning outcomes according to levels enables the partners to align mobility phases precisely to national qualifications and with regard to the acquisition of additional qualifications. Both learning outcomes and verifiability processes build on the work tasks. The starting principle here is that competences can only be evidenced in connection with specific work tasks. For this reason, monitoring of increased competence at the end of an internship abroad takes place by means of competence oriented test assignments<sup>11</sup>, which are selected from a pool of work tasks by the project partners and are used in all CREDCHEM institutions for the purpose of certifying a unit of learning outcomes which has been successfully completed. In addition to the test assignments, an assessment form which reflects professional skills, problem solving ability, communication skills and the ability to work as a team player at the various competence levels is also used. The aim of deploying both these instruments is to facilitate the identification of learning outcomes irrespective of country and thus render such learning outcomes comparable.

**Figure 3: Assessment form**

<b>Assessment form CREDCHEM internship</b> 		
Name of the intern:		
Observer:		
School/educational establishment/company:		
Unit of learning outcomes and competence levels:		
Test assignments:	A	
	B	
	C	
Date:		
<b>Test assignment A</b>		

<sup>11</sup> The sample test assignments have been formulated in a differentiated manner in accordance with the respective competence levels. *Test assignment A*: autonomous execution of a routine order in the laboratory (including relevant preparatory and follow-up work). *Test assignment B*: description of action options in a problematic situation. *Test assignment C*: working as part of a team on the development of a concept for the optimisation/adaptation of a procedure. The respective expectation profiles are attached to the test assignments.

Evaluation criterion	Item	Evaluation	Weighting	Σ
Compliance with health and safety at work, environmental protection, health protection	All precautionary measures (lab coat, gloves, protective goggles) were precisely complied with.	.../1	25%	
	All workplaces were kept tidy and clean.	.../1		
	All substances were correctly disposed of.	.../1		
Apparatus	Apparatus was set up precisely.	.../1	25%	
	All apparatus was used in a professional manner.	.../1		
Quality of work	The purity of the product or the analytical value deviated from the exact value by no more than +/- 2%.	.../1	25%	
	The time limit for the analysis/synthesis was complied with.	.../1		
Completeness of report	All calculations are correct.	.../1	25%	
	The apparatus is precisely sketched and labelled.	.../1		
	Executions and any deviations which occurred are precisely described.	.../1		
	All reaction equations are precisely formulated.	.../1		
Test assignment B				
Evaluation criterion	Item	Evaluation	Weighting	Σ
Causes	The cause of the problem was described in a comprehensible manner.	.../per cause 1 point	40%	...
Possible solutions	The solution was described in a comprehensible manner.	.../per solution 1 point	40%	
Adaptation to the situation	“Line manager is notified that the result will be delayed.”	.../1	20%	
	“The problem is precisely and clearly described in the report.”	.../1		
	“The analysis/synthesis is repeated.”	.../1		
Test assignment C (optimisation)				
Evaluation criterion	Item	Evaluation	Weight-ing	Σ
Optimisation concept (same evaluation for each team member)	The solution was described in a comprehensible manner and is clear in professional terms.	.../10	50%	
	The test series has been correctly and adequately described.	.../10		
Ability to act as a team player	He/she integrates into the team by taking on partial tasks.	.../1		
	He/she is committed to the common objective.	.../1		

	He/she reaches agreement with the other participants.	.../1	50%	...
	He/she submits proposals and argues the validity of these with the others.	.../1		
	He/she remains objective and resolves any conflicts which arise peaceably.	.../1		
Overall assessment				
The intern has achieved the following competence levels via the test assignments stated above:		Competence level A <input type="checkbox"/>		
		Competence level B <input type="checkbox"/>		
		Competence level C <input type="checkbox"/>		

Source: SCHLEGEL (2010), CREDCHEM

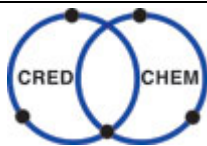
No answer to the question as to whether credits should be awarded for the units of learning outcomes has as yet been reached. A proposal has been drawn up in this regard. If the decision is made within the partner countries to use credits, these could be applied in accordance with the content complexity of the individual units of learning outcomes.<sup>12</sup> Such an approach, however, has to date not taken effect due to the fact that a final decision is still outstanding regarding the use of credits in the partner countries or in the sector. The experiences gained from CREDCHEM thus far indicate that credits have only a subordinate significance with regard to the establishment and activities of the CREDCHEM Mobility Network. The transparency created in respect of the representation of the unit of learning outcomes, the aim of which is to facilitate the joining of the network by new partners, is proving to be much more effective within the CREDCHEM context.

#### 4. Planning, implementing and evaluating mobility measures: the CREDCHEM Matrix, Memorandum of Understanding and Learning Agreement

The CREDCHEM Matrix, in which the learning outcomes of a unit are mapped against the respective competence levels, forms the starting point in terms of content and organisation for the planning, implementation and evaluation of mobility measures. The Matrix also makes it clear whether and how the unit relates to the existing occupational profiles in the partner countries and which parts of a qualification may be covered by the unit of learning outcomes.

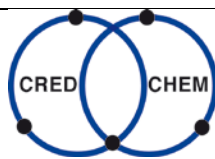
<sup>12</sup> In this proposal, the lowest number of points would be aligned to the smallest non-divisible units (basis Unit of learning outcomes 1 and 2) and double the number to the units of learning outcomes in the superordinate level (standard Unit of learning outcomes 3 to 6) etc. The standard units of learning outcomes 3 and 5 are divided according to increasingly complexity into (a) and (b) (a: more simple procedures, b: more complicated procedures). This would once again enable a differentiation to be made between basic and standard credits.

Figure 4: Unit of learning outcomes “Analyse substances volumetrically”

Field of activity	Work in the laboratory			 <b>ULO 4a</b>	
Unit of learning outcomes	Analyse substances volumetrically				
EQF reference level	Competence level A: EQF level 3 Competence level B: EQF level 4 Competence level C: EQF level 5				
Reference to national qualifications	BG	CZ	DE	IT	SK
	Chemical operator	Chemical technician	Chemical laboratory technician	Bio-chemical technician	Chemical technician
	Technician				Chemical laboratory technical assistant
	Laboratory technician	Chemical laboratory technician			Chemical technology modeller
	Chemielaborant/-in				
Learning outcomes					
Competence		Skills		Knowledge	
<b>Competence level A</b> (EQF level 3) <ul style="list-style-type: none"><li>- Uses standard procedures to analyse substances volumetrically and adapts such procedures to the prevailing conditions</li></ul>		<ul style="list-style-type: none"><li>- Accepts orders for the volumetric analysis of substances and plans further stages of work up until presentation of results</li><li>- Depending on the property/structure of the substances, selects appropriate laboratory technology and necessary chemicals (solvents...) and handles these in a precise, careful and routine manner</li><li>- Evaluates results and calculates relevant values</li><li>- Carries out preparatory and follow-up work for the analysis in a routine manner</li></ul>		<ul style="list-style-type: none"><li>- Knowledge of substances (properties, structure, risk and safety statements)</li><li>- Knows the correlation between measurement and parameter values and relevant procedures (knows stages of action)</li><li>- Is familiar with relevant apparatus/equipment and the way in which these function/how to handle them</li></ul>	
<b>Competence level B:</b> (EQF level 4) <ul style="list-style-type: none"><li>- Handles problems typical to the procedure</li></ul>		<ul style="list-style-type: none"><li>+ Analyses the problem, develops possible solutions using professional knowledge and decides how to solve the problem</li><li>- Reflects whether the problem has actually been solved</li></ul>		<ul style="list-style-type: none"><li>+ Is familiar with the dependence between values to be measured and the environment</li><li>- Knows reactions on which the procedure is based</li><li>- Knows the structural characteristics of a substance which are responsible for its properties</li></ul>	
<b>Competence level C:</b> (EQF level 5) <ul style="list-style-type: none"><li>- Works as part of a team to optimise procedures depending on the context</li></ul>		<ul style="list-style-type: none"><li>+ Works as part of a team, becomes involved in and thus progresses the work process</li><li>- Communicates with others on scientific and technological content (application of professional knowledge) and on the work process</li></ul>		<ul style="list-style-type: none"><li>- Knows the correlation between measurement and parameter values</li><li>- Knows the correlation between the basic chemical principle (neutralisation/precipitation...) and the practical usefulness of titration</li></ul>	

Source: Schlegel 2011, CREDCHEM

In addition to this, the Matrix delivers important supplementary information, the aim of which is to facilitate the planning and execution of mobility measures and to make decisions in respect of in which CREDCHEM partner countries precisely tailored internship is possible.

Field of activity	Work in the laboratory					
Unit of learning outcomes 4a	Analyse substances volumetrically					
Countries	BG	CZ	DE	IT	SK	
Which CREDCHEM learning venue offers the unit of learning outcomes?	Specialised School for Chemical and Biological Technologies Sofia	Valasske Mezirici Trade and Technical School	Saxony Training Association for Environmental Protection and Chemical Occupations Dresden	IIS Scalcerle	Novaky Specialist Intermediate School	
		Usti n. Labem Trade and Technical School			Bratislava Specialist Intermediate School	
Minimum duration for evidencing of the unit of learning outcomes	5	10	15	15	10	
How many learners can be accommodated?	8	3	3-4	12	10	
On which competence level is the unit of learning outcomes offered?	A, B	A, B	A	A, B	A, B	
In which language does the mobility measure take place?	Bulgarian	English	German	English	English/German	
Which procedures are applied?		Potentiometric titration Conductometric Titration Acid base titration Complexometric titration Permanganometric titration Redox titration				
The following sample work assignments are recommended for the execution of the unit of learning outcomes:						
Redox titration of copper ions						
Complexometric titration of calcium ions						
Permanganometric titration of iron ions						
Permanganometric titration of calcium ions						
Permanganometric titration of Mohr's salt						
Acid base titration of acetic acid						
Acid base titration of strong acids						
Acid base titration of standard solutions						
Argentometric determination of chlorine ions						
Potentiometric titration of vinegar						
Potentiometric titration of lemonades						
Acid base titration of Ibuprofen						
Acid base titration of tartaric acid						
Determination of acid neutralisation capacity						
Complexometric titration of zinc ions						
The following test assignments were designed for the competence levels stated					Competence level	
Argentometric determination of chlorine ions					A, B	
Determination of acid neutralisation capacity					A, B, C	

Acid base titration of acetic acid	A, B
Conductometric determination of ammonium chloride	A, B
Acid base titration of hydrochloric acid	A, B
Complexometric titration of zinc ions	A, B, C
Potentiometric titration of vinegar	A, B, C

**Figure 5: The CREDCHEM Matrix** – supplementary information (SCHLEGEL, 2010)

The information contained in the Matrix is aimed both at learners who are interested in an internship abroad and at institutions which either send learners abroad or else wish to host foreign learners. To this extent, it is an important instrument in terms of acquiring new network partners. All network partners sign a “Memorandum of Understanding”. In appending their signature to such a document, they commit to compliance with joint quality and implementation standards. The mobility phase itself is secured via the learning agreement, which is concluded between those directly involved (i.e. the learner, the home institution and the host institution) and clarifies which unit of learning outcomes is to be completed abroad. In addition to this, the general conditions of the internship abroad are also regulated (insurance, accommodation, provision of protective clothing etc.). The CREDCHEM internship abroad is evidenced with the EUROPASS Mobility. The CREDCHEM units of learning outcomes have been undergoing piloting in the partner countries since September 2011. The next stage will involve an evaluation of the foreign internships already conducted using questionnaires and guided interviews. The learners and training staff from the home and host institutions will both be surveyed. The evaluation is directed towards finding out the extent to which:

- trust has been established amongst the partners;
- learning processes have taken place in respect of all of those involved and
- it has been possible to deploy the sets of instruments (competence levels, test assignments, assessment forms, learning agreements) in the existing form or with adaptations as necessary.

Within CREDCHEM, partners from the participating countries developed the instruments for easier and improved mobility in skilled work within the chemical sector. Whether these instruments will gain the acceptance in the long term and the nature of the experiences which new network partners will experience when deploying them are questions which cannot be answered until further mobility cycles have taken place.

## **6. General conditions and structuring for the firm establishment of CREDCHEM in practice – an assessment**

CREDCHEM commenced work in 2009 with the objective of facilitating the mobility of individual persons by enabling learning outcomes evidenced abroad to be transferred and recognized to the training in their own country. There are many indications that the project has thus far succeeded in establishing structural approaches which are suitable for the promotion of ECVET oriented measures aimed at improving transnational mobility. At the level of specific implementation practice, practical learning venues have been integrated into the development of procedures and instruments in all partner countries. This means that CREDCHEM has penetrated down to the grass roots during the actual term of the project. The approach of using work tasks as a vehicle for describing learning outcomes and using the former as an object of mobility measures (whether this be by the host or home institution) has been successfully embraced by the partner countries. This approach seems to be a practicable one, as is evidenced by the fact that, during the term of the project, further learning venues from Poland, Hungary and Latvia have expressed an interest in the implementation of the CREDCHEM units of learning outcomes. At the level of national structuring of vocational education and training, national Project Advisory Councils have been constituted in the partner countries during the term of the project. These include the main branch associations and social partners as well as representatives of national VET policy. To this extent, CREDCHEM has become a reference and reflection framework for the negotiation of national ECVET strategies. The necessity of a strategic

positioning is particularly displayed in the case of issues relating to validation, recognition and accumulation, which the ECVET Recommendation states should be implemented “in accordance with national legislation and practice”. From a CREDCHEM perspective, it is questionable in this regard whether an independent and separate validation and recognition process, as formulated in the ECVET Recommendation, is required. The experiences gained from CREDCHEM indicate that integration of mobility phases into training is facilitated if:

- the units of learning outcomes to be evidenced abroad correspond to the learning outcomes produced in domestic contexts in terms of scope, breadth and depth;
- instruments exist which make it easier to plan, organise and execute stays abroad;
- standards have been agreed with regard to how a unit of learning outcomes can be offered and which evidencing methods can be used.

Three years of ECVET piloting in CREDCHEM give rise to the question of whether “credits” and the accumulation of credits actually foster transnational mobility to the extent intimated in the text of the Recommendation of the European Parliament and the Council. In CREDCHEM, a proposal was drawn up which would permit credits to be awarded independently of country if required. Such a credit system is self-enclosed and self-referencing since it relates only to the inter-relationship of the CREDCHEM units of learning outcomes. It is clear that the significance or “value” of a unit of learning outcomes can vary and thus needs to be accorded differing point values in the systems of the partner countries. There is accordingly an absence of a national reference system for credit transfer in all CREDCHEM partner countries. This would mean that the “credits” would represent a currency without purchasing power.

Looking at the issue from the CREDCHEM perspective, the added value of the ECVET system lies in its component parts, which are aligned towards the creation of transparency of learning outcomes, the securing of a joint quality of implementation and the establishment of permanent and open cooperation structures. These form the core of the CREDCHEM Project and constitute the starting point and point of reference for a “European Mobility Network” for the chemical sector. Notwithstanding this, three years of project piloting also indicate problems which are already becoming apparent in cases where the ECVET elements are used in mobility contexts. One issue which remains unresolved, for example, is the extent to which the dual training partners will be willing and able to impart units of learning outcomes within everyday company routine. In addition to this, it is foreseeable that ECVET based mobility will require an appropriate infrastructure. For this reason, the question as to which organisational, financial and human resources conditions will need to be in place within the institutions in order to ensure that ECVET based mobility phased can be implemented for the long term is one which will increasingly arise. This is an area in which answers still need to be sought.

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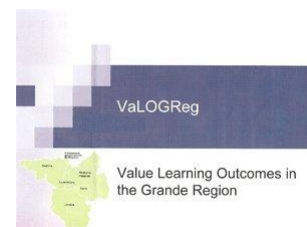
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## VaLOGReg - Value Learning Outcomes in the Grande Region



Hans Jürgen Berg

### 1. Preliminary remarks

This project forms part of the first wave of EU piloting of ECVET and is based in the “Grande Region”, or Greater Region, which comprises areas of France and Belgium, Luxembourg and the federal states of the Saarland and Rhineland Palatinate. It investigates the extent to which vocational learning content and the structures of training are comparable in the respective countries and the degree to which reciprocal credit transfer is possible. If the result of this investigation is positive, mobility programmes can be used as a vehicle for the initiation of cross-border qualifications acquisition and become a part of everyday European life which will exert a positive influence on the skills potential of trainees and workers in the Greater Region, particularly against the background of societal and economic developments.

### 2. Alignment of VaLOGReg to vocational education and training developments

One of the aims of the “European Credit System for Vocational Education and Training (ECVET)” is to make use of the principle of mutual trust as a basis for recognising effectiveness of the training systems of the respective countries and for promoting mobility. This raises the question of the implementation of ECVET within the scope of vocational training, an issue which is of significance in the Greater Region for economic development, human resources and cross-border activity, particularly for small and medium-sized companies. Demographic development represents a further challenge. The question is how, where and with the deployment of which materials training resources can be made available to cover the requirement for skilled workers and to correspond with the changing training needs in such a way so to expand rather than merely maintain the economic prosperity of the region. From the point of view of the school based learning venues and against the background of educational economics considerations, one of the relevant issues is how future training structures will need to be designed in order to accord with economic and societal developments. With reference to the school based learning venues this affects location issues and investments in training structures of both a material and spatial nature. At a human resources level, the main focus is on the supply of teaching staff, the acquisition of such staff and their continuing training. At the operative level, structures need to be created which facilitate effective school based training for the learning groups. Issues that need to be addressed include: the organisation of teaching, subject alignment and school infrastructure, including boarding accommodation. In other words, the future task is to create a global form of management which extends beyond the borders of the respective countries and also focuses on the Greater Region as an education and training region. Supporting the mobility of young people has an important part to play within this context, and the aim is for projects such as VaLOGReg to provide such support. The objective of VaLOGReg is indicated by its name: “Value Learning Outcomes in the Greater Region”. During the term of the project, the aim is to develop sets of instruments which can be used to compare and evaluate learning outcomes achieved during a period of training in one of the regions and provide a credit transfer for recognition as part of the training process in the home country. The partners involved in VaLOGReg were the Lycée technique d’Esch-Alzette (Luxembourg), the Ministry of National Education and Vocational Education and Training (Luxembourg), the Ministry of Education, Science, Continuing Training and Culture of the Federal State of the Rhineland Palatinate, the Ministry of

Education of the Saarland, the Institut Wallon de Formation en alternance et des indépendants et petites et moyennes entreprises (Belgium) and GIP Formation Tout au Long de la Vie (France).

### **3. The VaLOGReg project – stages of implementation**

#### **3.1 Analyses of curricula and training regulations**

The initial stage of work undertaken was extremely extensive and involved an investigation of the comparability of learning contents in the individual countries on the basis of the existing curricula. This stage did not constitute any great hindrance between Luxembourg and Germany due to the fact that the content, organisational and regulatory policy circumstances in the two countries exhibit a very high degree of analogy. The situation regarding Belgium and France, however, presented itself as much more different. In the case of France, the main reason for this was the organisational structures of vocational education and training rather than curricular alignment and the training to which this relates. Whereas “dual forms of training” predominate in Luxembourg and Germany and form the basis of the occupations investigated, training in France largely takes place in a full-time school. This involves differing duration of training and different teaching approaches. Within the scope of the project, the following questions very quickly arose. Are the same things learned within the participating countries? Are the qualifications which can be acquired ultimately comparable? Which competences do the qualifications reveal? In order to be able to respond to these questions, an extensive, and ultimately successful, analytical process focusing on training regulations and general training plans was required. This analysis showed that, with regard to the respective occupation, the same competences are imparted in a different form which, as evidenced by performance measurement during the – admittedly short – exchange phases, fully corresponded with the requirements profile of the home country. Even following lengthy discussions with experts in the respective occupations of “Vehicle mechatronics technician” and “Plant mechanic for sanitary, heating and air conditioning systems”, it rapidly became clear to all those involved that this process also requires a “quantum of reciprocal trust” with regard to the varying training structures. Notwithstanding this and irrespective of the training system, it emerged that comparability of competences is discernible. In the same way, comparability of teaching and learning processes in the countries and the competence of teaching staff showed a high degree of accord.

#### **3.2 VaLOGReg user handbook**

During the term of the project work carried out within the scope of VaLOGReg, a user handbook was drawn up on a stage-by-stage basis and closely aligned to the progress of the project. It stipulates all the steps which need to be considered from the point of view of the partners involved in the project within the scope of planning, analysis and implementation. The documentation relating to the development process of the Memorandum of Understanding (MoU), the curricular analysis and harmonisation, the investigation of legal and formal aspects to be considered within the framework of the exchange scheme and the “sample documents” all provide users with detailed guidance. The user handbook contains detailed information on the stages which enable an educational and training institution to act successfully within the scope of ECVET.

#### **3.3 Memorandum of Understanding (MoU)**

The MoU, the development of which was accorded considerable scope within the steering group, occupies a central position within the framework of the guide. The aim was to draw up a partnership

agreement in which the general conditions for piloting ECVET are precisely described with the assistance of a mobility action plan. Alongside regulations for organisations participating in the exchange, the main focus was on the issue of certification of competences acquired abroad, the goal in respect of the latter being the facilitation of reciprocal recognition in the interests of the learners. The core issue addressed in the MoU was the stipulation of the requirements made of VET stakeholders and the duties of such stakeholders. In order to fulfil responsibilities to young people, provision was required to ensure that mobility phases take place in a proper and professional manner. Within the scope of pedagogical responsibility, this includes the following aspects.

- The period of training should be clearly delineated.
- The language in which the qualification is taught.
- The learning outcomes which should be achieved within the scope of the placement.
- The stating of the evaluation procedures.
- The listing of certifiable learning outcomes achieved during the mobility phase.
- The clarification of education law, insurance and other legal issues which arise within the scope of the exchange.

In appending their signatures, all stakeholders involved within the mobility assume a responsibility to act in the interests of young people by ensuring that all aspects stipulated in the MoU are properly addressed. For the young people themselves, the exchange should not result in any problems with regard to the professional content and scheduling of training nor in respect of examination performances required and the transfer of the outcomes. Very many detailed problems reflecting the diversity within the countries needed to be resolved. The purpose of choosing to develop an MoU which is also able to serve as a guide and impetus for other European partners in terms of its content structure was to draw up a document which was as extensive and specific as possible, which emphasised areas of common ground and which provided a “framework of provision” with a sufficiently low threshold so as to favour developments of the kind piloted in the VaLOGReg project. In other words, the aim was for the Memorandum of Understanding to exhibit a “regulatory framework” ensuring a high degree of security for all participants within the framework of the exchange in terms of objective professional, organisational and technical insurance issues.

### 3.4. VaLOGReg as reflected upon by those involved

Following the exchange, it was important for those responsible for the project to learn the effects the measure had had on teaching staff, the trainees and the companies with regard to content and organisation. Evaluation in this regard took place in interview form. Due to their extremely extensive nature, it is only possible to provide a brief summary of the results of the interviews.

- From the point of view of the German teaching staff, the initial project presentation to the trainees made it clear that a large number of trainees were interested in an exchange. Once, however, more detailed meetings had taken place between all those involved in training, the number of interested parties reduced noticeably. This was mainly due to organisational problems on the part of the companies rather than the level of interest and meant that support for the exchange was not in the interests of the young people.
- From the perspective of the Luxembourg teaching staff, the reciprocal exchange of the trainees was very successful. For the young people from Luxembourg in particular, the experience of having trainees from Germany in lessons presented a challenge due to the fact that the performance capability of the “guest pupils” provided a high degree of motivation for the class.

- The trainees from both countries found the exchange programme very interesting both from a professional content point of view and in terms of the differences in the school based learning venues and emphasised how valuable it is to experience the different teaching/learning arrangements in the countries. The latter view also related to teaching and learning contexts in the classroom, the technical equipment of the schools and the motivation of fellow pupils in the host country. In addition, it was emphasised that the differences in the respective countries represent a field of occupational experience with regard to training regulatory, societal and policy aspects which it would not have been possible to have experienced to such an extent without an exchange. Despite the slight differences in the respective educational systems, the young people stressed that the pace of learning in terms of scheduled timings in the neighbouring country of Luxembourg is not as tightly structured as in Germany. With regard to the organisation of teaching (part-time vocational school or scheduled teaching blocks), the young people favoured the scheduled block model in Luxembourg due to the fact that this gave rise to an impression of greater correlation of phases of learning. In overall terms, all participants were in favour of exchange programmes whilst expressing a desire for a 1:1 credit transfer to be given for competences acquired in the host country in order to avoid problems with written tests, duplication and repetition of individual learning contents.
- All the companies providing training assessed the exchange in a very positive light. The exchange was supported and advocated both on the part of trainers and company owners. It should be emphasised that a certain mutual “envy factor” of fellow pupils was discernible within the social structure of the trainees. The young people not involved in the exchange measure attached a high degree of significance to this and indicated their interest in a “learning opportunity” abroad.

Taking the interview results as a whole, it may be stated that the joint learning outcomes of the young people in the respective host country served as a vehicle for opening up new qualification dimensions within the occupations in question. The young people experienced the differences in the various host countries, were in a position to be able to evaluate the benefits and drawbacks of different methods of training and were able to form a picture of the nature of the teaching/learning culture in the relevant host country. At a teaching staff level, it became clear that cooperation has intensified and the hope is that this will be sustained beyond the project and deepened further. Another wish is that the project will generate its own momentum and lead to further exchange projects. VaLOGReg received a significant boost from the virtually identical nature of training in the respective training occupations due to the fact that this rapidly led to an understanding at the professional level.

#### 4. Résumé

The evaluation provided by the interviews makes abundantly clear the value which the VaLOGReg project is perceived to have. Equal importance is attached to the aspects of training in the respective host country, the transfer of competences achieved and the recognition that comparable skilled training is in place in the partnering countries. A further aspect of the project which was viewed as extremely valuable was the fact that young people were able to have experiences relating to different political, societal and social background contexts which would otherwise have been denied to them, despite the proximity of the country to Germany. The language challenge (French), which existed in some cases, also constituted a problem. According to statements made by the trainees, this provided a motivation to undertake further language training in order to be able to use a simple French language vocabulary at least in their everyday dealings. In general terms, all participants emphasised that adopting a cross-border view is a valuable experience, particularly within a united

Europe. The young people highlighted the fact that they were in a better position to judge country-specific differences and that it is possible to undertake a comparison of qualifications requirements, particularly between Luxembourg and Germany. The fact that these requirements are virtually identical enhanced work satisfaction for all project participants. The teaching staff also emphasised that expanding horizons with regard to the situation within a European context was also a positive experience for the trainees. The latter aspect was revealed via the constructive cooperation between trainees in the teaching process. The teaching staff also took a thoroughly positive view of the constructive specialist exchange which had taken place, both from a pedagogical and professional point of view.

## 5. Desirable developments

From a school supervisory point of view, the exchange within the framework of VaLOGReg constituted an initial step in terms of piloting the extent to which qualifications can be acquired in another country within the scope of VET and whether permeability with regard to the competences of the occupations, credit transfer and certification are a viable route for providing cross-border training in a major region. This evidence was provided, as confirmed by the statements of all those involved (trainees/teaching staff/school heads/Schools Inspectorate). Against the background of demographic developments, the requirement for skilled workers and the fact that a cross-border exchange of skilled workers is part of the agenda within the Greater Region, it would be desirable if the experiences from VaLOGReg could provide a sustainable boost to cooperation between the respective learning venues and if cooperation and communication could be extended and thus implemented within everyday activities. One goal could be to synchronise teaching organisation and agreement of learning contents between the relevant “partner vocational schools” in such a way so as to make it possible to conduct exchanges over a longer period of time. Endeavours should be undertaken to achieve content coordination with regard to learning content, the time structuring of such content and the certification of the learning outcomes. This could alleviate the problem that there is a requirement for certain performances to be achieved once again within the respective home country or the necessity of following up on learning contents, something which has been stressed by both pupils and teaching staff. Such coordination in terms of content and organisation is a task which must be addressed and is something which would strengthen mobility in a sustainable way. This would make a major contribution within the Greater Region in terms of securing the supply of skilled workers and skills requirements. With regard to the European Credit System for Vocational Education and Training (ECVET), VaLOGReg has provided evidence that there is compatibility within the Greater Region in respect of qualifications and cooperation between learning venues. Evidence has also been provided, albeit to a limited extent, that learning outcomes can be credited and that credit points acquired within the respective qualifications systems are based on a valid foundation of employability oriented teaching/learning arrangements. Against the background of the European Education Area and within the context of the European Credit System for Vocational Education and Training, projects such as VaLOGReg are a fundamental prerequisite for firmly establishing a European way of thinking in both professional and content terms as well as in the heads of the population to the benefit of societal and economic development.

## ECVET as an instrument for quality assurance

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Karin Küßner

### 1. Educational policy objectives at a European level

Promoting the mobility of learners and employees, improving the recognition and transfer of the vocational competences they have acquired and securing the quality of educational systems for the long term are objectives which have been at the top of the educational policy agenda of the European member states for a number of decades.

Although each EU country remains responsible for its own national educational policy, challenges are increasingly arising which affect all member states. These include demographic development, global competition and the increasing demand for well trained skilled workers whose competences require ongoing further development whilst taking account of the rapid changes to technological, economic and structural conditions. European educational cooperation is opening up an opportunity to develop joint solutions, exchange experiences and learn from one another. The aim of the new work programme “Strategic Framework for European Cooperation in Education and Training (ET 2020)” (c.f. COUNCIL CONCLUSIONS of 12 May 2010) is to continue the joint endeavour of making Europe “the most competitive and dynamic knowledge-based economy in the world” (objective of the Lisbon Strategy 2000-2010). The four strategic goals to be achieved by 2020 include the “realisation of lifelong learning and mobility” and the “improvement of the quality and efficiency of general education and vocational education and training”. In adopting the Strategic Framework, the EU Ministers of Education have also agreed certain implementation priorities for the coming years. These priorities relate both to new thematic areas and to fields in which the aim is to continue the cooperation which has already commenced. They include the creation of flexible learning pathways which also take account of informal and non-formal learning and facilitate more permeability facilitated by a learning outcomes orientation. The main focuses are on improving transparency and recognition of learning outcomes and increasing the mobility of learners and teaching staff. Phases of learning abroad, both within and outside Europe, should become the norm. In a Eurobarometer survey conducted at the start of 2011,<sup>13</sup> 53% of those interviewed between the ages of 15 and 35 stated that they were prepared to work and interested in working in another European country.

With regard to the “generally recognised benefit of mobility for learning purposes”, the aim of the EU is to achieve a significant expansion of this mobility. A further objective is to use effective quality assurance systems to provide sustainable support for the attractiveness and efficiency of VET systems.

The EU initiatives for the establishment of a European Qualifications Framework for Lifelong Learning (EQF), a European Credit Transfer System for Vocational Education and Training (ECVET) and a European Quality Assurance Reference Framework for Vocational Education and Training (EQAVET) have lent a new momentum to the implementation of the aims stated in the introduction above. One central aspect of European educational cooperation is the creation of “mutual trust” at the level of both educational systems and educational stakeholders. The aim is for standardised instruments and procedures and evaluation indicators to facilitate communication and understanding between educational stakeholders across systems and national borders as well as bringing about an increase in the quality of educational provision by improving recognition and permeability. Relevant instruments and procedures will, however, only meet with broadly based acceptance if they lead to practicable solutions and if transparent and clear quality assurance processes are in place.

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<sup>13</sup> Flash Eurobarometer Survey No. 319 A and B.

## 2. Implementation in Germany

Germany took an active role from the very outset in the development of a concept for the establishment of a European Credit Transfer System for Vocational Education and Training (ECVET) to promote the transparency, comparability, transferability and recognition of vocational qualifications and competences. The ECVET Recommendation of the European Parliament and of the Council of 18 June 2009 calls upon the member states to act “in accordance with national legislation and practice and on the basis of trials and testing” (EUROPEAN COMMISSION 2009a) to put suitable conditions in place which will enable ECVET gradually to be applied from 2012. Piloting in Germany is taking place within the scope of the DECVET pilot initiative<sup>14</sup>, which is funded by the Federal Ministry of Education and Research and will present its results in 2012, as well as within the context of transnational mobility measures. In order to support educational stakeholders in the practical piloting of ECVET within the context of transnational mobility measures, the National Agency Education for Europe has expanded its provision of services and acted on behalf of the Federal Ministry of Education and Research (BMBF) to set up the ECVET National Coordinating Agency in November 2010<sup>15</sup>. The following remarks on how ECVET can be used as a “technical framework” to increase the efficiency and quality of mobility measures mainly focus on the application area of transnational mobility.

## 3. Quality Charter for Mobility

The EU adopted the European Quality Charter for Mobility (cf. EUROPEAN COMMISSION 2006b) as long ago as 2006. The charter provides a guide for the individual mobility of young people or young adults for the purpose of formal or non-formal learning. Alongside organisational and language aspects, the following quality criteria are highlighted.

- Access to clear and reliable sources of information and guidance for mobility candidates
- Clear information on the role and tasks of home and host organisations
- The drawing up of a learning plan according particular consideration to language preparation to which the home and host organisation and participants all sign up
- Coordination of the mobility phase taking personal learning pathways, skills and motivation of participants and further development into account
- Stipulation of objectives and expected outcomes in the learning plan and of the way in which such objectives and outcomes are to be achieved and implemented including certification
- Mentoring systems for mobility participants
- Recognition and transfer of the learning mobility phase completed abroad if such a phase is an integral part of a formal study or training programme
- Competence assessment which takes the results of informal learning into account as well as the outcomes of formal learning
- Issuing of a suitable document which candidates can use to demonstrate their active participation and the achievement of learning outcomes in a sufficient and credible manner insofar as learning objectives are acquired within the framework of non-formal or informal learning
- Evaluation of experiences gained by mobility participants together with the responsible organisations in order to review whether learning plan objectives have been achieved

<sup>14</sup> The aim of DECVET – Development of a German Credit Transfer System for Vocational Education and Training” is the systematic piloting of a credit point system to facilitate the recording, transfer and crediting of learning outcomes from one area of the vocational education and training system to another. The plan is for practical pilot projects to serve as a basis for identifying possible potential areas for credit transfer in order to make a contribution towards increasing horizontal and vertical permeability at the interfaces within the dual system. Further information is available at: [www.decvet.net](http://www.decvet.net).

<sup>15</sup> Further information is available at: [www.ecvet-info.de](http://www.ecvet-info.de). See also the BMBF draft paper of 11 March 2011 on the piloting of ECVET within the context of transnational mobility in Germany: [http://www.ecvet-info.de/media/110311\\_BMBF-Eckpunktepapier\\_Erprobung\\_ECVET.pdf](http://www.ecvet-info.de/media/110311_BMBF-Eckpunktepapier_Erprobung_ECVET.pdf).

- Preferably written agreement by all those involved (home and host organisations and the participants) regarding commitments and areas of responsibility arising as a result of these quality criteria

The Recommendation on the Quality Charter for Mobility emphasises that the benefit of mobility is highly dependent on the quality of the general practical provisions in place, i.e. *“on the preparation, support and recognition of the experience and qualifications acquired by participants during the study and training periods. The people and organisations involved can considerably improve the value of the mobility by careful planning and suitable evaluation”* (EUROPEAN COMMISSION 2006a).

#### 4. Quality assurance elements of the ECVET approach

Even after more than 20 years of EU funding programmes, a lack of transparency and recognition of occupational competences acquired abroad, at other learning venues and in other learning contexts still represent a hindrance to mobility and permeability from the point of view of a large number of companies (cf. KÖRBEI/FRIEDRICH 2011). One central approach towards bringing about an improvement in the transparency and transfer of competences acquired in various learning contexts is the establishment of a general understanding of learning outcomes. The European Qualifications Framework for Lifelong Learning, EQF (cf. EUROPEAN COMMISSION 2008) defines learning outcomes as *“statements of what a learner knows, understands and is able to do on completion of a learning process”*. Learning outcomes are mapped via the categories of “Knowledge”, “Skills” and “Competence”. The specific definition of the terms “Knowledge”, “Skills” and “Competence” has created a joint standardised structure for their description and therefore also for the comparability of competences and qualifications. The aim over the coming years is to establish a common terminology and European taxonomy for competences and qualifications, as developed for the description of specific occupational competences on a stage-by-stage basis via such vehicles as the EU initiative ESCO (European Taxonomy of Skills, Competences and Occupations). Within the scope of ECVET, learning outcomes are clustered to form coherent units which can be evaluated, transferred and recognised. The prerequisite for this is that units of learning outcomes are structured in a comprehensible and logical manner and are thus capable of being monitored. The standardised description of units of learning outcomes forming the objective of a period of training spent abroad ensures that all those involved in the mobility phase, i.e. the home and host institutions and the learner, all have a joint and clear understanding of the outcomes which are expected following the implementation of the mobility measure. As well as facilitating the planning of a mobility measure, the specific description and stipulation of the learning outcomes aspired to also makes it possible to derive relevant measures for the structuring of the learning process and criteria for the evaluation of the target learning outcomes. The learning outcomes oriented ECVET approach provides a foundation which facilitates communication and cooperation between partner institutions and thus can assist in making more effective use of stays abroad. Within this process, the ECVET Recommendation states that it is not important where and how the expected learning outcomes consolidated within a unit have been acquired. This also makes it possible to render informally acquired competences more visible and thus especially allow the explicit mapping of the personal and social competences and the degree of autonomy and responsibility acquired in conjunction with a qualification. The European Qualifications Framework or national or sectoral qualifications frameworks serve as a reference framework for the description of units of learning outcomes and for the alignment of qualifications to reference levels.

#### 5. ECVET instruments and the quality assurance cycle

ECVET presents a “technical framework” which encompasses further instruments as well as a methodology for the description of units of learning outcomes including the alignment of points/credits and a credit transfer and accumulation process. The aim is for the Memorandum of Understanding, the learning agreement and the personal transcript of records to assist in securing the quality of the mobility measure at both an institutional and individual level. For this purpose, central quality assurance mechanisms contained within the Quality Charter for Mobility have been addressed and further developed within ECVET.

The aim of establishing partnerships and networks involving the responsible institutions is to facilitate the credit transfer of units of learning outcomes using ECVET credit points where appropriate. The partnership agreement (Memorandum of Understanding) is a voluntary agreement stipulating the prerequisites for a stay abroad between the host and home institutions in a formalised form, i.e. in writing, including the functions, roles and areas of responsibility of the organisations. In the Memorandum of Understanding, the educational establishments reach agreement on the procedural rules governing their cooperation. This extends to encompass criteria and processes for the quality assurance, evaluation, validation and recognition of learning outcomes. The aim of the learning agreement, which is concluded between the partner institutions and the mobile learner, is to describe the learning outcomes aspired to during the mobility phase in a clear and precise manner whilst taking the existing status of knowledge and skills into account. The learning agreement should also contain concrete measures for the implementation of the learning process, e.g. via the stipulation of specific work tasks and provisions regarding procedures and criteria for the evaluation by the host institution of the learning outcomes aspired to. In integrating all those involved in the process, the learning agreement provides learners with the assurance that, as long as expectations are met, their performance will be recognised without any additional evaluation or examination of the learning contents from the stay abroad. Learning agreements should guarantee that the host and home institutions and the learners are all informed of the objectives and conditions of the stay abroad and of their respective roles.

The personal transcript of records documents the learning outcomes evaluated by the host institution including information on any reviews and ECVET or credit points which may have been awarded. The Europass Mobility, in which both formally acquired professional competences and personal and social competences which may have been obtained via an informal route are described, has already established itself as a tried and tested instrument of transparency in this regard.<sup>16</sup> The personal transcript of records clearly documents the growth in learner competence during the stay abroad for all those involved.

In addition to this, further quality assurance instruments for mobility measures have been developed and tested in ECVET pilot projects from the Leonardo da Vinci programme. One example of the securing of quality of implementation and documentation of learning outcomes acquired was the “logbook” used in the LaWA (“Living and working abroad”) project. The aim here is to facilitate documentation of learning outcomes to the greatest possible degree of validity as well as supporting communication between trainees and their home companies during the stay abroad (DIART 2009, p. 26). As part of training leading to the qualification of European nursery school teacher at the Institute for Social occupations in Ravensburg, special meetings are conducted to evaluate the learning stay and practical experiences.<sup>17</sup> Individual field reports from the mobility participants can be used as an additional instrument to identify the strengths and any weaknesses of the mobility measure in order to enable these experiences to inform the planning of the next mobility scheme for the purpose of its optimisation. The extent to which credit points or credits – whether these are aligned towards the average duration of learning (workload) for the acquisition of learning outcomes or whether they map the relative value of a unit of learning outcomes as a percentage of the full qualification – make a contribution towards quality assurance and towards the improvement of transparency, comparability and the transfer of learning achievements cannot be evaluated until ECVET has been piloted in practice. The crucial factor is the establishment of the mutual trust *“that a learning outcome from a different learning context is recognised because there is confidence in the quality of the overall context without having to check contents and examination procedures on an individual basis every time.”* (SYBEN 2011, p. 34).

<sup>16</sup> The structure and terminology of the EQF/ECVET learning outcome approach should be adopted in future as further development of the Europass Mobility or of the Europass Skills Passport, a document which is being discussed at a European level, takes place.

<sup>17</sup> See <http://www.ifs-bw.de/TYPO3/index.php?id=417>.

## 6. “Added value” as a quality criterion for ECVET

The ECVET instruments and procedures described support the application of the quality assurance and improvement cycle encompassing the areas of planning, implementation, evaluation/assessment and monitoring/review as set out in the Recommendation of the European Parliament and of the Council of 18 June 2009 on the establishment of a European Quality Assurance Reference Framework for Vocational Education and Training (EQARF). “The framework should contribute to quality improvement in VET and to increased transparency of, and consistency in, VET policy developments between Member States, thereby promoting mutual trust, mobility of workers and learners, and lifelong learning” (EUROPEAN COMMISSION 2009b). Alongside quality criteria and indicative descriptors for the application of the quality cycle, 10 reference indicators were stipulated. The aim is for these to support the member states and training providers in quality monitoring and improvement. The application of the ECVET set of instruments can be used to increase the number of participants in VET courses (indicator 3) via a process whereby learning outcomes acquired in other learning contexts are recorded, evaluated and transferred thus improving access to vocational education and training. ECVET can also assist in increasing the use in the workplace of knowledge acquired (indicator 6). Learning mobility phases abroad which lead to the acquisition of additional qualifications and international occupational competences (foreign languages, intercultural competences etc.) can make a sustainable contribution towards the improvement of individual employment opportunities. In summary, we may conclude that quality assurance of educational systems, institutions and provision and quality assurance of the mobility procedures are mutually complementary factors for the achievement of the European policy objective stated in the introduction.

## 7. Challenges for the further development of ECVET

Criteria for securing the quality of transnational mobility measures also represent challenges for the stakeholders involved in implementing the process. These challenges vary according to the objective and context of the mobility phase. It is obvious that a considerable amount of development work still remains to be done regarding the specification and standardisation of the procedures and instruments (Memorandum of Understanding, learning agreement and personal transcript of records). This extends to encompass the development of a joint terminology, i.e. a description of learning outcomes for specific occupational profiles and for the valid recording and assessment of competences rather than merely relating to the development of a uniform structure. If the primary aim of learning mobility is the acquisition of additional qualifications and the expansion of personal and social competences, challenges arise in respect of the recognition of these competences particularly with regard to the recording and transparent documentation of the learning outcomes involved. If a mobility phase, which may be of longer duration, predominantly encompasses the acquisition of competences which are an integral component of the national curriculum, both issues regarding the transparency and “equivalence” of the learning outcomes and questions concerning the appropriateness, validity and reliability of examination procedures and testing criteria are of central importance to transfer and credit. Notwithstanding this, broadly based application of ECVET and therefore its acceptance requires further measures and endeavours at an educational policy and practical level with regard to the development of standards for the learning outcome oriented and competence based description of training courses and occupational profiles and the development of a joint terminology and of recognition and transfer mechanisms which are independent of learning times. We cannot expect that only a few years of the piloting of ECVET in selected branches and occupations (which in any case will probably involve sectors which are trend setting and willing to embrace innovation) will be sufficient to implement precisely tailored, efficient and sustainable procedures for the improvement of transparency, mobility and recognition in vocational education and training. Nevertheless, the results of many pilot projects show that the learning outcome oriented route embarked upon has added value for the educational establishments and learners involved with regard to the educational policy objectives formulated at the outset.

Practitioners constantly emphasise that ECVET can only be successful as “provision”, “a set of technical rules” or as a “tool box” for the creation of mutual trust and the raising of the quality and

efficiency of mobility measures “if it is able to develop “manageable” and “low threshold” instruments and procedures which facilitate use by companies and other stakeholders not previously involved in the piloting” (EBERHARDT 2011, p. 3). This author goes on to state that the prerequisite for sustainable use is that this set of instruments “helps in the resolution of problem areas” and is “in demand in practice” (ibid., p. 4).

Alongside the funding of pilot projects for the development of user friendly procedures, it is also necessary to establish sustainable strategies for increasing the quality and supply of mobility measures at an educational establishment level. There is no doubt that transnational mobility of educational staff can take on a multiplier function within this process.

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## **A view to the neighbour: ECVET in Austria – concepts, experiences, perspectives**

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Karin Luomi-Messerer

### **1. ECVET and the Austrian vocational education and training system**

The system of initial vocational training at upper secondary level in Austria enjoys a high degree of significance. Around 80% of young people in year 10 of schooling are in a vocational training course, approximately half of whom are in school based VET (at intermediate and higher vocational schools) and in apprenticeship training (within the dual system) respectively. Although the result of the 2007 consultation process revealed that the introduction of ECVET is fundamentally viewed as positive, it was emphasised from the very outset that a version should be chosen which best corresponds to the requirements of the vocational education and training system at upper secondary level.

Since Austria has not previously had any experience with credit point systems in the field of VET, the Austrian Federal Ministry for Education, Arts and Culture (BMUKK) set up a number of activities in the wake of the consultation process in order to explore the opportunities for using ECVET in Austria and to support the implementation of such a transparency instrument. These activities included, for example, the setting up of an informal ECVET expert group, the organisation of events to debate implementation scenarios with a larger group of stakeholders and the sounding out of the implementation of ECVET within the scope of the given prevailing general conditions. Austrian institutions are also involved in transnational ECVET pilot projects, in some cases with additional support from the BMUKK or other relevant organisations. As early as 2002, for instance, the BMUKK initiated the VQTS project (Vocational Qualification Transfer System – [www.vocationalqualification.net](http://www.vocationalqualification.net)<sup>18</sup>) within the scope of the Leonardo da Vinci Programme and with the aim of working together with Austrian and European project partners on the development of a methodological approach to the transfer of competences acquired within the framework of a period of time spent abroad during vocational education and training.

The aim of the present paper is to shed light on the general conditions, perspectives and previous experiences relating to the introduction of ECVET in initial vocational education and training in Austria. For this purpose, it will begin by outlining the main results of the study into the “ECVET suitability” of vocational education and training before moving on to present the Austrian strategy for using ECVET and current activities relating to its implementation.

### **2. ECVET suitability of initial vocational education and training in Austria**

In 2007, the BMUKK commissioned a study to review the “ECVET suitability” of initial vocational education and training in order to prepare for the implementation of ECVET in Austria (Luomi-Messerer & Tritscher-Archan 2008). The aim was to use the ECVET consultation paper as a basis for identifying beneficial as well as in particular unfavourable factors within the prevailing legal and organisational general conditions and highlight areas where adaptations may need to be undertaken. Particular reference was made to the description of qualifications on the basis of learning outcomes and learning units, the alignment of ECVET points and the transfer process (recognition of learning

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<sup>18</sup> The VQTS approach and further results from the VQTS projects also form the basis for a series of innovation transfer projects funded within the scope of the Programme for Lifelong Learning.

performances). Because of the structure of initial training in Austria, school based VET and the area of apprenticeships each need to be considered separately. The duality of apprenticeship training also means that a distinction must be drawn between the company-based and school based elements.

#### *Learning outcomes and units*

In both VET pathways, learning outcome oriented descriptions of qualifications are only available in some cases and in neither is any structuring of units within the meaning of ECVET in place.

- In *school curricula*, which are structured on the basis of objectives of teaching, input oriented descriptions prevail. Although descriptions of learning outcomes are frequently contained within the educational goals of the individual training programmes or within the descriptions of educational and teaching tasks, they are almost always extremely abstract, unsystematic and mostly do not relate to monitoring criteria. A number of initiatives have already been launched for the development of learning outcome oriented descriptions of qualifications from school based vocational training, something which is also highly significant within the context of the development of the Austrian National Qualifications Framework. These include work on educational standards in vocational education and training (since 2005<sup>19</sup>) and the design of competence based and learning outcome oriented curricula (a “Guide for the structuring of competence based and learning outcome oriented curricula for higher vocational schools” has, for example been issued – BMUKK 2010). Although these initiatives are beneficial to the implementation of ECVET with regard to the required learning outcome orientation, they have not yet exerted effect.
- In training regulations relating to the field of *apprenticeships*, the occupational profile already displays a structure based on knowledge and skills. The occupational profile, which is also included in the training regulations, lists the competences which apprentices should be able to execute in a professional, autonomous and independent way following completion of their company based and school based training. This means that, for the company based element of training, the foundations are laid for the description of qualifications on the basis of learning outcomes. Further development of these descriptions would, however, be necessary. Modularisation, which was firmly established in the Austrian Vocational Training Act (BAG) in January 2006, represented the first step towards structuring a qualification in units, even if the Austrian concept deviates somewhat from the usual definitions of modularisation applied in Europe. A number of occupational fields are also displaying a more marked sub-division into units and sub-units. This is something which can prove beneficial to the implementation of ECVET. By way of contrast, the curricula for the school based element of training have been largely input oriented up until now. In future, however, the expectation is that there will be a greater alignment to learning outcomes. The “duality” of the two parts of training is proving to be a challenge for the implementation of ECVET. Learning outcomes or learning contents are described in separate documents, and separate bodies are also responsible for these.

#### *ECVET points*

No experience with credit points has thus far been acquired in initial vocational education and training. Only hours per week or training years are stated. In the area of apprenticeships, the absence of a joint description of learning outcomes (without separation into school based and company based elements) would also constitute a major barrier to the awarding of credit points.

#### *Transfer process*

There is in both areas a fundamental openness with regard to the recognition of stays abroad during initial VET, although the focus is much more on the duration of a period spent abroad than on the competences acquired.

<sup>19</sup> See <http://www.bildungsstandards.berufsbildendeschulen.at>.

- In the Austrian *school system*, this openness manifests itself via such mechanisms as regulations regarding exemption from teaching and the transfer of higher education semesters or school years entirely completed in a foreign language abroad. Pupils who are able to demonstrate that they have completed between at least five months and up to a whole school year in a foreign language abroad (German speaking foreign countries do not count!) are, for example, automatically entitled to progress to the next class. In the case of a shorter period of absence during schooling, an examination takes place of objects of teaching for which the responsible member of teaching staff is unable to arrive at a sure assessment of performance on the basis of the available opportunities. In such cases, pupils are required to catch up appropriately on what they have missed. Shorter periods spent abroad currently frequently take place within the scope of compulsory practical placements, which are largely organised outside school based teaching and which cannot be included in the assessment process.
- Training stays abroad can also be recognised in the *field of apprenticeships* without time consuming validation procedures or without any requirement to repeat examinations if certain time periods are complied with. In the case of a “posting” (such as to a company location abroad or within the scope of cross-border training networks), training times abroad of up to a maximum of ten months per training year are possible. Within this process, training abroad is viewed as an integral component of training in the home country. In addition to this, it is also possible to spend a number of months per training year abroad within the scope of international training programmes. Such a stay does not then lead to an extension of the apprenticeship period. In 2010, the opportunity to transfer relevant periods of occupational training to the apprenticeship was increased from a maximum of four months to a maximum of six months<sup>20</sup>. Challenges with regard to mobility arise, however, due to the duality of areas of responsibility and learning venues. In the company, competences are imparted within the everyday working routine, during which learning situations are regularly repeated (e.g. processing workpieces, executing work orders etc.). For this reason, the point in time at which competences are taught is more variable if compliance with the time schedules set out in the training regulations is maintained. Vocational schools, on the other hand, align themselves to curricula in which the various topics are not taught more than once.

### 3. ECVET for mobility in vocational education and training – the Austrian approach

Despite the openness of the Austrian VET system described above, mobility stays by apprentices and pupils at intermediate or higher vocational schools tend to be the exception rather than the rule. Longer term stays abroad in particular, i.e. periods which extend beyond two or three weeks and provide “qualifying” mobility, are comparatively rare. Examples of the reasons for this are the age of the learners (most trainees in VET are still under 18), a lack of support structures (there is no central mobility coordinating body in Austria) or language and financial barriers. A further significant background reason, however, lies in the difficulty in comparability or lack of compatibility of Austrian and foreign educational systems and programmes. The introduction of ECVET, however, brings in its wake the attendant expectation that it will be possible to increase transparency and thus comparability.

This is also the reason for the alignment of the *Austrian Strategy* for the application of ECVET. In 2009, a BMUKK strategy paper stated that *ECVET in Austria* should be deployed *as an instrument for the promotion of transnational mobility* in formal initial and continuing training (BMUKK 2009)<sup>21</sup>.

<sup>20</sup> See Reform to the Austrian Vocational Training Act 2010 (§ 27c BAG) at <http://www.bmwfj.gv.at/Berufsausbildung/LehrlingsUndBerufsausbildung/Documents/BAG-Novelle%202010.pdf>.

<sup>21</sup> See also Nöbauer 2011.

There should be a much greater emphasis on using ECVET to provide “tools” with the aim of facilitating the processing of mobility phases and recognising at home content which has been learned abroad. No other application of ECVET at a national level is currently planned due to the fear that this could lead to an undesirable fragmentation of vocational education and training.

The implementation of the Austrian ECVET Strategy focuses very strongly upon a bottom-up approach. In their capacity as “competent bodies” within the meaning of ECVET, the educational establishments themselves (e.g. vocational school or companies providing training, continuing training institutions) are responsible for the implementation of ECVET within the scope of specific mobility projects. It is, for example, incumbent upon them to conclude a Memorandum of Understanding with the respective partner institutions abroad, draw up learning agreements for specific stays abroad by learners, define the knowledge, skills and competences to be acquired during the stay abroad, prepare and execute mobility phases and accord recognition to content learned abroad. In order to implement ECVET within this context, it is not absolutely necessary for the whole qualification to be structured and described in the form of units of learning outcomes. The plan is for only the part of the qualification relevant to mobility to be formulated in learning outcome oriented terms. Furthermore, there is no absolute requirement to state ECVET points due to the fact that they currently have no other role to play within the Austrian VET system.

In order to support ECVET based stays abroad, the BMUKK has commissioned the drawing up of a *Guide for the application of ECVET within the scope of mobility phases* in vocational education and training. Although this guide is primarily directed at teaching staff in vocational schools and trainers involved in apprenticeship training, it can also be of assistance to institutions supporting mobility. The use of the guide is mainly recommended for longer term (qualifying) mobility phases. It can also, however, contribute towards improving the quality of shorter stays.

Experiences from various ECVET projects in which Austrian partner institutions were involved have been used to inform the development of the guide. These projects particularly include the VQTS project mentioned above, its successor project VQTS II, the SME Master and SME Master Plus projects ([www.sme-master.eu](http://www.sme-master.eu)) and M.O.T.O. (<http://ecvet-moto.isfol.it>). Feedback reports from stakeholders from various branches of VET who are experienced in mobility have also been included in the guide.

The guide is divided into three sections. These can also be read and used separately of one another.

- The first section explains the essential principles of ECVET on the basis of European documents.
- The second section, “ECVET in practice”, offers step-by-step instructions on the implementation of ECVET within the scope of mobility phases in vocational education and training. The focus here is on the application of ECVET before, during and after a mobility process. The information is presented divided into four phases and ten steps. There is also further guidance which provides additional assistance in the organisation and implementation of mobility phases. Examples taken from within the Austrian context are supplied in order to illustrate the individual steps (from school based training and apprenticeship training respectively).
- The third section is the materials part of the guide and encompasses specific examples of implementation and templates for direct use in practice (e.g. for Memoranda of Understanding and learning agreements). This section also includes links to websites providing further information, background information on the development of ECVET and its correlation with other transparency instruments and a glossary containing terms relevant to ECVET.

#### 4. Forecast

The Austrian model provides Austrian training institutions with a great deal of leeway in terms of the application of ECVET in mobility projects on the basis of their respective individual requirements.

Both the approach and the templates contained in the guide are, for example, flexible enough to be capable of deployment for the planning and implementation of mobility projects with partner institutions from various VET systems.

Notwithstanding this, a series of activities will still be required before ECVET and the “tools” developed are actually used in mobility projects pursued by Austrian vocational education and training institutions. It will first be necessary to make the added value of using ECVET clear to the target group (using transparent communication and agreement on the relevant learning outcomes as a vehicle for bringing about an improvement in quality of stays abroad during vocational education and training). It continues to be necessary to offer training institutions assistance with the implementation of the recommendations and the use of “tools” (in areas such as the formulation of learning outcomes). Examples and field reports from specific mobility projects seem to be of particular relevance within this context. These need to be analysed, processed and disseminated in order to allow them to serve as a basis for other training institutions where appropriate.

There also ultimately needs to be, however, recognition of the fact that although ECVET supports mobility processes and is capable of enhancing their quality, it will not be able to resolve all the challenges associated with stays abroad.

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**RECOMMENDATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL**  
**of 18 June 2009**  
**on the establishment of a European Credit System for Vocational Education and Training (ECVET)**  
**(Text with EEA relevance)**  
**(2009/C 155/02)**

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Article 149(4) and Article 150(4) thereof,

Having regard to the proposal from the Commission,

Having regard to the opinion of the European Economic and Social Committee <sup>(1)</sup>,

Having regard to the opinion of the Committee of the Regions <sup>(2)</sup>,

Acting in accordance with the procedure laid down in Article 251 of the Treaty <sup>(3)</sup>,

Whereas:

- (1) The development and recognition of citizens' knowledge, skills and competence are crucial for their personal and professional development and for competitiveness, employment and social cohesion in the Community. In this respect, they should facilitate transnational mobility for workers and learners and contribute towards meeting the requirements of supply and demand in the European labour market. Participation in borderless lifelong learning for all, and transfer, recognition and accumulation of individuals' learning outcomes achieved in formal, non-formal and informal contexts, should therefore be promoted and improved at the Community level.
- (2) The Lisbon European Council in 2000 concluded that increased transparency of qualifications should be one of the main components necessary to adapt education and training systems in the Community to the demands of the knowledge society. Furthermore, the Barcelona European Council in 2002 emphasised the importance of improving transparency and recognition methods in the area of vocational education and training ('VET').

- (3) VET schemes, one of the main areas of lifelong learning, are directly linked to general and higher education, and to the employment and social policies of each Member State. Through their cross-sectoral impact, they promote not only the competitiveness of the European economy and fulfilment of the needs of the labour market but also social cohesion, equality and the participation and involvement of citizens.

- (4) Council Resolution of 19 December 2002 on the promotion of enhanced European cooperation in vocational education and training <sup>(4)</sup> ('the Copenhagen process'), and the 2004 joint interim report of the Council and the Commission on the implementation of the Education and Training 2010 work programme <sup>(5)</sup>, stress the importance of a credit transfer system for vocational education and training, while the 2008 joint progress report of the Council and the Commission <sup>(6)</sup> stresses the need to step up efforts to improve the quality and attractiveness of VET.

- (5) The Conclusions of the Council and the Representatives of the Governments of the Member States meeting within the Council of 15 November 2004 on the Future priorities of enhanced European Cooperation in Vocational Education and Training gave priority to the development and implementation of a European credit transfer system for VET in order to allow learners to build upon the achievements resulting from their learning pathways when moving between vocational training systems.

- (6) The purpose of this Recommendation is to create a European Credit System for Vocational Education and Training ('ECVET') intended to facilitate the transfer, recognition and accumulation of assessed learning outcomes of individuals who are aiming to achieve a qualification. This will improve the general understanding of citizens' learning outcomes and their transparency, transnational mobility and portability across and, where appropriate, within Member States in a borderless lifelong learning area, and will also improve the mobility and portability of qualifications at national level between various sectors of the economy and within the labour market; furthermore, it will contribute to the development and expansion of European cooperation in education and training.

<sup>(1)</sup> OJ C 100, 30.4.2009, p. 140.

<sup>(2)</sup> OJ C 325, 19.12.2008, p. 48.

<sup>(3)</sup> Position of the European Parliament of 18 December 2008 (not yet published in the Official Journal) and Council Decision of 11 May 2009.

<sup>(4)</sup> OJ C 13, 18.1.2003, p. 2.

<sup>(5)</sup> OJ C 104, 30.4.2004, p. 1.

<sup>(6)</sup> OJ C 86, 5.4.2008, p. 1.

- (7) ECVET should be based on the principles and technical specifications set out in Annex II. Furthermore, it should be underpinned by the common principles for quality assurance set out in the Council conclusions of 28 May 2004 on Quality Assurance in Vocational Education and Training and the Recommendation of the European Parliament and of the Council of 18 June 2009 on the establishment of a European Quality Assurance Reference Framework for Vocational Education and Training <sup>(1)</sup>.
- (8) ECVET is applicable for all learning outcomes which should in principle be achievable through a variety of education and learning paths at all levels of the European Qualifications Framework for lifelong learning (EQF), and then be transferred and recognised. This Recommendation therefore contributes to the wider objectives of promoting lifelong learning and increasing the employability, openness to mobility and social inclusion of workers and learners. It particularly facilitates the development of flexible and individualised pathways and also the recognition of those learning outcomes which are acquired through non-formal and informal learning.
- (9) Transparent quality assurance principles, exchange of information and development of partnerships between institutions competent for qualifications, VET providers and other relevant stakeholders should help to build mutual trust and should facilitate the implementation of this Recommendation.
- (10) This Recommendation should facilitate the compatibility, comparability and complementarity of credit systems used in VET and the European Credit Transfer and Accumulation System (ECTS), which is used in the higher education sector, and thus should contribute to greater permeability between levels of education and training, in accordance with national legislation and practice.
- (11) The validation of assessed non-formal and informal learning outcomes should be promoted in accordance with the Council conclusions of 28 May 2004 on common European principles for the identification and validation of non-formal and informal learning.
- (12) This Recommendation complements the Recommendation of the European Parliament and of the Council of 23 April 2008 on the establishment of the European Qualifications Framework for lifelong learning <sup>(2)</sup> which recommends that Member States promote close links between the EQF and existing or future European systems for credit transfer and accumulation in higher education and VET. While the main objective of the EQF is to increase the transparency, comparability and portability of acquired qualifications, ECVET is aimed at facilitating the transfer, recognition and accumulation of learning outcomes of individuals on their way to achieving a qualification.
- (13) This Recommendation takes into account Decision No 2241/2004/EC of the European Parliament and of the Council of 15 December 2004 on a single Community framework for the transparency of qualifications and competences (Europass) <sup>(3)</sup> and Recommendation of the European Parliament and of the Council of 18 December 2006 on trans-national mobility within the Community for education and training purposes: European Quality Charter for Mobility <sup>(4)</sup>.
- (14) This Recommendation should facilitate the involvement of competent local and regional authorities in the exercise of linking national or other qualifications frameworks and systems to ECVET, where appropriate.
- (15) This Recommendation should be without prejudice to Directive 2005/36/EC of the European Parliament and of the Council of 7 September 2005 on the recognition of professional qualifications <sup>(5)</sup> which confers rights and obligations on both the relevant national authority and the migrant. Using ECVET should not affect access to the labour market, where professional qualifications have been recognised in accordance with Directive 2005/36/EC. Moreover, ECVET does not imply any new entitlement for citizens to obtain the automatic recognition of either learning outcomes or points.
- (16) The introduction and implementation of ECVET is voluntary, pursuant to Articles 149 and 150 of the Treaty, and can therefore be undertaken only in accordance with existing national laws and regulations.
- (17) Since the objectives of this Recommendation, namely to support and complement the activities of Member States, to facilitate cooperation between them, to increase transparency and promote mobility and lifelong learning, cannot be sufficiently achieved by the Member States and can therefore, by reason of the scale or effects, be better achieved at Community level, the Community may adopt measures, in accordance with the principle of subsidiarity as set out in Article 5 of the Treaty. In accordance with the principle of proportionality, as set out in that Article, this Recommendation does not go beyond what is necessary in order to achieve those objectives, insofar as it does not replace or define national qualifications systems, qualifications or national credit systems, does not prescribe specific learning outcomes or an individual's competences, and does not aim at or require either the fragmentation or the harmonisation of qualifications systems,

<sup>(1)</sup> See page 1 of this Official Journal.

<sup>(2)</sup> OJ C 111, 6.5.2008, p. 1.

<sup>(3)</sup> OJ L 390, 31.12.2004, p. 6.

<sup>(4)</sup> OJ L 394, 30.12.2006, p. 5.

<sup>(5)</sup> OJ L 255, 30.9.2005, p. 22.

HEREBY RECOMMEND THAT MEMBER STATES:

1. promote the European Credit system for Vocational Education and Training (ECVET) as set out in Annexes I and II at all levels of the EQF with reference to VET qualifications, in order to facilitate trans-national mobility and the recognition of learning outcomes in VET and borderless lifelong learning;
2. create the necessary conditions and adopt measures, as appropriate, so that as from 2012 – in accordance with national legislation and practice, and on the basis of trials and testing – it is possible for ECVET to be gradually applied to VET qualifications at all levels of the EQF, and used for the purpose of the transfer, recognition and accumulation of individuals' learning outcomes achieved in formal and, where appropriate, non-formal and informal contexts;
3. support the development of national and European partnerships and networks involving institutions and authorities responsible for qualifications and diplomas, VET providers, social partners and other relevant stakeholders dedicated to trialling, implementing and promoting ECVET;
4. ensure that stakeholders and individuals in the area of VET have access to information and guidance for using ECVET, whilst facilitating the exchange of information between the Member States. Furthermore, ensure that the application of ECVET to qualifications is properly publicised by the competent authorities and that associated 'Europass' documents issued by the competent authorities contain explicit relevant information;
5. apply, in accordance with national legislation and practice, the common principles for quality assurance in VET set out in the Council conclusions of 28 May 2004 on Quality Assurance in Vocational Education and Training when using ECVET, particularly in relation to the assessment, validation and recognition of learning outcomes;
6. ensure that there are functioning coordination and monitoring mechanisms at the appropriate levels, in accordance with the legislation, structures and requirements of each Member State, in order to guarantee the quality, transparency and consistency of the initiatives taken to implement ECVET.

ENDORSE THE COMMISSION'S INTENTION TO:

1. support Member States in carrying out the tasks referred to in points 1 to 6 and in using the principles and technical specifications of ECVET as set out in Annex II, in particular by facilitating testing, cooperation, mutual learning, promotion, and the launching of information and consultation exercises, whilst ensuring access to the guidance material for all interested citizens;
2. develop users' guides and tools, and adapt relevant Europass documents, in collaboration with Member States, national and European experts and users; develop expertise for enhancing the compatibility and complementarity of ECVET and ECTS used in the higher education sector, in collaboration with VET and higher education experts and users at European and national levels; and provide regular information on the developments of ECVET;
3. promote, and participate together with the Member States in, a European ECVET network involving relevant VET stakeholders and national competent institutions for the purpose of disseminating and supporting ECVET within Member States and establishing a sustainable platform for the exchange of information and experience between Member States; establish, from within this network, an ECVET users' group in order to contribute to the updating of the users' guide and to the quality and overall coherence of the cooperation process for the implementation of ECVET;
4. monitor and follow up the action taken, including the results of trials and testing, and, after the assessment and evaluation of this action carried out in cooperation with the Member States, report, by 18 June 2014, to the European Parliament and the Council on the experience gained and implications for the future, including, if necessary, a review and adaptation of this Recommendation, involving the updating of the Annexes and guidance material, in cooperation with the Member States.

Done at Brussels, 18 June 2009.

*For the European Parliament*  
*The President*  
H.-G. PÖTTERING

*For the Council*  
*The President*  
Štefan FÜLE

## ANNEX I

**DEFINITIONS**

For the purposes of this recommendation, the following definitions shall apply:

- (a) 'Qualification' means a formal outcome of an assessment and validation process which is obtained when a competent institution determines that an individual has achieved learning outcomes to given standards;
  - (b) 'Learning outcomes' means statements of what a learner knows, understands and is able to do on completion of a learning process and which are defined in terms of knowledge, skills and competence;
  - (c) 'Unit of learning outcomes' (unit) means a component of a qualification, consisting of a coherent set of knowledge, skills and competence, that can be assessed and validated;
  - (d) 'Credit for learning outcomes' (credit) means a set of learning outcomes of an individual which have been assessed and which can be accumulated towards a qualification or transferred to other learning programmes or qualifications;
  - (e) 'Competent institution' means an institution which is responsible for designing and awarding qualifications or recognising units or other functions linked to ECVET, such as allocation of ECVET points to qualifications and units, assessment, validation and recognition of learning outcomes, under the rules and practices of participating countries;
  - (f) 'Assessment of learning outcomes' means methods and processes used to establish the extent to which a learner has in fact attained particular knowledge, skills and competence;
  - (g) 'Validation of learning outcomes' means the process of confirming that certain assessed learning outcomes achieved by a learner correspond to specific outcomes which may be required for a unit or a qualification;
  - (h) 'Recognition of learning outcomes' means the process of attesting officially achieved learning outcomes through the awarding of units or qualifications;
  - (i) 'ECVET points' means a numerical representation of the overall weight of learning outcomes in a qualification and of the relative weight of units in relation to the qualification.
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## ANNEX II

**ECVET — PRINCIPLES AND TECHNICAL SPECIFICATIONS**

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.

ECVET is intended to facilitate the recognition of learning outcomes in accordance with national legislation, in the framework of mobility, for the purpose of achieving a qualification. It should be noted that ECVET does not imply any new entitlement for citizens to obtain the automatic recognition of either learning outcomes or points. Its application for a given qualification is in accordance with the legislation, rules and regulations applicable in the Member States and is based on the following principles and technical specifications:

**1. Units of learning outcomes**

A unit is a component of a qualification, consisting of a coherent set of knowledge, skills and competence that can be assessed and validated with a number of associated ECVET points. A qualification comprises in principle several units and is made up of the whole set of units. Thus, a learner can achieve a qualification by accumulating the required units, achieved in different countries and different contexts (formal and, where appropriate, non-formal and informal), while respecting national legislation relating to the accumulation of units and the recognition of learning outcomes.

The units that make up a qualification should be:

- described in legible and understandable terms by referring to the knowledge, skills and competences contained in them,
- constructed and organised in a coherent way with regard to the overall qualification,
- constructed in a way that enables discrete assessment and validation of learning outcomes contained in the unit.

A unit may be specific to a single qualification or common to several qualifications. The expected learning outcomes defining a unit may be achieved irrespective of where or how these have been achieved. Thus, a unit is not to be confused with a component of a formal learning programme or training provision.

The rules and procedures for defining characteristics of units of learning outcomes and for combining and accumulating units for a given qualification are defined by competent institutions and partners involved in the training process according to the national or regional rules.

The specifications for a unit should include:

- the generic title of the unit,
- the generic title of the qualification (or qualifications) to which the unit relates, where applicable,
- the reference of the qualification according to the EQF level and, where appropriate, the national qualifications framework (NQF) level, with the ECVET credit points associated with the qualification,
- the learning outcomes contained in the unit,
- the procedures and criteria for assessment of these learning outcomes,

- the ECVET points associated with the unit,
- the validity in time of the unit, where relevant.

## 2. Transfer and Accumulation of learning outcomes, ECVET partnerships

In ECVET, units of learning outcomes achieved in one setting are assessed and then, after successful assessment, transferred to another setting. In this second context, they are validated and recognised by the competent institution as part of the requirements for the qualification that the person is aiming to achieve. Units of learning outcomes can then be accumulated towards this qualification, in accordance with national or regional rules. Procedures and guidelines for the assessment, validation, accumulation and recognition of units of learning outcomes are designed by the relevant competent institutions and partners involved in the training process.

Credit transfer based on ECVET and applied to learning outcomes achieved in formal learning contexts should be facilitated by establishing partnerships and networks involving competent institutions, each of which is empowered, in their own setting, to award qualifications or units or to give credit for achieved learning outcomes for transfer and validation.

The establishment of partnerships aims to:

- provide a general framework of cooperation and networking between the partners, set out in Memoranda of Understanding (MoU) through which a climate of mutual trust is established,
- assist the partners in the design of specific arrangements for credit transfer for learners.

The MoU should confirm that the partners:

- accept each other's status as competent institutions,
- accept each other's quality assurance, assessment, validation and recognition criteria and procedures as satisfactory for the purposes of credit transfer,
- agree the conditions for the operation of the partnership, such as objectives, duration and arrangements for review of the MoU,
- agree on the comparability of qualifications concerned for the purposes of credit transfer, using the reference levels established by EQF,
- identify other actors and competent institutions that may be involved in the process concerned and their functions.

For applying ECVET to learning outcomes achieved in a non-formal and informal learning context or outside the framework of an MoU, the competent institution which is empowered to award qualifications or units or to give credit should establish procedures and mechanisms for the identification, validation and recognition of these learning outcomes through the award of the corresponding units and the associated ECVET points.

## 3. Learning agreement and personal transcript

For applying credit transfer involving two partners and a specific mobile learner, a learning agreement is concluded by the two competent institutions involved in the training and validation process and the learner, in the framework of an MoU. It should:

- distinguish between competent 'home' and 'hosting' institutions<sup>(1)</sup>,
- specify the particular conditions for a period of mobility, such as the identity of the learner, the duration of the mobility period, learning outcomes expected to be achieved and the associated ECVET points.

<sup>(1)</sup> The 'home' institution is the institution which will validate and recognise learning outcomes achieved by the learner. The 'hosting' institution is the one that delivers training for the learning outcomes concerned and assesses the achieved learning outcomes.

The learning agreement should lay down that, if the learner has achieved the expected learning outcomes and these have been positively assessed by the 'hosting' institution, the 'home' institution should validate and recognise them as part of the requirements for a qualification, according to the rules and procedures established by the competent institution.

Transfer between partners can apply to learning outcomes achieved in formal and, where appropriate, non-formal and informal contexts. Thus, the transfer of credit for achieved learning outcomes has three stages:

- the 'hosting' institution assesses the learning outcomes achieved and awards credit to the learner; the learning outcomes achieved and the corresponding ECVET points are recorded in a learner's 'personal transcript' <sup>(1)</sup>,
- the 'home' institution validates the credit as a suitable record of the learner's achievement,
- the 'home' institution then recognises the learning outcomes that have been acquired; this recognition gives rise to the award of the units and their corresponding ECVET points, according to the rules of the 'home' system.

Validation and recognition by the competent 'home' institution depend on the successful assessment of learning outcomes by the competent 'hosting' institution, in accordance with the agreed procedures and quality assurance criteria.

#### 4. ECVET points

ECVET points provide complementary information about qualifications and units in numerical form. They have no value independent of the acquired learning outcomes for the particular qualification to which they refer and they reflect the achievement and accumulation of units. To enable a common approach for the use of ECVET points, a convention is used according to which 60 points are allocated to the learning outcomes expected to be achieved in a year of formal full time VET.

In ECVET the allocation of points usually has two phases: ECVET points are allocated first to a qualification as a whole and then to its units. For a given qualification, one formal learning context is taken as a reference and, on the basis of the convention the total number of points is assigned for that qualification. From this total, ECVET points are then allocated to each unit according to their relative weight within the qualification.

For qualifications which do not have a formal learning pathway reference, ECVET credit points can be allocated through estimation by comparison with another qualification which has a formal reference context. To establish the comparability of the qualifications, the competent institution should refer to the equivalent EQF level or, possibly, NQF level, or to the similarity of the learning outcomes in a closely related professional field.

The relative weight of a unit of learning outcomes, with regard to the qualification, should be established according to the following criteria or to a combination thereof:

- the relative importance of the learning outcomes which constitute the unit for labour market participation, for progression to other qualification levels or for social integration,
- the complexity, scope and volume of learning outcomes in the unit,
- the effort necessary for a learner to acquire the knowledge, skills and competence required for the unit.

The relative weight of any given unit common to several qualifications, as expressed in ECVET points, may vary from one of these qualifications to another.

Allocations of ECVET points are normally part of the design of qualifications and units. They are produced by the competent institution responsible for the design and maintenance of the qualification or specifically empowered for this task. In countries where there is already a national system of points, the relevant competent institutions establish arrangements for the conversion of national credit points to ECVET points.

<sup>(1)</sup> A personal transcript is a document which details the learners' assessed learning outcomes, units and ECVET points awarded.

The successful achievement of a qualification or of a unit triggers the award of the associated ECVET points, independently of the actual time required to achieve them.

Usually the transfer of a unit entails the transfer of the corresponding ECVET points so that they are included when the transferred learning outcomes are recognised, in accordance with national or regional rules. It is up to the competent institution to reconsider, where necessary, the ECVET points to be taken into account, as long as the rules and methodologies which are laid down for this purpose are transparent and underpinned by quality assurance principles.

Any qualification acquired through non-formal or informal learning for which a formal learning pathway reference can be identified, and the corresponding units, carry the same ECVET points as the reference, since the same learning outcomes are being achieved.

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# **BMBF Concept Paper on testing ECVET in the context of transnational mobility in Germany**

*This Concept Paper was discussed in detail by the ECVET Advisory Board and defines the framework within which ECVET will be tested in the context of transnational mobility in Germany until 2013.*

## **1. European Framework Conditions**

The objective of establishing a European education area within the framework of the EU 2020 process as agreed by the Heads of Government emphasizes the significance of education and particularly of vocational education for the development of a European education and labour market. The EU is focusing its attention on:

- Promoting lifelong learning,
- Improving mobility between the different educational pathways,
- Achieving the transparency, transferability and recognition of (final) qualifications and
- Increasing transnational mobility to achieve a European education and labour market.

The implementation of the European Credit System for Vocational Education and Training (ECVET) is the key instrument for realizing these objectives along with the development of a European Qualifications Framework (EQF) and a European Reference Framework for Quality Assurance in Vocational Education and Training (EQAVET). The aim of the corresponding recommendations (of the European Parliament and the Council) is to provide European stakeholders in the field of education with practical instruments to implement the EQF, EQAVET and ECVET and at the same time to promote mutual confidence in the quality of national educational programmes and systems.

The ECVET vocational training instrument is currently being tested throughout Europe until 2013. The broad practical experience gained will then be used to draft proposals for optimizing ECVET and revising the ECVET recommendation

As far as the implementation of ECVET in the Member States is concerned, the ECVET recommendation explicitly states that national legislation and framework conditions must be

taken into consideration. In Germany's case, there is agreement that implementation will take place within the framework of the existing vocational training system, retaining the occupation principle and the aim of acquiring comprehensive vocational skills.

## **2. Objectives of the ECVET trials in Germany**

Germany is pursuing specific aims with ECVET on the basis of the European framework conditions stated above:

- **Promoting transparency and flexibility through a learning outcomes orientation**

A consistent focus on learning outcomes forms the basis for promoting transparency, mobility and flexibility in the educational sector and thus also for promoting ECVET as an instrument for implementing these objectives. The description of vocational qualifications and curricula based on learning outcomes makes it easier to read, understand and thus compare qualifications. Outcome orientation is noticeably becoming a standard in training, vocational training and higher education; it represents a major precondition for the recognition of acquired competences in other educational contexts. Furthermore, the improved readability and comparability of vocational qualifications also contribute to a higher level of recognition on the European labour market.

- **Qualitative improvement of skills acquired in mobility measures**

Outcome orientation and the systematic use of ECVET's range of instruments (partnership agreement, learning agreement, individual record of achievement) will mean that mobility measures – particularly in initial training – have closer and more precise links with training in Germany. This can produce a qualitative improvement in the skills acquired in mobility measures.

- **Efficient use of learning periods**

A clear(er) description of learning outcomes including their validation and documentation contributes significantly to ensuring that those parts of vocational training completed abroad ( i.e. know how, skills and competence acquired abroad in accordance with the Vocational Training Act (BBiG), Section 2 Para 3) do not have to be repeated at home. This is helped by the ECVET partnership which is based on mutual trust.

### 3. Guidance for testing ECVET in Germany

The trials involving ECVET up to 2013 are based on the following points:

- **Transnational Mobility:**

ECVET is to be tested within the framework of the promotion of transnational mobility. The Federal Government, *Länder* and two sides of industry thereby support the respective educational stakeholders, multipliers, education institutions and learners in applying the ECVET principles and instruments to encourage longer stays abroad and to improve the quality of these mobility phases.

- **Formal Qualifications:**

The trials are to concentrate on formal qualifications in particular, i.e. skills acquirement during a regular training course (including additional qualifications) in order to facilitate the development of pragmatic, transferable principles and procedures. The application of ECVET in mobility measures in initial training and in Innovation Transfer Projects (ITP), which refer to initial vocational training and state regulated continued training, represents a national funding priority.

- **Skills Orientation of Learning Outcomes:**

Measures to test ECVET are to focus on learning outcomes based on the acquirement of vocational skills. The aim is to develop a common European terminology to improve the transparency and comparability of learning outcomes. During the ECVET test phase, the transnational partners are to use the EQF classification as the common basis for describing the learning outcomes (know how, skills and competences) gained within the framework of transnational mobility. A guide will be provided to ensure comparability with German Qualifications Framework terminology.

- **Definition of Learning Outcome Units:**

The definition of learning outcome units is the precondition for the transfer and recognition of competences gained in a different learning and working context. The basis for defining a learning outcome unit will be a complex qualifications unit. On the basis of occupation-specific work and business operations, the partners to a learning agreement can define corresponding learning outcomes with regard to concrete tasks and work projects, describe these in terms of learning outcomes and relate them to existing regulatory instruments. This

means that the duration of a learning outcome unit depends on the knowledge and skills to be acquired to attain this learning outcome. To simplify the transfer process, credit points can be determined for the respective learning unit according to the respective national conditions. The aim of a mobility measure may be the attainment of learning outcomes which refer predominantly to existing regulatory instruments in the respective partner countries; however, it may also involve the attainment of additional qualifications.

- **Responsible Institutions/Bodies:**

The application of ECVET instruments is the responsibility of the transnational partnerships. The definition of learning outcome units and the award of credit points are the responsibility of the respective stakeholders, i.e. the sending and receiving education institutions. The Memorandum of Understanding (MoU) only places an obligation on the partners, however. The representatives of the two sides of industry and the industrial organizations, particularly the chambers, accompany the process as required and are involved at an early stage.

- **Assessment, Validation, Documentation of the Learning Outcomes:**

According to the ECVET recommendation, accumulation and recognition take place in accordance with the respective national particularities. In the ECVET test phase, the partners will assess, validate and document the agreed learning outcomes on the basis of mutual trust. The selection of the validation procedures is the responsibility of the partners. If necessary, certification procedures can be developed involving the participation of the competent agencies.

- **Award of Credit Points:**

The award of credit points for learning outcome units is not absolutely necessary for the transfer and validation of learning outcomes. The ECVET test phase need not include an obligatory and systemic award of credit points. In view of the importance of ECVET and credit points in the partner countries, however, credit points may be determined for the respective learning units.

- **System Convergence with ECTS:**

Possible convergence with ECTS does not have priority at the present time when testing the ECVET in the context of transnational mobility. In the medium to long term, the principles and procedures (that may be) developed in the course of the ECVET test phase

should also relate to improving the validation and flexibility of higher education qualifications. The bias towards learning outcomes may represent the binding element between the different credit point systems.

#### **4. Support for the ECVET Test Phase in Germany**

ECVET represents a priority in the EU's Programme for Lifelong Learning (PLL), both at European and national level. Educational stakeholders in companies and schools often require support when testing ECVET within the framework of corresponding transnational mobility and innovation transfer projects.

For this purpose, the BMBF has commissioned the National Agency Education for Europe at the Federal Institute for Vocational Education and Training (NA at BIBB) to set up the ECVET National Coordination Office. The central task of the National Coordination Office, which has been set up, is to advise education providers and support them in the development of practical instruments and in the development of a common, uniform understanding of learning outcomes.

##### **Key areas of the work of the National Coordination Office are:**

- Using the Internet and informational events to present relevant information on ECVET principles, procedures and instruments for specific target groups,
- Advising educational stakeholders on the use of ECVET within the framework of transnational mobility; promoting dialogue and the exchange of experience,
- Supporting the development of a "common language" and terminology when testing ECVET,
- Developing a guide to ensure the comparability of the EQF classification and the German Qualifications Framework terminology,
- Cooperating on the development of practical instruments to define learning outcome units and describe learning outcomes as well as on the development of standards and criteria for the evaluation and documentation of learning outcomes,
- Disseminating examples of good practice,
- Promoting the use of quality assurance mechanisms,

- Supporting the BMBF in the further development of ECVET.

The National Coordination Office is thus supporting the activities of the National Agency, for example ECVET Thematic Monitoring and the Thematic Network of European National Agencies to test ECVET in Europe (NetECVET).

## **Geographical Mobility in Vocational Education and Training: Guidelines for describing units of learning outcomes**

### **Content:**

- 1. Preliminary Note**
- 2. Development of a “common language”**
- 3. What are learning outcomes?**
- 4. What are units of learning outcomes?**
- 5. How are units of learning outcomes determined?**
- 6. What is to be taken into consideration when formulating learning outcomes?**
- 7. How are learning outcomes formulated?**
- 8. Who formulates learning outcomes and defines units of learning outcomes?**
- 9. How are learning outcomes described**
- 10. How are units of learning outcomes assessed, validated and recognized?**
- 11. How are learning outcomes documented?**
- 12. What is the relevance of ECVET points?**

### **Annex (Examples)**

#### **1. Preliminary Note**

These guidelines are intended to support stakeholders in vocational education and training in Germany in applying the learning outcomes-oriented ECVET approach. They should facilitate cooperation of partner institutions organising transnational mobility action. The guidelines are based, on the one hand, on the terms defined in the ECVET recommendation and the joint European principles which are to be tested ("technical specifications") as well as on practical experience gained in mobility and innovation transfer projects. The following information and examples are intended as an advice which can contribute towards the development of a joint understanding of learning outcomes orientation in vocational education and training.

#### **2. Development of a "common language"**

Before implementing a mobility action, the partner institutions are faced with the challenge of agreeing on a common language and common terminology regarding the contents and objectives of

a mobility project (one could call this "Esperanto for training purposes"). The basis for this agreement can be both the EQF system and the use of ECVET instruments for describing learning outcomes as well as for assessing, documenting and validating units of learning outcomes.

In addition to basic questions regarding the equivalence of training programmes and occupational profiles as well as different national ways of describing and presenting qualifications, a central task is that the partners should agree on the learning outcomes or the management of certain work assignments envisaged. Learning outcomes comprise professional, methodical, personal and social competences to be gained by the mobile learners abroad. The application of ECVET instruments such as partnership agreement (Memorandum of Understanding), learning agreement and personal transcript is intended to contribute towards ensuring that all persons involved – including the learners – develop a common understanding of the intended results. In the sense of quality assurance measures the achievement of these goals, that is to say, the attainment of these vocational competences, shall be made verifiable, for example by successfully completing the work assignments and examinations defined by the partners.

The following definitions and explanations are intended to facilitate communication and understanding between the partners at European level.

### 3. What are learning outcomes?

Learning outcomes are statements of what a learner knows, understands and is able to do on completion of a learning process. Learning outcomes are defined in terms of *knowledge, skills and competence*<sup>1</sup>.

- **Knowledge** means the body of facts, principles, theories and practices that is related to a field of work or study. It is described as theoretical and/or factual knowledge;
- **Skills** means the ability to apply knowledge and use know-how to complete tasks and solve problems. They are described as cognitive (logical, intuitive and creative thinking) or practical (involving manual dexterity and the use of methods, materials, tools and instruments);
- **Competence** means the proven ability to use knowledge, skills and personal, social and methodological abilities in work or study situations and in professional and personal development. It is described in terms of responsibility and autonomy.

### 4. What are units of learning outcomes?

A unit of learning outcomes (also called “unit” or “module”) is a component of a qualification consisting of a coherent set of knowledge, skills and competence that can be assessed and validated (cf. 10). This presupposes that the units of learning outcomes are structured comprehensively and logically and that they can be examined. Units of learning outcomes can be specific to a single

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<sup>1</sup> Recommendation of the European Parliament and of the Council on the Establishment of a European Qualifications Framework for Lifelong Learning, 2008

qualification or common to several qualifications and may also describe so-called additional qualifications which are not part of a formal qualification or curriculum.

## 5. How are units of learning outcomes determined?

A unit of learning outcomes should be designed in such a way as to provide a(n almost) consistent and structured learning process, with agreed coherent learning outcomes and clear criteria for assessment.

In a learning agreement the partner institutions and the learner agree on corresponding units of learning outcomes. These can be explained more precisely by concrete and assessable work assignments. In this context, the partners must also agree on the scope of a unit of learning outcomes in relation to the duration of the mobility phase, i.e. the "work load" in the sense of the time required to complete the unit of learning outcomes.

Units of learning outcomes can be determined on the basis of complete work assignments, working processes, areas of work, fields of action or fields of competence which are typical of the particular profession. At best, there will be "overlaps" which are part of the respective vocational profile or qualification pathway in all countries, or which can be derived from the existing syllabuses or curricula. However, it is also possible to select and agree on vocational competences and work assignments which enhance or complement the national qualification profile, e.g. in the case of additional qualifications.

The following **criteria** are intended to support the partners determining the units of learning outcomes:

- ✓ Units of learning outcomes should be designed in such a way that they can be completed **as independently as possible** of other units of learning outcomes. In individual cases, this can lead to redundancies when describing several units, i.e. competences may be listed in unit B which are already part of unit A. This does not preclude those parties involved in a mobility partnership from agreeing in advance on the competences/units of learning outcomes which the learner has already achieved.
- ✓ Units of learning outcomes should include **all necessary learning outcomes**, i.e. they should describe the intended professional competences as well as the necessary social and personal competences in this context.
- ✓ Units of learning outcomes should be structured and dimensioned in such a way that the relevant learning outcomes can actually be achieved in the given time, i.e. during the period of mobility. Units of learning outcomes should therefore not be too extensive.
- ✓ In view of the role of a unit of learning outcomes within the framework of transnational mobility, it is, however, often not necessary to structure the entire qualification or the entire training programme in unit of learning outcomes. Unless it is intended to establish a common

European vocational profile, it is sufficient to agree with the partner institutions on one or more concrete unit of learning outcomes which are to be gained in the course of the mobility phase in the respective partner country.

- ✓ Units of learning outcomes should be **assessable**. Orienting units of learning outcomes towards occupational activities and tasks makes it easier to determine assessment criteria.

Once corresponding assignments, working processes or additional qualifications have been identified, the next step is to define which concrete learning outcomes, i.e. knowledge, skills and competence, are needed for their implementation. In order to anchor the unit of learning outcomes in the national training programmes and thus ensure its "suitability" for mobility purposes, the level of the envisaged learning outcomes (in accordance with the EQF system, i.e. the performance of work assignments, for example, "under supervision" or "autonomously and responsibly") is to be taken into consideration and described.

## **6. What is to be taken into consideration when formulating learning outcomes?**

Basically, learning outcomes should be formulated in such a way as to be understandable and thus "manageable" for all those involved.

This means that the partners define the terminology which they use (perhaps in the form of their own glossary) and choose a reference system (e.g. EQF). This procedural step also involves agreement on the part of persons involved, i.e. training personnel and learners, on the application context (e.g. skills level, standard) and objectives of learning mobility.

The partners should consider the following points when formulating learning outcomes:

- ✓ Learning outcomes refer to vocational qualifications (in the sense of assessable vocational competences), not to the individual's specific development of vocational competence. The learning outcomes which are to be described are based on the learning achievements of an average learner. Learning outcomes are described from the perspective of the learner (not from the perspective of the instructor). Learning outcomes do not describe the learning target or the learning path, but the result following the completion of a learning process.
- ✓ General training plans, framework syllabuses, curricula, examination regulations or qualification profiles can form the basis for describing learning outcomes in transnational mobility. However, these can also be generated from work processes.
- ✓ Learning outcomes should be verifiable and assessable. Learning outcomes should be described in as concrete terms as possible so that it can be determined within the framework of an evaluation process whether the learner has achieved the learning outcomes. The learning outcomes should, however, be formulated in such a way as to also enable the learners to judge whether the results have actually been achieved.
- ✓ The nature of the learning process and the learning method itself are not relevant for the description of learning outcomes.

- ✓ The question of whether learning outcomes in the form of knowledge, skills and competences within a unit of learning outcomes are described in detail or in a less complex form depends on the respective context and the objective of learning mobility. As a general principle, there should neither be too many nor too few learning outcomes.

## 7. How are learning outcomes formulated?

The following basic principles can make it easier to reach an understanding between the mobility partners when describing learning outcomes:

- ✓ **Use of active, clearly understandable verbs**  
Verbs should describe measurable or observable actions, e.g. "explain", "represent", "apply", "analyse", "develop", etc. It may prove useful to develop a taxonomy table. (**Table 1** contains a list of verbs which can be used when formulating learning outcomes. This can be supplemented by job-specific verbs depending on sector and domain.)  
Verbs such as "to be familiar with" should not be used.
- ✓ **Specification and contextualization of the active verb**  
It should be described what the knowledge and ability refer to in concrete terms, or what type of activity is involved. The learning outcomes formulation should consist of a verb and the related object as well as an additional (part of a) sentence describing the context.
- ✓ **Avoiding vague, open formulations**  
Learning outcomes should be described briefly and precisely, complicated sentences should be avoided, learning outcomes should not be formulated in too general or in too concrete terms; clear (simple and unambiguous) terminology should be used as far as possible. Not: He/She knows the *regional* products and is able to prepare *simple* meals.
- ✓ **Orientation towards minimum demands for achieving learning outcomes**  
Learning outcomes should comprehensibly describe the minimum demands for achieving/validating a unit of learning outcomes, i.e. all learning outcomes which are necessary for fulfilling the tasks in the sense of a complete vocational activity should be listed.
- ✓ **Qualifications-/competence level is described comprehensibly**  
Formulations, particularly verbs and adjectives should reflect the level of qualification/competence (EQF or sectoral framework) of a unit of learning outcomes. The learning outcomes description should comprehensibly depict whether the vocational competences can for example be applied under supervision, autonomously or responsibly and competently.

Cf. **Table 2** for examples of how to formulate learning outcomes.

## 8. Who formulates learning outcomes and defines units of learning outcomes?

On the one hand, learning outcomes can be formulated within the framework of international mobility by an educational institution, i.e. supply-oriented, or, on the other hand, they can be determined, formulated, tested and evaluated by the partner institutions in a joint process. Feedback loops or the establishment of a consulting committee can serve as quality assurance measures.

## 9. How are learning outcomes described?

Learning outcomes can be described "holistically" within the framework of a coherent description as a continuous text (**Table 3**) or as a matrix, subdivided into individual elements of knowledge, skills and competence (**Table 4**). A detailed description of learning outcomes in the form of a matrix has the advantage that it enables a better comparison with the respective national curricula and is more clearly structured with regard to the subsequent assessment of learning outcomes. It has the disadvantage that it can possibly lead to overlaps and redundancies when describing several units of learning outcomes (particularly when describing personal and social competences). A description in the form of a continuous text has the advantage that the relationships between the individual categories of competences become clear (description of vocational competence: "The whole is more than the sum of its parts"). It is the task of the partners to agree on the type of description.

The title of a unit of learning outcomes should be clear and comprehensible for all persons involved (partner institutions, learners) and it should reflect the content of the unit. Furthermore, the level of the unit of learning outcomes is to be noted separately.

## 10. How are units of learning outcomes assessed, validated and recognized?

The agreements of the partners in a mobility action are decisive for the *assessment, validation and recognition*<sup>2</sup> of learning outcomes against the background of the valid national regulations and practices in the participating states. For this purpose, the partners must agree on criteria for quality assurance in good time.

- **Assessment of learning outcomes** means methods and processes used to establish the extent to which a learner has in fact attained particular knowledge, skills and competence;
- **Validation of learning outcomes** means the process of confirming that certain assessed learning outcomes achieved by a learner correspond to specific outcomes which may be required for a unit or a qualification;
- **Recognition of learning outcomes** means the process of attesting officially achieved learning outcomes through the awarding of units or qualifications.

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<sup>2</sup> Recommendation of the European Parliament and Council on the Establishment of a European Credit System for Vocational Education and Training, 2009

The partners are responsible for selecting the procedure for determining and assessing competences. In order to validate and recognize learning outcomes which have been achieved in a different learning context, it is necessary to determine that the learner has actually acquired the competences which have been taught and which are intended. The selection of the method(s) of assessment should be appropriate to the competences to be determined. In the course of the assessment procedure, it is not only possible to assess learning outcomes that are defined in a formal unit of learning outcomes in accordance with the national qualifications system, but also cross-occupational competences which have been acquired during the stay abroad.

### **11. How are learning outcomes documented?**

The **Europass Mobility** document can be used to document and validate the knowledge, skills and competences acquired during the mobility phase. (cf. **Table 5**)

### **12. What is the relevance of ECVET points?**

ECVET points can be determined for a unit of learning outcomes in accordance with the relative "value" of the unit of learning outcomes measured on the basis of the starting qualification. The value of the unit of learning outcomes for the qualification in the host country is decisive for the transfer of ECVET points. The allocation of points for units of learning outcomes is not necessarily demanded for the transfer and validation of learning outcomes (in Germany).

**Links:** Using ECVET for Geographical Mobility. Part II of the ECVET User's Guide:  
[http://www.ecvet-projects.eu/Documents/ECVET\\_Mobility\\_Web.pdf](http://www.ecvet-projects.eu/Documents/ECVET_Mobility_Web.pdf)

Get to know ECVET better – questions and answers.  
[http://ec.europa.eu/education/lifelong-learning-policy/doc/ecvet/faq\\_en.pdf](http://ec.europa.eu/education/lifelong-learning-policy/doc/ecvet/faq_en.pdf)

Europass Mobility: [www.europass-info.de](http://www.europass-info.de)

**Bibliography:** Lernergebnisse (Learning Outcomes) in der Praxis. Ein Leitfaden. Published by the DAAD, Bonn 2008.

Leitfaden zur Beschreibung von Lernergebnissen. Gabriele Grün et al. in cooperation with ZOOM-Project partnership ([www.zoom-egf.eu](http://www.zoom-egf.eu)). October 2009

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Bonn, 1st August 2011

**Table 1: List of verbs based on Bloom's Taxonomy (Bloom 1972)**

**Bloom distinguishes between six cognitive levels with increasing levels of complexity:** Examples of active verbs are listed at each level:

**1. Knowledge** Being able to recall and pass on information as precisely as possible.

*Examples of active verbs at this level:*

Arrange, define, describe, duplicate, identify, label, list, match, memorize, name, order, outline, recognize, relate, recall, repeat, reproduce, select, state

**2. Comprehension:** Being able to interpret information and relate and summarize it in one's own words

*Examples of active verbs at this level:*

Classify, convert, defend, describe, discuss, distinguish, estimate, explain, express, extend, generalize, give example(s), identify, indicate, infer, locate, paraphrase, predict, recognize, review, rewrite, select, summarize, translate

**3. Application:** Being able to apply abstractions (rules, methods, etc.) in concrete situations

*Examples of active verbs at this level:*

Calculate, demonstrate, develop, interpret, judge, modify, organize, predict, select, sketch, transfer

**4. Analysing:** Being able to break down ideas or problems into simpler parts and compare

*Examples of active verbs at this level:*

Analyse, appraise, compare, conclude, determine, discriminate, experiment, illustrate, infer, test

**5. Evaluating:** Being able to compile component ideas into a new whole

*Examples of active verbs at this level:*

Argue, assess, compare, decide, evaluate, predict, recommend, summarize, validate

**6. Creating:** Being able to make a qualified judgement

*Examples of active verbs at this level:*

Argue, arrange, expand, relate, generalize, generate, combine, join

Further job- and branch-specific verbs are to be added to this list in order to describe **practical skills**, e.g. assemble (components); install and configure (software programmes); prepare and divide into portions (food).

The following is a list of exemplary verbs for formulating learning outcomes at the **psychomotoric domain** (Dave 1970, Simpson, 1972):

**1. Imitation:** The ability to observe and imitate the behaviour of another person

*Examples of active verbs at this level:*

Perform under supervision

**2 Manipulation:** The ability to reproduce actions from instructions and practice

*Examples of active verbs at this level:*

Perform, participate, assist – according to instructions

**3 Precision:** Perform a task autonomously

*Examples of active verbs at this level:*

Implement, handle, complete, perform – autonomously

**4 Articulation:** The ability to coordinate and modify several actions by combining several skills in order to meet special requirements or solve a problem

*Examples of active verbs at this level:*

Adapt, develop, design, alter, coordinate

**5 Naturalization:** The internalizing of processes: skills are combined consistently and can be performed "without thinking"

*Examples of active verbs at this level:*

Adapt, adjust, transfer

Examples of verbs in the field of **affective domain** (Krathwohl, 2002) are:

**1 Receiving:** Willingness to note information

*Examples of active verbs at this level:*

Listen, show, hold in esteem

**2 Responding:** Voluntary, active participation in learning/working; e.g. participation in group discussions

*Examples of active verbs at this level:*

Support, participate, practise, cooperate, integrate

**3 Valuing:** Ability to judge the worth of material against stated criteria

*Examples of active verbs at this level:*

Question, adapt to, take into consideration

**4 Organization** of values: Individual processing of (often conflicting) values to form an organized structure, beginning of an internalization of these values

*Examples of active verbs at this level:*

Differentiate, judge, dispute, organize

**5. Characterization** by value set: the individual has a stable system of values regarding convictions, opinions and attitudes which steer her/his behaviour predictably and consistently

*Examples of active verbs at this level:*

Recognize, accept, answer, solve

**Table 2: Examples for formulating learning outcomes**

<p>Examples:</p> <p>Knowledge:</p> <p><b>He/she is able to</b></p> <ul style="list-style-type: none"> <li>... describe structural characteristics which are responsible for the behaviour and properties of a chemical substance</li> <li>... differentiate between separation and mix principles and corresponding procedures</li> <li>... describe the functioning of components, assemblies and systems of a vehicle</li> <li>... assign the necessary documents for service and maintenance</li> <li>... explain regulations concerning the handling of hazardous substances</li> </ul> <p>Skills:</p> <p><b>He/ she is able to</b></p> <ul style="list-style-type: none"> <li>... receive orders and plan own procedural steps</li> <li>... analyse data and present it as a basis for decisions</li> <li>... use information and communication technologies taking into account data protection requirements</li> <li>... develop a marketing plan and use marketing and PR instruments</li> <li>... select chemical agents and production procedures and make up formulas</li> </ul> <p>Competence (in the sense of taking over responsibility and autonomy):</p> <p><b>He/ she is able to</b></p> <ul style="list-style-type: none"> <li>... calculate production and service costs and analyse profitability</li> <li>... apply problem solving strategies</li> <li>... reflect upon his/her own action</li> <li>... cope with and withstand strain and stressful situations in a way that is not harmful to health</li> <li>... communicate with appreciation with patients, family members/reference person groups involved in the care process</li> <li>... express and receive situation-based criticism</li> </ul>
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**Table 3: Example “Mechatronics Technician” (cf. Movet project [www.gomovet.eu](http://www.gomovet.eu) and VQTS project)**

Areas of competence	Steps of competence development			
A	Unit A1*	Unit A2*	Unit A3*	Unit A4*
<b>Installing, configuring, programming and testing hard- and software components for control and regulation of mechatronic systems and facilities</b>	He/she is able to install and configure programs for hardware and software components as well as set up simple software control program (PLC).program (SPS)	He/she can master the selection of hardware and software for mechatronic systems (sensors, actuators, interfaces, communication procedures) and can provide and test simple software control programs (SPS) according to production process requirements	He/she can integrate and configure program-, control-, and regulation- mechanisms in mechatronic systems, program simple devices (in co-operation with developers), and simulate the program sequence before start-up.	He/she can develop, test, and configure hardware and software solutions for networked mechatronic systems: and can monitor system conditions with suitable measuring and visualisation tools.

\* Social and personal competences are described separately in this project.

**Table 4:** A unit of learning outcomes can be described as follows using the EQF system:

Unit x	Title of the Unit		
	He/ she is able to... (summary description)		
	Knowledge	Skills	Competence
	He/she knows/ is familiar with ...	He/she can/tests ...	He/she is responsible for/supervises...

Example: Project ZOOM "Master Craftsperson in motor vehicle technology" ([www.zoom-eqf.eu](http://www.zoom-eqf.eu))

Unit 2	<b>Service and maintenance</b>		
	He/she is able to carry out service and maintenance tasks taking into account specifications, evaluate the documents prepared and check the executed tasks.		
	Knowledge	Skills	Competence
	He/she is able to <ul style="list-style-type: none"> <li>name service and maintenance specifications</li> <li>assign the documents required for service and maintenance</li> <li>describe the function of vehicle components, units and systems</li> <li>...</li> </ul>	He/she is able to <ul style="list-style-type: none"> <li>apply service and maintenance specifications and draw up plans</li> <li>fill in the documents required for service and maintenance.</li> <li>disassemble and assemble components, taking into account the manufacturer-specific specifications</li> <li>...</li> </ul>	He/ she is able to <ul style="list-style-type: none"> <li>delegate the service and maintenance tasks taking into account specifications</li> <li>evaluate measuring and test reports and check the executed tasks by using checklists</li> <li>...</li> </ul>

**Table 5:** Example: Documentation of a mobility phase in the training course "Biological Laboratory Assistant" at the vocational college in Hilden (Mettmann)

<b>Unit</b>	Separation of biomolecules (e.g. gel electrophoresis, chromatography)		
Duration of the Unit : 4-6 weeks	<b>Knowledge</b>	<b>Skills</b>	<b>Competence</b>
Learning outcomes correspond to EQF level 5	The learner knows the molecular characteristics of a bio molecule (e.g. protein, sugar, nucleic acid)	The learner understands the functionality of a specific separation technique (e.g. SDS-PAGE, agarose gel electrophoresis, chromatographic techniques)	The learner is able to apply a specific separation technique autonomously (e.g. SDS-PAGE, agarose gel electrophoresis, chromatographic techniques)

Documentation in the Europass document (including fictitious entries in the fields 32a-34a):

	<b>Activities/tasks carried out</b>
(29a)	Separation of biomolecules (e.g. gel electrophoresis, chromatography)
	<b>Job-related skills and competences acquired</b>
(30a)	<p>The learner knows: the molecular characteristics of a bio molecule (e.g. protein, sugar, nucleic acid)</p> <p>The learner understands: the functionality of a specific separation technique (e.g. SDS-PAGE, agarose gel electrophoresis, chromatographic techniques)</p> <p>The learner is able: to apply a specific separation technique autonomously (e.g. SDS-PAGE, agarose gel electrophoresis, chromatographic techniques)</p>
	<b>Computer skills and competences acquired</b>
(32a)	<p>The learner is able: to use computers for equipment control and data acquisition to analyse and discuss data corresponding to the aim of the project</p>
	<b>Organisational skills and competences acquired</b>
(33a)	<p>The learner is able: to plan experimental processes and set up apparatus</p>
	<b>Social skills and competences acquired</b>
(34a)	<p>The learner is able: to organize laboratory work in his/her field of work autonomously, to work with scientists to develop and optimise analysis techniques</p>

## **Abstract**

The Copenhagen Declaration of 2002 initiated a multitude of activities aimed at fostering the mobility of individual persons and at increasing the transparency of qualifications. One of these initiatives encompasses the development of the European Credit System for Vocational Education and Training, or ECVET. The aim of ECVET is to establish a procedure which permits the transfer and reciprocal recognition of learning outcomes achieved in different educational systems and within various contexts of initial and continuing vocational education and training. One major stage of development is marked by the “Proposal for the establishment of a European Credit System for Vocational Education and Training (ECVET)”, which was adopted by the European Parliament in December 2008. Following a test phase suggested by a majority of the member states, the European Commission published an open call for tenders on the “Testing and Development of the European Credit System for Vocational Education and Training – ECVET” in May 2008. Eleven projects were selected to pilot ECVET across the whole of Europe during the period from 2009 to 2012. The present publication “ECVET as a vehicle for better mobility? From the European Recommendation to piloting in practice” addresses the experiences and results gained from the pilot projects SME Master Plus, AEROVET, CREDCHEM and VaLOGReg with the objective of debating the opportunities for and limitations of applying ECVET within the context of the promotion of European mobility with representatives from practice and policymaking.