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Accreditation of Vocational Learning Outcomes: Perspectives for a European Transfer

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Roland Tutschner, Wolfgang Wittig, Justin Rami (Eds.)

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Perspectives for a European Transfer**

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**Accreditation of
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Zusammenfassung:

Das gemeinsame Grundprinzip von EQR und ECVET ist die Beschreibung von Qualifikationen durch Lernergebnisse. Die Ausgangsbedingungen für eine Umsetzung dieses ergebnisorientierten Ansatzes in den europäischen Systemen der allgemeinen und beruflichen Bildung sind jedoch sehr unterschiedlich. Dieser Problematik widmet sich das Projekt CREDIVOC, das von Partnern aus Deutschland, Finnland, Frankreich, Irland und Österreich durchgeführt wird und die Identifikation, die Erprobung und den Transfer von Instrumenten zur Anrechnung beruflicher Lernergebnisse auf weiterführende Bildungsgänge zum Gegenstand hat. Die vorliegende Publikation ist das Ergebnis der ersten Projektphase, die der Herstellung einer allgemeinen Übersicht über die Anrechnungsverfahren und –instrumente in den Partnerländern gewidmet war. Zu diesem Zweck haben die Partner nationale Fallstudien zur Anrechnung beruflicher Lernergebnisse in den Partnerländern durchgeführt. Um einen Vergleich der Ergebnisse zu ermöglichen, wurde ein gemeinsames Vergleichsraster erarbeitet, dessen Kriterien in der Hauptsache die Art der Anrechnung (individuelle vs. pauschale Anrechnung) sowie die Methodik der Verfahren betreffen. Ein abschließender Synthesebericht fasst die Ergebnisse der einzelnen Länderkapitel zusammen und entwickelt Schlussfolgerungen zu der Frage, welche Ansätze und Instrumente der Anrechnung beruflicher Lernergebnisse besonders geeignet sind, die Transparenz von Qualifikationen und die Bildungsmobilität in Europa zu verbessern.

Abstract:

The fundamental principle that EQF and ECVET have in common is the description of qualifications in terms of learning outcomes. The background for implementing this outcome-based approach in the European education and training systems, however, is quite diverse. This situation is addressed by the CREDIVOC project, which involves partners from Austria, Finland, France, Germany and Ireland and focuses on the identification, testing and transfer of instruments that can be used for the recognition and accreditation of learning outcomes from initial and continuing vocational education and training for further education. The present publication is the major outcome of the first phase of the project, which aimed at the production of a general overview of the accreditation procedures and instruments in the partner countries. To this end, national case studies concerning the accreditation of vocational learning outcomes in Austria, Finland, France, Germany and Ireland have been carried out by the project partners. In order to allow for comparison between the different national approaches a common analytical framework was adopted. The criteria focus especially on the type of recognition (individual vs. blanket recognition) and the methodology of the assessment tools or instruments used. A synthesis report summarises the results of the national case studies and draws some conclusions as to what types of accreditation procedures and instruments might be appropriate for improving the transparency of qualifications and the mobility between educational programmes in Europe.



Education and Culture DG

Lifelong Learning Programme

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1. Introduction: Accreditation of Vocational Learning Outcomes

Roland Tutschner, Wolfgang Wittig & Justin Rami

In March 2000 the European Council meeting in Lisbon adopted a long-term strategy that aimed to make the European Union the most competitive and dynamic knowledge-based economy in the world by 2010. This was the beginning of the by now well-known Lisbon Strategy, of which the improvement of education and training in order to enhance the capacity and employability of the European workforce is one core element. Based on the open method of coordination (OMC), which allows for compliance with the non-harmonisation clauses concerning education and training policy in Articles 149 and 150 of the Treaty Establishing the European Community, the Commission and the Council have adopted the Education & Training 2010 work programme seeking to contribute to the fulfilment of the overall objectives of the Lisbon Strategy. This work programme integrates various previous initiatives in the field of education policy, most notably the Copenhagen Process (2002) aiming at the establishment of a European area for vocational education and training, and is also connected with the Bologna Process (1999) in higher education. The three overall objectives of the Education & Training 2010 work programme are the improvement of the quality and effectiveness of education and training systems, the facilitation of access to education and training systems, and the opening up of EU education and training systems to the wider world (Council of the European Union 2002, 4).

In the field of vocational education and training the objectives of the Lisbon Strategy and the Education & Training 2010 work programme are implemented by the Copenhagen Process. This process, which was inaugurated by the joint declaration of the European education ministers and the Commission of 30 November 2002 (Copenhagen Declaration 2002), has the objective of establishing an enhanced cooperation between Member States, EFTA-EEA states and candidate countries in VET policy. The common principles agreed upon in this declaration are the strengthening of the European dimension in VET, the provision of transparency, information and guidance, the recognition of qualifications and competences, and quality assurance. Follow-up meetings of the Commission and the ministers that take place every two years monitor the progress and specify the priorities to be addressed. The results of the three follow-up meetings that took place until now are documented in the Communiqués of Maastricht (2004), Helsinki (2006) and Bordeaux (2008). In the 2004 Maastricht Communiqué the establishment of a European Qualifications Framework (EQF) and a European Credit System for Vocational Education and Training (ECVET) were defined as the major instruments of a European VET area where mobility between different countries and permeability between educational programmes would be facilitated by the recognition of qualifications and learning outcomes. The European Qualifications Framework, which has the purpose of serving as a meta-framework that allows for the comparison of national qualification systems with regard to the levels into which qualifications can be classified, was finally adopted in 2008 (Recommendation of the European Parliament and of the Council of 23 April 2008) and recommended to the Member States as a reference for the organisation of their national frameworks. The ECVET

system that aims for the assessment of learning outcomes in vocational education and training in order to facilitate their recognition across Europe is still under development (cf. European Commission 2006).

The fundamental principle that EQF and ECVET have in common is the description of qualifications in terms of learning outcomes. The levels of the European Qualifications Framework are defined by three types of descriptors (knowledge, skills and competence) that indicate the learning outcomes relevant to qualifications at the level in question. Learning outcomes are defined as statements of what a learner knows, understands and is able to do on completion of a learning process (cf. Annexes I and II of the Recommendation of the European Parliament and of the Council of 23 April 2008). Similarly, the ECVET system is designed to assess learning outcomes taken abroad in order to take them into consideration in the awarding of a qualification, and aims to validate all types of learning, i.e. formal, non-formal and informal learning (cf. European Commission 2006, 7).

The background for implementing this outcome-based approach in the European education and training systems is quite diverse in the various countries and poses a challenge for the organisation of educational programmes and learning pathways (cf. Cedefop 2008a, 2008b). If transnational mobility of learners and permeability of learning pathways is to be facilitated, there is the need to establish instruments and procedures for the accreditation and recognition of learning outcomes in the various national contexts. In some countries such as France or Ireland these systems already exist to some extent as they have established national qualifications frameworks as well as various schemes for the accreditation of prior learning. However, to this date these outcome-based procedures refer primarily to the national context, and their linkage with the EQF remains to be clarified. Central European countries like Austria and Germany, where formal programmes like apprenticeship training have a strong tradition and where the focus has always been on curricula rather than on learning outcomes, still lack established schemes for the recognition of prior learning. In general, national qualification frameworks and systems for the validation of non-formal and informal learning are established only slowly in most of the countries participating in the Education & Training 2010 work programme (Council of the European Union 2008, 4, see also Commission of the European Communities 2008, 7).

This situation is addressed by the European project »Transparency and Mobility through Accreditation of Vocational Learning Outcomes« (CREDIVOC), which is supported within the Leonardo da Vinci Transfer of Innovation strand of the European Union's Lifelong Learning Programme. This multilateral project, which involves partners from Austria, Finland, France, Germany and Ireland and is coordinated by the Institute Technology and Education (ITB) of the University of Bremen, is focusing on the identification, testing and transfer of instruments based on the principles of the EQF and the ECVET that can be used for the recognition and accreditation of learning outcomes from initial and continuing vocational education for further education. These instruments and procedures for the identification of level, workload and equivalence are tested in selected vocational domains with a view to further development and transfer into other national and sectoral contexts.

The present publication is the major outcome of the first phase of the project, which aimed at the production of a general overview of the accreditation instruments and procedures in the partner countries. More specifically, the objective was to identify, in the context of the national VET systems, the connecting points and possible »dead ends« of learning pathways that have to be addressed by accreditation mechanisms in order to allow for a better transition to further education and training and to reduce redundancies in qualification processes. Moreover, the epistemic interest was directed to the examination of the instruments for equivalence assessment and accreditation with a view to their suitability for the description and evaluation of vocational learning outcomes. The aim was to identify instruments that could be used for the monitoring of vocational competences and learning outcomes, and that might also be applicable in different national contexts.

This research problem was addressed by national case studies on the situation concerning the accreditation of vocational learning outcomes in Austria, Finland, France, Germany and Ireland. The studies were conducted by the core research partners within the CREDIVOC project consortium on the basis of literature reviews, document analyses and expert interviews with representatives of VET institutions and national bodies involved in the recognition of prior learning. In order to allow for comparison between the different national approaches a common analytical framework for the description of instruments and procedures was adopted by the partners. These criteria describe (1) the systemic context in which vocational learning and the accreditation of vocational learning take place, (2) the regulatory framework at the national, regional and institutional levels, (3) the characteristics of the accreditation procedure (competent body, formal and/or informal learning, blanket and/or individual recognition), (4) the assessment tools or instruments, (5) the items on which the assessment methods are based, (6) the barriers to accreditation and (7) the supportive measures that are in place. With the help of these criteria the findings of the national »state of the art reports« prepared as the results of the case studies can be compared so as to identify approaches to the accreditation of vocational learning that could be applied in a transnational context and to outline a strategy for the implementation of accreditation schemes in different national and sectoral contexts.

The following sections of this report present the results of the national case studies and discuss them in a comparative perspective according to the criteria mentioned above. The chapter on Austria by *Monika Prokopp* and *Karin Luomi-Messerer* discusses the question of permeability between vocational education and training and higher education in the field of electrical engineering. An informal scheme for the recognition of vocational learning outcomes that exists at the University of Applied Sciences Technikum Wien is presented as an example of good practice. The chapter by *Marja-Leena Stenström* and *Leila Leino* deals with the general framework for the accreditation of learning outcomes in initial vocational education and training in Finland. *M'Hamed Dif*, in his chapter on France, investigates the performance of the VAE (*validation des acquis de l'expérience*, validation of acquired experience) procedure, which is the most important instrument for the individual recognition of formal, non-formal and informal learning in France. A different approach is presented in the chapter by *Wolfgang Müskens*, *Roland Tutschner* and *Wolfgang Wittig*: following an analysis of the situation concerning the permeability from VET to higher education in Germany with a

special focus on the advanced training of technicians, the chapter presents the concept of 'blanket recognition' on the basis of equivalence checks. These are carried out by means of the Module Level Indicator (MLI) tool, which allows for the comparison and level assessment of study programmes in VET and higher education. Blanket recognition means that the accreditation of learning outcomes takes place on the basis of a one-off equivalence assessment so that once the equivalence has been established, recognition can be granted to all holders of the qualification in question. The situation concerning the recognition of prior learning in vocationally related education in Ireland is the topic of the chapter by *Justin Rami* and *John Lalor*. Here the focus is on the accreditation procedures applied by the central awarding bodies FETAC and HETAC. Like the French case, these instruments are oriented towards the model of individual rather than blanket recognition. The final chapter by *Roland Tutschner* and *Wolfgang Wittig* summarises the results of the national »state of the art reports« and compares the various accreditation systems according to the common analytical framework. In the end some conclusions are drawn as to what types of accreditation procedures and instruments might be appropriate for improving the transparency of qualifications and the mobility between educational programmes in Europe.

References

- Cedefop (European Centre for the Development of Vocational Training) (2008a): *The shift to learning outcomes: Conceptual, political and practical developments in Europe*. Luxembourg: Office for Official Publications of the European Communities.
- Cedefop (European Centre for the Development of Vocational Training) (2008b): *Validation of non-formal learning in Europe: A Snapshot 2007*. Luxembourg: Office for Official Publications of the European Communities.
- Commission of the European Communities (2006): Commission staff working document: European Credit system for Vocational Education and Training (ECVET): A system for the transfer, accumulation and recognition of learning outcomes in Europe, SEC(2006) 1431, Brussels, 31.10.2006.
- Commission of the European Communities (2008): Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of Regions: An updated strategic framework for European cooperation in education and training, COM(2008) 865 final, Brussels, 16.12.2008.
- Copenhagen Declaration (2002): Declaration of the European Ministers of Vocational Education and Training, and the European Commission, convened in Copenhagen on 29 and 30 November 2002, on enhanced European cooperation in vocational education and training.
- Council of the European Union (2002): Detailed work programme on the follow-up of the objectives of education and training systems in Europe, *Official Journal of the European Communities* C 142 of 14.6.2002, 1–22.
- Council of the European Union (2008): Draft 2008 joint progress report of the Council and the Commission on the implementation of the 'Education & Training 2010' work programme »Delivering lifelong learning for knowledge, creativity and innovation«, Council document 5723/08 EDUC 29 SOC 46, Brussels, 31 January 2008.
- Recommendation of the European Parliament and of the Council of 23 April 2008 on the establishment of the European Qualifications Framework for lifelong learning, *Official Journal of the European Union* C 111 of 6.5.2008, 1–7.

2. Permeability between Vocational Education and Training and Higher Education – an example of good practice from Austria

Monika Prokopp & Karin Luomi-Messerer

Introduction

In this report, we present an example of good practice for accrediting in higher education (HE) the learning outcomes from (initial) vocational education and training (VET). To explain the wider framework of this practice, a brief description of the education and training system in Austria is included in Section 2. The example is set in the field of electrical engineering; therefore, in Section 3, we describe the relevant economic sector and target group. Section 4 outlines some general possibilities for and barriers to accreditation of prior learning in Austria.

Section 5 describes the processes for accrediting vocational learning outcomes in the electronics degree programme at the University of Applied Sciences Technikum Wien.

In Section 6, we conclude this report with a comment on how the described practices relate to concepts such as employability, efficiency and conformity with general European Union policies.

Education and training in Austria – a brief overview

Compulsory education in Austria consists of nine years of schooling and starts at the age of six years. After four years of primary school, a decision must be made between lower secondary school and secondary academic school. A fourteen-year-old has several possibilities: secondary academic school at an upper level, VET schools and colleges or a pre-vocational year. Apprenticeship follows compulsory education and starts at the age of fifteen years.

Graduates of apprenticeships and vocational schools are entitled to practice their professions based on their initial VET qualification. They can obtain higher professional qualifications in foreperson or master craftsperson courses, in add-on courses or in schools and courses for employed people.

Graduates from secondary academic schools and VET colleges have direct access to higher education programmes. In addition, graduates of VET colleges hold a higher professional qualification and have direct access to a number of regulated professions. Graduates of vocational schools or of an apprenticeship must complete the *Berufsreifeprüfung*¹ to receive unrestricted access to tertiary education in Austria or must pass the higher education (HE)

¹ This exam provides general access to higher education for skilled workers and graduates of three to four-year fulltime VET schools.

entrance examination for access to specified subjects or subject areas in universities.² The universities of applied sciences have specific admission regulations. Access is possible for persons with ‘relevant professional experiences’, which usually indicates that graduates of secondary technical and vocational schools or apprenticeships with professional experiences have access without a *Reifeprüfung*³. Generally, they must pass additional examinations (for example, in mathematics, German and English) in the first year of study.

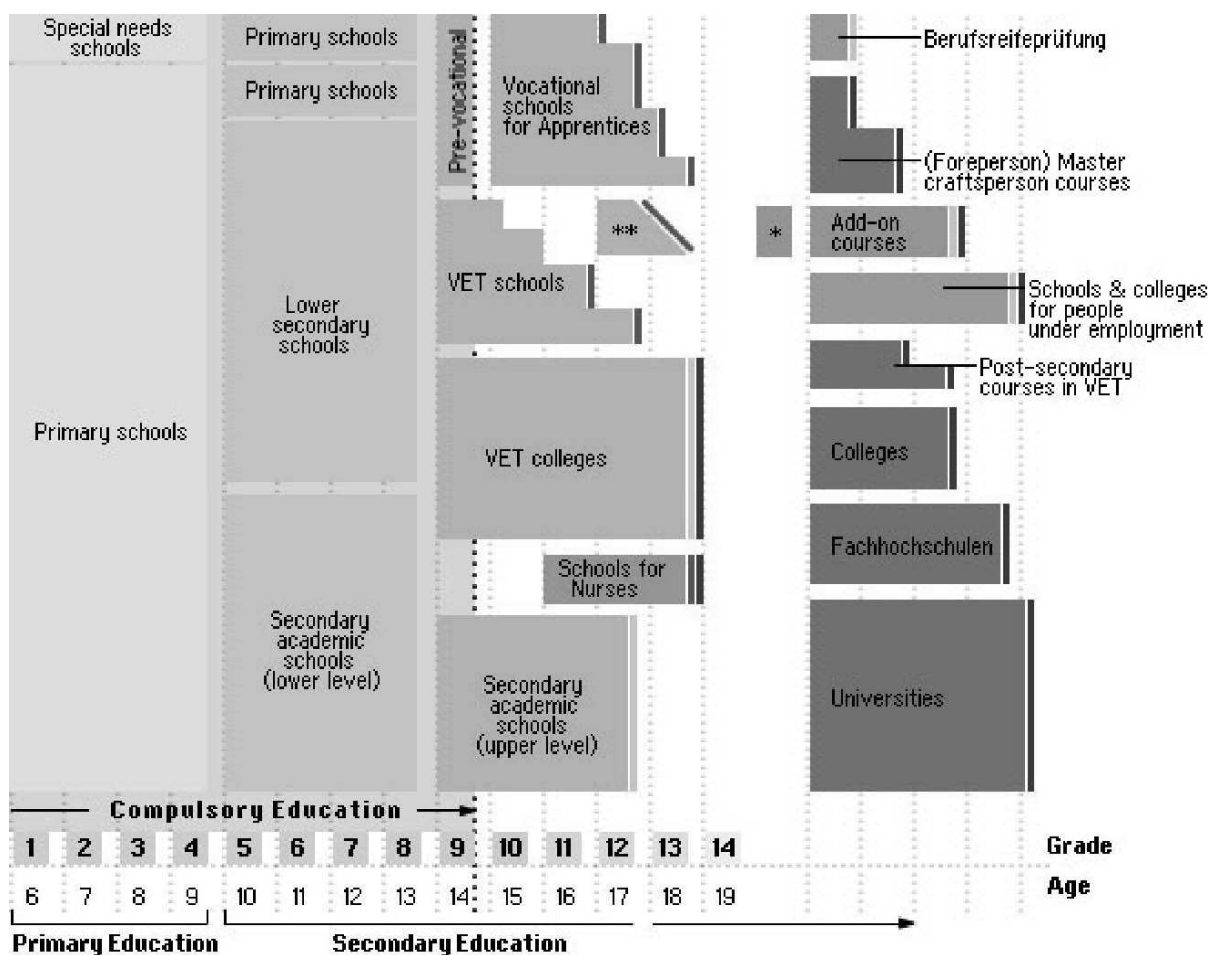


Fig 1: Education and training system in Austria (Source: Euroguidance Österreich/Nationalagentur Lebenslanges Lernen 2008)

The electrical engineering sector in Austria

This section will briefly describe the Austrian sector of electrical engineering in terms of education and training as well as labour market issues.

² The exam can only be taken for a specific course of study at a university. However, those who succeed at this exam can also gain access to universities of applied sciences with corresponding subjects (Fachhochschulrat 2008).

³ This upper secondary school leaving exam provides general access to higher education.

Education and training

The dual system has eight apprenticeships⁴ that directly refer to electrical engineering or electronics. A number of other apprenticeships have relevant content but a different specification.

School-based education in electronics and electrical engineering takes place in 21 schools throughout Austria. The educational programmes have different focuses⁵ and are offered on various levels and in various forms of organisation. A person can attend a four-year VET school or a five-year VET college, a VET college for employed persons or a post-secondary VET course (*Kolleg*).

Further education such as foreperson courses (*Werkmeisterschulen*), master craftsperson courses (*Meisterschulen*) and shorter courses for specialisation in individual subjects is offered by private institutes such as the WIFI (the training institution of the Austrian Federal Economic Chamber). The master craftsperson examination consists of five modules and is open for all persons with the minimum age of 18 years.

The tertiary level has courses of study in universities⁶ and universities of applied sciences⁷. The Vienna University of Technology offers a postgraduate course in renewable energy (Postgraduate.at 2008), and the LLL Academy at the University of Applied Sciences Technikum Wien helps companies to develop individual training courses for their employees (Lifelong learning academy Technikum, Wien 2008). University of Applied Sciences Technikum Wien was founded in 1994 as 'network partner' of the Association of the Austrian Electrical and Electronics Industries (FEEI 2008).

The key data on graduates from these forms of training and education provide an overview of the qualification structure. Relevant data for VET schools and colleges are not available at the individual branch level; therefore, they are not included in Table 1.

⁴ Electrical plant engineering (*Elektroanlagentechnik*), electrical industrial engineering (*Elektrobetriebstechnik*), electrical industrial engineering expert specialising in steering systems engineering (*Elektrobetriebstechnik mit Schwerpunkt Prozessleittechnik*), power engineering (*Elektroenergietechnik*), electrical installations engineering (*Elektroinstallationstechnik*), electrical installations engineering specialising in steering systems and bus engineering (*Elektroinstallationstechnik mit Schwerpunkt Prozessleit- und Bustechnik*), electrical machinery engineering (*Elektromaschinentechnik*), electronic engineering specialising in electronics (*Elektronik*) (cf. Europass Österreich 2008d; BMWA 2008).

⁵ Power engineering and industrial electronics (*Energietechnik und Leistungselektronik*), control engineering (*Regelungstechnik*) and information technology (*Informationstechnik*) (cf. BMUKK, Sektion Berufsbildung 2008).

⁶ Electrical engineering can be studied at two universities of technology, in Vienna and Graz.

⁷ Applied electronics (*Angewandte Elektronik*), electronics (*Elektronik*), electronics and technology management (*Elektronik & Technologiemanagement*) electronics and equipment engineering (*Elektronik und Equipment Engineering*), industrial electronics (*Industrielle Elektronik*).

	Year	Graduates
Apprenticeship (8 professions)*	2007	9832
Master craftsperson courses**	2006	300
Universities of applied sciences***	2004/2005	234*
Universities***	2004/2005	195

Sources:

*WKO (2008)

**WKO (2007)

***Graduates from five degree programmes that directly refer to electrical engineering or electronics, Statistik Austria 2006

Tab 1: Graduates in electrical engineering

Labour market

Electrical engineers can work in various areas according to their specialisations and in nearly all branches of industry and craft. There are different levels of skilled work, starting with graduates of an apprenticeship. Graduates from VET schools are skilled workers in several specialisations. Because of Directive 2005/36/EC on the recognition of professional qualifications⁸, Austrian diplomas from foreperson and master courses as well as VET colleges now correspond to the EU directive's diploma level and thus provide access to regulated professions in other EU member countries, even if access is based upon diplomas for up to four years of tertiary education (BMUKK, Sektion Berufsbildung 2008b).

In Austria, around 300 companies in the electro-engineering and electronics industry employ 57,000 persons and account for nearly 40% of research and development (R&D) disbursements in the entire Austrian industrial sector (FEEI 2008b).

Generally, throughout the sector, the demand is rising for higher-level qualifications and also in interdisciplinary subjects such as mechatronics or automation engineering (AMS 2008).

In 2007, the Association of the Austrian Electrical and Electronics Industry conducted a study on the status quo of technical education. Their results were based upon 25 interviews (of 1–2 hours) with human resources (HR) managers in relevant companies (Mueck-Puelacher/Winkelmayer 2007) and indicated that the need for highly qualified technicians can hardly be met. There is a special shortage of apprentices (because many applicants lack basic skills), skilled workers⁹ and university graduates. In some enterprises, 60–70% of newly employed university graduates come from other countries.

With regard to professional pathways, apprentices stay in their companies as skilled workers when their achievements meet the companies' expectations. Companies increasingly support their workers' further education. Some skilled workers attend degree programmes at a

⁸ Directive 2005/36/EC of the European Parliament and of the Council on the Recognition of Professional Qualifications (Official Journal of the European Union L 255 of 30/09/2005, 22).

⁹ The geographical mobility of Austrian workers is a problem; some enterprises employ workers from the former German Democratic Republic.

university of applied sciences and thus achieve higher-level qualifications and advance in their careers (Mück-Puelacher/Winkelmayer 2007).

Accreditation of prior learning: possibilities and barriers

Possibilities

Graduates of a vocational school or an apprenticeship training can complete a special VET diploma (*Berufsreifeprüfung*) to gain access to all fields of HE. They can also complete an HE entrance examination (*Studienberechtigungsprüfung*) that provides access restricted to specific subjects or subject areas at the university. Parallel to the apprenticeship, apprentices can also attend preparation courses for the special VET diploma and take the exams within a short time period. These parallel courses will be offered free of charge to all apprentices starting in autumn 2008 (BMUKK 2008).

Access to universities of applied sciences is possible for persons with ‘relevant professional experience’ even if they do not hold an upper secondary school leaving exam. The corresponding law (*Fachhochschul-Studiengesetz*) uses the phrase ‘relevant professional experience’; in practice, the phrase mostly applies to graduates of vocational schools or apprenticeships with a certain amount of professional experience.

Quotas determine how many persons with or without a Reifeprüfung gain access to universities of applied sciences. Even though this should improve the situation for persons without the exam, in some cases this can be a disadvantage: this group has relatively more applicants, but they can only be accepted according to the quotas.¹⁰

Several universities of applied sciences¹¹ offer preparation programmes for apprentices or persons in foreperson courses specifically designed to provide access to these institutions.

As mentioned previously, VET college graduates can start in relevant study programmes in their second or third semester at universities of applied sciences. At universities, they can, on an individual basis, have their certificates accredited for exemption from examinations.¹² In some cases, cooperating VET colleges and universities offer both blanket exemptions for graduates of certain VET colleges as well as individual exemptions. The extent of exemptions varies depending on the institutions.

¹⁰ This information was obtained in the interview. Accreditation guidelines for degree programmes at universities of applied sciences used to be the legal basis for the quotas, but these guidelines were changed in the course of implementing the Bologna Process. Now the quotas are only relevant for courses of study accredited before the implementation of the Bologna Process.

¹¹ E.g. FH Oberösterreich (Land Oberösterreich 2008), FH Campus Wien (FH Campus Wien 2008).

¹² Cf. HTL Klagenfurt (2008). Legal basis for this practice is the University Law (*Universitätsgesetz*) 2002, §78 (1), cf. BMWF (2002).

Barriers

Financial issues

Graduates of a vocational school or an apprenticeship training have no direct access to university studies. They must pass special external exams (special VET Diploma, HE entrance examination) (BMUKK Erwachsenenbildung 2008). Usually students attend preparatory courses for these exams. Fees must be paid for these courses, but several possibilities for financial support are available (BIBER Salzburg 2008; Studienbeihilfebehörde 2008). Courses are organised in a modular form to fit to the employed students' needs (Markowitsch et al. 2007).

Transparency and consistency

The educational system definitely lacks transparency, consistency and logic. The *Berufsreifeprüfung* (special VET diploma) is open for skilled workers, forepersons and also master craftspersons. The Master Craftsperson Examination is ISCED level 5B and graduates must pass the *Berufsreifeprüfung* at ISCED level 3A in order to obtain access to a university or university of applied sciences at ISCED level 5A.

According to the relevant law (Fachhochschul-Studiengesetz § 12 Abs 2 Z6), accreditation of prior learning should be possible at universities of applied sciences (Fachhochschulrat 2008b). However, these legal regulations are rather general, so different programmes accredit different amounts of subjects or semesters. Graduates from vocational colleges can, for example, start in the second semester in one university of applied sciences but another university of applied sciences starts them in the third semester. Accreditation is also handled differently in various courses of study. Even at the same institution, some courses of study have precise definitions of what can be accredited; in others, accreditations are based on individual agreements (FH Joanneum 2008).

Information

Information on access and accreditation is insufficient. For example, there is no overview on what subjects or how many semesters are accredited for graduates of certain schools. Information can only be obtained from the individual degree programmes, and accreditation is often handled for individual cases.

Accreditation of VET learning outcomes at the University of Applied Sciences Technikum Wien

In this section, we describe the accreditation practices at University of Applied Sciences Technikum Wien according to the specifications agreed upon by the project partners. Qualitative data were obtained in two interviews with the director of University of Applied Sciences Technikum Wien who also was director of the electronics degree programme for several years.¹³ We prefer using the term 'practices' instead of 'instruments' or 'tools' for

¹³ We would like to thank Fritz Schmöllebeck, University of Applied Sciences Technikum Wien, for his cooperation in this project.

describing the accreditation procedures at the University of Applied Sciences Technikum Wien because they are about handling of routines and individual processes. There are no particular tools or instruments used in this context.¹⁴ We provide quite detailed information on developments and procedures of accreditation practices in Section 5.2 in order to share a comprehensive picture. Thus, some facts are mentioned twice, once in Section 5.1 according to the structure given for the report and once in the wider context of the case study description in Section 5.2.

Description of general aspects

Types of accreditation of vocational learning outcomes

There are several types of accreditation in the case described in this report:

- access to courses of study without a *Reifeprüfung*, but with relevant professional experiences;
- individual exemption of single courses or semesters based on certificates from other degree programmes or on non-formal and informal learning;
- generalised (blanket) exemption of semesters for graduates of certain VET colleges.

Purposes of accreditation

The main purposes of accreditation in this context is to avoid forcing people to study the same contents twice and thus to value their relevant prior learning. Accreditations, especially allowing access to HE without a *Reifeprüfung*, can enhance permeability between VET and HE.

As described previously, access to a degree programme at the HE level is connected with a minimum prior certification. Thus, these certificates are automatically necessary for admission. A comprehensive application process with a test and an interview determine access to degree programmes at universities of applied sciences, but there are no overall rules for handling accreditations in form of access or exemptions. The final certification does not have different procedures from those for ‘regular’ certification processes because all students, before ending the degree programme, must acquire a certain minimum level of knowledge, skills and competences.

¹⁴ University of Applied Sciences Technikum Wien is one of the cooperation partners in the LLL project VQTS II (2007-2009). One of the core aims of the project is the development of a competence matrix that displays competences structurally in a table according to core work tasks in a specific occupational field and the progress of competence development (cf. Luomi-Messerer & Markowitsch 2006). In the future, the VQTS competence matrix could be used as an instrument for making visible the overlapping areas of the competence profiles of VET and HE qualifications and thus facilitating progression from VET to HE (cf. Luomi-Messerer 2008a,b). More information about the project VQTS II is available at the website: www.VocationalQualification.net.

History and ‘relevance’

As a fundamental principle, all Austrian universities of applied sciences allow access to courses of study without a *Reifeprüfung*. Exemptions for graduates of specific VET colleges are mostly granted by universities of applied sciences or universities with a focus on technology. In 1994, the University of Applied Sciences Technikum Wien first granted such exemptions in the electronics degree programme. After 1997, this practice was expanded to particularly include target-group-specific degree programmes for employed students. No general overview identifies the courses of study that grant exemptions for graduates of particular VET colleges, information must be obtained individually from the relevant institutions. Generally, these institutions cooperate on a regional level.

Level: national, regional, institutional, individual

The law regulating access to and accreditation of prior learning in universities of applied sciences (*Fachhochschul-Studiengesetz*, *FHStG*) is in force on a national level. Cooperations between VET colleges and University of Applied Sciences Technikum Wien are primarily on a regional level because most VET colleges involved are based in Vienna. However, organisational cooperation is on an institutional level because the accreditation discussions were held separately with VET colleges. Cooperation started with one VET college and gradually other institutions showed interest in that kind of cooperation.

Regulation

Access to universities of applied sciences is regulated according to §4 *Fachhochschul-Studiengesetz* (*Fachhochschul Studies Act*). The § 12 (2) of the *Fachhochschul Studies Act* describes the requirements for accrediting courses of study and exemptions permitted from particular classes because of knowledge, skills and competences acquired in VET. In both cases, there are no specifications on standards or principles of the relevant processes.

Availability of information

There are several ways to obtain information on possibilities for accreditation at the electronics degree programme at University of Applied Sciences Technikum Wien. An information sheet lists the degree programmes at University of Applied Sciences Technikum Wien that can acknowledge the prior learning of VET college graduates and offer exemption for certain subjects or whole semesters. Basic information can also be found at the homepage¹⁵, further information can be obtained at the degree programme’s administration and on open days. It is hard to estimate the amount and effect of word-of-mouth recommendation, but probably this also plays an important role: teachers in VET colleges tell their students about the experiences that graduates from that VET college had at University of Applied Sciences Technikum Wien, or students hear about the possibilities from older colleagues and peers.

¹⁵ On the homepage, candidates can also find the curriculum and a brief description of learning results for all subjects. cf. Technikum Wien (2008)

People involved, target groups and users

Access to courses of study without a Reifeprüfung is relevant for graduates of a VET school or an apprenticeship; blanket exemptions are relevant for graduates of VET colleges. Another target group is persons with other certificates or competences acquired in non-formal and informal learning; they can obtain individual exemptions.

Personnel from the respective institutions are involved in accreditation processes. At the University of Applied Sciences Technikum Wien, information on the accreditation is provided by the ‘dual coach’ and administrators of the degree programme. The degree programme’s director and lecturers are responsible for accreditation and documentation processes. Discussions of the level of exemption for graduates of a particular VET college also include the director and teachers from that institution.

Description of the curriculum

Here we describe the curricula of the Bachelor degree programmes in electronics and electronics/economics (duration: three years) at University of Applied Sciences Technikum Wien. These are classified as ISCED 5A (Statistik Austria 2008). Graduates of several VET colleges can receive exemptions at University of Applied Sciences Technikum Wien, one example of a relevant curriculum can be found in the annex.

The electronics course of study includes electronics and information technology, practical work, electronic project work and hardware and software design as well as business and management education, foreign languages and personal development. Students deal, in depth, with information and communications technology, microelectronics, embedded systems, audio and video technology, innovative and practical project work (working on industry and research projects) as well as ‘problem-based’ learning. Graduates are qualified for jobs in the electronics industry and trades. Innovative information-technology and telecommunications technology are emphasised. Professions include, according to the subject studied, product development and services or the operation, design, service and marketing of electronics and communication systems (FH Technikum Wien 2008b).

Students of ‘electronics/economics’ deal with industrial economics, quality management, project management, business management, personal development, English, mathematics, physics, information technology, electronics design, measurement, process measurement and control technology, automation control, telecommunications, technology management, embedded systems and industrial electronics. Graduates work in leading positions in electro-technology and the electronics industry, as well as in other areas of information and communication technology (FH Technikum Wien 2008c).

Roles/responsibilities

The ‘dual coach’ and administrators of the degree programme are responsible for providing information on access to the degree programme and on the possibility to accredit prior learning. Lecturers and the degree programme director are responsible for accreditation and documentation processes. For new cooperations between VET colleges and University of

Applied Sciences Technikum Wien, the lecturers, teachers and directors on both sides are responsible for discussing accreditation possibilities and documenting their discussions.

Procedures of accreditation

In this section, we describe accreditation practices related to the electronics degree programme at the University of Applied Sciences Technikum Wien. The description is based on two interviews with the institution's director, DI Dr. Fritz Schmöllebeck, who also managed the electronics degree programme for several years.

As mentioned previously, there are three types of accreditation:

- access to courses of study without a *Reifeprüfung*, but with relevant professional experiences;
- individual exemption based on certificates from other courses of study or on non-formal and informal learning;
- generalised (blanket) exemption for graduates of certain VET colleges.

For access without *Reifeprüfung* to degree programmes at University of Applied Sciences Technikum Wien, certain certificates combined with several years of relevant professional experience are assumed to equal the *Reifeprüfung* certification of the ability to study a certain subject. A degree programme's director must decide which professional certificates and experiences are relevant for the degree programme.

Individual exemptions are based on assessing learning outcomes either from formal documents from other institutions or in an informal discussion with the relevant lecturer from the university of applied sciences.

Graduates of certain VET colleges can be exempted from the first year of the degree programme after an equivalence check of curricula is done by lecturers, teachers and directors from the VET colleges and the university of applied sciences.

The following paragraphs describe in more detail the procedures followed at the University of Applied Sciences Technikum Wien to facilitate access without *Reifeprüfung* and to grant general exemptions for graduates of certain VET colleges.

Access without *Reifeprüfung*

For access without *Reifeprüfung* to universities of applied sciences, students use the regular application procedure: a written test and an interview. Before studies start in autumn, these prospective students attend a summer school to grow accustomed to learning again in a school-based system and to refresh their knowledge of mathematics, physics and other natural sciences.

Even though the law is not precise about the kind of relevant professional experiences that grants those without *Reifeprüfung* access to universities of applied sciences, in general, the policy applies to skilled persons who have finished an apprenticeship or a VET school and have several years of professional experience. Usually the degree programme director knows the company where these applicants were employed, and he or she has an idea of what kind

of knowledge, skills and competences might have been acquired there. A ‘dual coach’ offers counselling to graduates from the dual system. Interested graduates of an apprenticeship can go to the ‘dual coach’ to receive counselling and information on studying, summer schools or also recommendations for preparation courses for the HE entrance examination in other institutions. For some time, the ‘dual coach’ has been promoted because the University of Applied Sciences Technikum Wien wanted to attract more persons from the dual system. As a result, this possibility of access to universities of applied sciences has become widely known.

Exemption/accreditation (generalised)

In some cases, graduates of relevant VET colleges can start their studies in the second semester or even the second year of the *Fachhochschul* degree programme, when a place becomes available, usually because other students have dropped out. The director of the course of study cooperates with lecturers from the Fachhochschule and teachers from VET colleges to decide on these exemptions. They check the curriculum of the respective VET college and discuss equivalence with the teachers, mostly those who are responsible for relevant departments. In some cases, curricula of VET colleges were slightly adapted to fit the needs of the degree programme at the university of applied sciences. In the beginning, they worked with a particular VET college that had cooperated in other ways. Later, because other VET colleges in Vienna were also interested in co-operation for accreditation, the Stadtschulrat Wien, the city’s overall school authority, contacted the director of the course of study in order to establish these co-operations.¹⁶

Discussions establishing new cooperations are not so complex now as they were initially because curricula are the same as in VET colleges that are already cooperation partners. In addition, experience indicates that exemption practices do work and that students have been successful. With that experience, the universities of applied sciences can more easily trust in students’ abilities to reflect on their knowledge or knowledge gaps and then organise their own learning processes.

The universities of applied sciences and the VET colleges started cooperating because the universities of applied sciences wanted to attract VET college graduates as students. The schools, meanwhile, were more attractive for students because they offered exemption from one or two semesters of study. When exemptions were first provided, several teachers from VET colleges were also lecturers at the universities of applied sciences. Thus, from their own experiences, they could estimate equivalences quite well. Since then, the system of exemptions has been built upon experiences of graduates from specific schools, thus the procedures are somewhat standardised.

The various universities of applied sciences exchange information on and experiences with accreditations. Representatives of the institutions meet and regularly discuss the content and

¹⁶ Such cooperations always depend on the individual institutions and actors and their experiences with the relevant practices. In some cases, possible cooperations are prevented because the actors cannot agree on the extent or contents of accreditations.

extent of accreditations, probably because only very vague overall regulations exist. Some universities of applied sciences have a reputation of quite generously granting accreditations. However, there are regional differences in the number of relevant VET colleges i.e., when there are more relevant VET colleges, there are more possibilities to cooperate on accreditation. Accreditations also seem to depend on the number of applicants for courses of study.

The application process is the same for all persons who want to study at universities of applied sciences. If there is a written application, then all persons who meet the access requirements are invited to sit for a written test, which leads to a ranking of the applicants. Finally, in an interview, they must explain their motives for choosing this subject. With this application procedure, the student's knowledge, skills and competences are identified and also their ability to study.

Over the years, the application procedures have changed. In the beginning, along with the ranking tests, additional written tests elaborated by test psychologists checked applicants' basic knowledge in relevant subjects. However, as these tests results did not correspond with students' actual achievements in their first semesters, the tests were eliminated.¹⁷

Accreditation is practiced differently for graduates from VET colleges or persons who seek individual accreditations. Graduates from certain VET colleges have a clear 'path' because of routines for exemptions based on the experiences with the students from the particular institutions. At the University of Applied Sciences Technikum Wien, all degree programmes list the particular VET colleges and VET college departments that have been appraised when granting exemptions.

Exemptions from certain courses are individualised: the student considers the subjects and on which basis he or she could get accreditations; for example, by comparing the curriculum with his/her own knowledge, skills and competences. Then, the student discusses the possible accreditation with the relevant lecturer who also, in this case, serves as a counsellor. In particular, when accreditation should be granted for non-formal or informal learning, the lecturer and the degree programme director try to gain an overall view of the student's knowledge, skills and competences. They consider more than the most recent job or education – this would not convey a comprehensive picture of the student's knowledge, skills and competences – but they also consider if the student has other relevant experiences; for example, from other training or schools, professional practice from internships or even hobbies. Thus, the content or the exemption is clarified with the lecturer while the degree programme director has to formally confirm it. This focus on the individual educational pathway corresponds more to actual labour practices than testing in school-based systems.

Comprehensive counselling and trust in the students' abilities are central elements in this case. Students are assumed to know what they have learned, what their competences are and which educational path they choose to pursue. Essential elements are the students' active

¹⁷ It could be argued that the test was simply 'not good enough', but it could also be argued that competences necessary for successful studying cannot be assessed in a written test.

participation in the process and their reflection on their own abilities. Students know that the accreditation procedure cannot guarantee a total congruence of the knowledge, skills and competences acquired in other contexts and those acquired at the university of applied science. However, since the ability to study is evaluated in the application procedure, they are able to make use of offers to fill possible knowledge gaps.¹⁸

When students realise that they lack certain knowledge, they usually organise their own learning by looking up what they do not know in books or lecture notes, in their own records from school, or they ask colleagues. Mixed workgroups in the laboratory or other courses ease the integration of students who start in the third semester. This simple measure provides a framework for information exchange and also functions very well for social integration. When students do not find relevant literature themselves or with the help of their colleagues, lecturers also help. They provide such information or other forms of help; for example, access to the laboratory beyond regular opening hours, or individual counselling.

In those mixed groups, it is sometimes possible to observe a ‘clash of cultures’ between the trained technicians from VET colleges with their pragmatic approach and the ‘traditional’ students from academic secondary school who do not have as much experience in practical subjects and adopt a more scientific approach. Here lecturers’ abilities are important because consideration of those different ‘cultures’ can solve potential conflicts and enable students to learn with and from each other. Thus, lecturers must facilitate students’ reflection on their own learning as well as on processes in the workgroup.

In the beginning, special ‘bridge courses’ assisted those students whose prior knowledge from VET college allowed them to start studies with the third ‘regular’ semester of the degree programme. These courses focused on developing soft skills and were extra work for those students with exemptions. Now, these measures are no longer deemed necessary because experiences with many students from various schools have shown that graduates of certain schools or departments can study and get along well even when they start at the second-year level. Thus, individual counselling resulted in a routine handling of exemptions.

Courses of study differ in the number of students who receive credit for prior learning. The University of Applied Sciences Technikum Wien has had the most accreditations in electronic-related courses of study. Reasons for this might include the large number of cooperating schools, the sharing of information on accreditation at the schools and the possibility to match knowledge, skills and competences.

In the fulltime courses of study of electronics and electronics/economics, approximately a quarter to a third of students start in the second year; in part-time programs for employed students, the proportion is even higher. Remarkably, many students in the part-time track have graduated from VET colleges for employed persons and are accustomed to studying while working. The percentage of students without a *Reifeprüfung* is also higher in the part-

¹⁸ The same is true for ‘traditional’ students who also do not start at the same level because they come from different schools.

time track, 10–15 students out of 60 in a year. Thus, permeability is higher in the part-time track because the courses are adapted to employed students' needs. In general, students in current part-time degree programmes are younger than their precursors.

Documentation and quality assurance

Documentation

Generalised exemptions for graduates of certain VET colleges follow a formal procedure. Individual accreditations are documented in the regular quality management process. Relevant lecturers accredit prior knowledge based on certificates from other institutions or conversations with the candidate. They record the results on a standard form used for the entire institution and for all types of accreditations. The document primarily identifies which competences are basic for the relevant course and if the student could show those competences. These documentations are certified by the director of the degree programme and filed at the degree programme administration so that accreditations are traceable.

Quality Assurance

Continuous internal quality assurance is done through exchanging experiences of lecturers involved in accreditation processes and the director of the courses of study.

If necessary, quality assurance is also provided by defining certain restrictions for blanket accreditations. As an example, part of the first-year curriculum at the electronics degree programme includes a course of study with certain 'safety certificates' necessary for work on industrial robots. In this case, VET college graduates cannot receive an exemption for the entire year because they need this certificate in the second year. Thus, the so-called blanket exemptions are checked for such indispensable qualifications or certificates.

Quality assurance takes place automatically because students must prove their knowledge, skills and competences throughout the degree programme. Therefore, possible knowledge gaps can be identified and filled during two or three years of study. When students fail an examination, they have two more chances to take it. No differences have been observed in failure rates between 'traditional' students and those who had prior learning accredited. Final certification recognises knowledge, skills and competences at a certain level; however, of course, students can have individual strengths, according to their prior education or special interests.¹⁹

Labour market demand for graduates of the degree programmes could be regarded as an external means of quality assurance. By the end of their studies, approximately 90% of students in the fulltime degree programmes have been offered a job. Later, many graduates

¹⁹ Several firms have noted that graduates who were at a VET college before they studied at University of Applied Sciences Technikum Wien are relatively fast and pragmatic in problem solving, but when a wider perspective is needed, they need a bit more input from the firm. Graduates of University of Applied Sciences Technikum Wien who were at an academic secondary school are said to be not so pragmatic but can work in the scientific branch more easily.

work in research institutions such as Arsenal Research or continue in a master's programme at the Technical University of Vienna. In this respect, no differences have been observed between 'traditional' students and students with exemptions.

For re-accreditation of degree programmes, surveys about labour market performance of graduates must be presented to the Fachhochschulrat (FH Council). In a study from 2003, 64 respondents who had graduated six years earlier were very positive and said that they would again choose their degree programme.²⁰

Description of further aspects

Formal, non-formal and informal learning

Informal learning experiences are seen as difficult to compare, thus nearly all accreditation is based on formal learning or certificates. Though the law could be interpreted as allowing for accreditation of informal learning, no one has yet gained entrance to a university of applied sciences only because of competences acquired informally in a professional context. Such an accreditation would probably require extensive examinations. Again, counselling is the central issue; for example, explaining access requirements and the content of the degree programme, and trusting in the students' abilities. Deciding whether an applicant could acquire the required competences and then succeed in the degree programme cannot be fully covered by specific criteria but is an implicit estimate by an expert. However, one should not raise unrealistic expectations about possible accreditation of non-formal and informal learning.

Informal learning in the broad sense can be relevant for access and accreditation procedures. For example, a person's abilities from formal education may not correspond to the curriculum at the university of applied sciences as much as those abilities of persons from other educational pathways. In such cases, the applicant's personal interests and experiences are considered.

Informal learning is relevant for access without *Reifeprüfung* to universities of applied sciences. However, even this case requires preparation courses and a formal certificate at a level below Reifeprüfung.

Modules/units

Degree programmes at universities of applied sciences must be structured in modules according to directives of the FH Council. Curricula in VET colleges are not modularised.²¹

²⁰ Humpl et al. (2003). This survey did not distinguish between 'traditional' students and students who had prior accredited learning.

²¹ In 2007, a study examined possible ways to restructure vocational colleges for employed persons. Because of a decline in engineering student enrolment, the study focused on colleges of engineering. 'These schools' strengths and weaknesses were investigated through questionnaires for students and headmasters and special meetings of a workgroup with headmasters, researchers and the social partners. The study recommended restructuring VET colleges for employed persons as a centre for initial and further vocational education and training. The restructured VET colleges would have a

However, a module's structure and (potential) content can be understood in different ways. Even if all VET colleges and degree programmes at universities of applied sciences were structured in modules, it should not be assumed that, for example, modules from the fifth year of a VET college could be comprehensively matched to those in the first year of a bachelor's degree programme. In the latter, basic contents could be addressed that have also been taught in the first year of a VET college, but more compactly and from an academic viewpoint.

Credit points

European credit transfer system (ECTS) points are used for accreditations in an international context; there is also no exact matching of credit points. One must trust that the credits refer to equivalent, not identical, learning outcomes. Also, one must expect that if students later need particular learning outcomes, they would be able to make up for content they might have missed. A European Credit Transfer System for Vocational Education and Training (ECVET) is not yet implemented in Austria.

European Qualifications Framework (EQF)/National Qualifications Framework (NQF)

In Austria, the levels in the national qualifications systems will be linked to the EQF levels via an NQF whose development started after the EQF consultation process. In 2007, an NQF consultation document was prepared which included a proposal for the NQF design. The consultation process occurred between January and June 2008. Since the NQF is not yet ready, there are also no experiences of its actual impact on permeability between VET and HE.

Description of learning outcomes

Degree programmes at universities of applied sciences must define, for their graduates, qualification profiles that describe learning outcomes. In 2007, school-based VET started to deal with learning outcomes that relate to the newly created educational standards. They are now being tested in a pilot phase; implementation on a large scale will follow. However, for the University of Applied Sciences Technikum Wien, describing qualifications or VET programmes through learning outcomes is not relevant for the accreditation process; the responsible actors trust in their experiences with graduates from certain schools and in the individualised application and counselling processes.

Experiences and additional comments

Accreditation of prior learning is regarded as an important practice for enhancing permeability. In the interviews, different basic attitudes were noted towards people who want

modular structure, would provide individual access and would cooperate with institutions of adult education as well as tertiary education (cf. Markowitsch; Benda-Kahri; Prokopp et al. 2007).

to learn: support or selection. The University of Applied Sciences Technikum Wien clearly chose support. The test in the application procedure provides minimal standards for access. If necessary, people who pass this test receive individual counselling, and since they demonstrated their ability to study throughout their prior education and training and relevant professional experience, they are trusted to be able to reflect on and organise their learning, fill possible knowledge gaps and reach the goals of the course of study.

Some directors of VET colleges would especially prefer a legal right for their graduates to receive an exemption at University of Applied Sciences Technikum Wien and start in the degree programme's second year. The director of the University of Applied Sciences Technikum Wien does not deem such legal regulations necessary or helpful and stresses the importance of case-by-case evaluation. Students should, within the range of possibilities, be able to choose if they want to start their studies in the second year. However, they must be aware that this is a demanding challenge. In any case, guaranteeing candidates that they can start in the second year would not be possible within the given framework. Starting in the second year is only possible when places have become vacant due to dropouts, so there can be no fixed number of course places. Furthermore, the number of candidates for exemptions also varies from year to year.

Granting individual exemptions from certain courses only for persons who start in the first year might be possible with the adoption of a learning outcomes approach in VET colleges.

Experience has shown the success of accreditations in the degree programmes related to electronics. Nevertheless, observations indicate that VET college graduates in other study fields, such as IT, show less acceptance or interest in exemptions of a whole year. Reasons for this difference have not been thoroughly analysed so far. However, perhaps these candidates do not 'recognise' their own knowledge, skills and competences in the curricula and in the course descriptions. Also, the candidates may not know anyone who sought exemptions. As mentioned before, word of mouth seems to play an important role in the acceptance of and interest in exemptions in electronics. One could advertise this possibility of access, but this does not really make sense within the given framework because advertising would have to be based on a guarantee that the institution cannot give.

Conclusions

In the previous sections, we described an example of good practice for permeability between VET and higher education. The last section deals with a brief analysis of the example with respect to several criteria (printed in bold letters) defined by the project partners.

The case cannot be easily evaluated in terms of non-discrimination and inclusiveness. We could argue that there is 'discrimination' because not every graduate from a relevant VET college has the possibility to start the electronics degree programmes in the second year. However, this kind of 'discrimination' or better selection is part of the idea of universities of applied sciences where only a certain number of candidates are accepted every year according to their achievements in a ranking test. Discrimination is also the wrong term for the fact that not all candidates who could get an exemption because of their prior learning can get a

place in the second year. However, we would like to stress that University of Applied Sciences Technikum Wien has found an innovative way to facilitate access to degree programmes and to promote transition from VET to HE.

Inclusiveness is especially relevant for persons who gain access to University of Applied Sciences Technikum Wien based on their professional training and experience but without a *Reifeprüfung*. The Austrian educational system is very selective: Schools segregate children already at the age of ten years, and studies show that the socioeconomic factors that play a major role in determining school careers correlate with the age when children are segregated at school. Schlögl & Lachmayr (2004) describe how intellectual capacities are just one among several factors that influence a child's educational pathway. The children's socioeconomic background plays an important role; relevant factors include parents' income, status, educational achievements, migration background, family size and region (city or country). Children from a weak socioeconomic background have far more difficulties in achieving a *Reifeprüfung* that provides access to HE. Opening access for persons without a *Reifeprüfung* can be regarded as a means of inclusion.

All these types of accreditation facilitate lifelong learning and encourage learning in HE. The easily available and understood information on accreditation assures transparency. Our example of good practice describes how institutions foster permeability between VET and HE and thus conform with European policies that has permeability as a pillar of the lifelong learning strategy. Tools or instruments such as modules, credits or defined learning outcomes play a minor role in the accreditation practices described. Changes can be expected with the creation and implementation of the NQF and the ECVET system.

Trust is a fundamental element in the accreditation practices at University of Applied Sciences Technikum Wien. Students who have completed a certain educational and/or professional path and shown through a test that they fulfil minimal requirements are trusted to be able to reflect on their competences and on their learning processes and thus be able to fill knowledge gaps in a mostly self-organised way.

The criteria of objectivity, reliability and validity are difficult to measure and evaluate in our case because we described practices and not instruments or tools. Especially in the strongly individualised process of individual exemption, these criteria might be put into question. However, the previous section on quality assurance demonstrated the possibility of judging the quality of the processes by looking at the results. Based on the good acceptance of graduates on the labour market, one can assume that the accreditation processes described in this report can actually be considered as a good means to enhance permeability between VET and HE. An open question remains as to whether applicants who did not get an exemption because of that process could also have succeeded in the shortened degree programme and on the labour market. In general, one can assume that the practices described in this report foster employability because graduates of University of Applied Sciences Technikum Wien have very good chances in the labour market. One can also assume that 'traditional' students and those with an exemption do not have differences in employability.

Those seeking exemptions receive a certain degree of flexibility because the University of Applied Sciences Technikum Wien does not expect a total congruence of the knowledge, skills and competences acquired in other contexts and those acquired at their study programmes. Furthermore, VET colleges practiced flexibility because in some cases schools slightly changed their curricula to adapt to the curriculum of University of Applied Sciences Technikum Wien.

The efficiency of the practices can be seen at several levels. For the institution, accreditation causes additional administrative effort. However, when places become vacant due to dropouts, the vacancies can be filled with persons that will probably succeed because they have acquired relevant knowledge, skills and competences in prior learning activities. On an individual level, VET college graduates can benefit because they need not learn the same basics twice. Education and training in Austrian VET colleges takes five years until students receive the Reifeprüfung. In academic secondary schools, education lasts only four years until the Reifeprüfung. VET college graduates can, through exemption, ‘make up’ for the additional year of their school compared to graduates of academic secondary schools. On the system level the accreditation processes foster permeability in the educational system in Austria.

The example of good practice for permeability between VET and HE that we have described shows how permeability can be fostered at an institutional level within the existing organisational framework. The model is based on trust in the students’ competences and co-operations on an institutional level. It remains to be answered which aspects of this model could be considered when designing a large-scale implementation of measures in permeability.

References

- AMS (2008): AMS-Qualifikations-Barometer. Trends im Berufsbereich Elektrotechnik, Elektronik und Telekommunikation. Online: <http://bis.ams.or.at/qualibarometer/berufsbereich.php?id=68> (14.10.2008)
- BIBER Salzburg (2008): Finanzielle Förderung für Weiterbildung. Online: <http://www.biber.salzburg.at/foerderung.htm> (14.10.2008)
- BMUKK (2008): Gemeinsame Projekte des Bildungsministeriums und der Sozialpartner für die bestmögliche Ausbildung unserer Jugend. Online: <http://www.bmukk.gv.at/ministerium/vp/pm/20080122a.xml> (14.10.2008)
- BMUKK Erwachsenenbildung (2008): Zweiter Bildungsweg. Online: http://www.erwachsenenbildung.at/bildungsinformation/bildungsangebote/zweiter_bildungsweg/zweiter_bildungsweg.php (14.10.2008)
- BMUKK, Sektion Berufsbildung (2008): Höhere Technische Lehranstalt. Online: http://www.htl.at/de/home/fachrichtungsportale/elektrotechnik/standorte_bildungsangebote/htl.html (14.10.2008)
- BMUKK, Sektion Berufsbildung (2008b): Anerkennung facheinschlägiger Kenntnisse. Online: http://www.htl.at/de/home/unterricht_qualifikation/anerkennung.html (14.10.2008)
- BMWA (2008): Lehrberufe von A-Z. Online: http://www.bmwa.gv.at/BMWA/Service/Lehrlingsservice/lehrberufe_in_oesterreich/default.htm?mChar=69 (14.10.2008)

- BMWF (2002): Universitätsgesetz 2002. Online:
http://www.bmwf.gv.at/uploads/media/0oehs_ug02.pdf (14.10.2008)
- BMWF (2007): Fachhochschul-Studiengesetz – FHStG. Online:
<http://www.bmwf.gv.at/wissenschaft/national/gesetze/organisationsrecht/fhstg/> (14.10.2008)
- Euroguidance Österreich/Nationalagentur Lebenslanges Lernen (2008): Graphische Darstellung des Bildungssystems Österreichs. Online: <http://www.bildungssystem.at/> (14.10.2008)
- Europass Österreich (2008): Reife- und Diplomprüfungszeugnis der Höheren Lehranstalt für Elektronik - Ausbildungsschwerpunkt Telekommunikation. Online:
http://zeugnisinfo.punkt.at/file_upload/2_tmpphpgmlgz3.pdf (14.10.2008)
- Europass Österreich (2008b): Reife- und Diplomprüfungszeugnis der Höheren Lehranstalt für Elektronik - Ausbildungsschwerpunkt Technische Informatik. Online:
http://zeugnisinfo.punkt.at/file_upload/2_tmpphp9Qt3QE.pdf (14.10.2008)
- Europass Österreich (2008c): Reife- und Diplomprüfungszeugnis der Höheren Lehranstalt für Elektronik - Ausbildungsschwerpunkt Biomedizinische Technik. Online:
http://zeugnisinfo.punkt.at/file_upload/2_tmpphpac6uJn.pdf (14.10.2008)
- Europass Österreich (2008d): Europass Zeugniserläuterung – Suche. Online: <http://www.europass-info.at/zeugnisinfosuche/?id=2&fid=9&L=E> (14.10.2008)
- Fachhochschulrat (2008): Zugangsvoraussetzungen. Online:
http://www.fhr.ac.at/fhr_inhalt/03_studium/zugangsvoraussetzungen.htm#studienbp (14.10.2008)
- Fachhochschulrat (2008b): Anrechnung nachgewiesener Kenntnisse. Online:
http://www.fhr.ac.at/fhr_inhalt/03_studium/anrechnung.htm (14.10.2008)
- FEEI (2008): Fachhochschule Technikum Wien. Online:
http://www.feei.at/feei_netzwerk/fh_technikum_wien/?full=203 (14.10.2008)
- FEEI (2008b): Der FEEI - die Interessenvertretung der österreichischen Elektro- und Elektronikindustrie. Online:
http://www.feei.at/fachverband_der_elektro__und_elektronikindustrie/ (14.10.2008)
- FH Campus Wien (2008): Angewandte Elektronik – Bewerbung. Online: http://www.fh-campuswien.ac.at/studium/technik_und_management/bachelor/angewandte_elektronik/bewerbung/ (14.10.2008)
- FH Joanneum (2008): Quereinstieg ins Studium. Online: http://www.fh-joanneum.at/aw/home/Info/News_Events/News/~beba/ne_quereinstieg/?lan=de (14.10.2008)
- Humpl, Stefan et al. (2003): Bedarfs-, Akzeptanz- und Kohärenzanalyse für die Verlängerung des FH-Studiengangs Elektronik in Wien. 3s. Unpublished document.
- HTL Klagenfurt (2008): Anrechnung Informationstechnikstudium – Universität Klagenfurt. Online:
http://www.htl1-klagenfurt.at/htl/index.php?option=com_content&task=view&id=98&Itemid=91 (14.10.2008).
- Land Oberösterreich (2008): OÖ bundesweit Vorreiter mit neuem Ausbildungsmodell: Von der Lehre über die Werkmeisterschule zum Fachhochschul-Studium. Online:
http://www.ooe.gv.at/cps/rde/xbcr/SID-3DCFCFC3-98901839/ooe/PK_Sigl_Fachhochschule_22.5.2007_Internet.pdf (14.10.2008)
- LifeLongLearning Academy Technikum Wien (2008): Maßgeschneiderte Seminare. Online:
http://www.lllacademy.at/weiterbildung/massgeschneiderte_seminare/ (14.10.2008)
- Luomi-Messerer, Karin; Markowitsch, Jörg (Eds., 2006): VQTS model. A proposal for a structured description of work-related competences and their acquisition. Vienna: 3s research laboratory.

- Luomi-Messerer, Karin (2008a): Possibilities for enhancing permeability from VET to HE by using the VQTS model. Presentation at the ECER 2008, Göteborg 10-12 September 2008 (Symposium 'Innovative Instruments for the Accreditation of Vocational Learning'). Online: http://www.vet-research.net/downloads/ECER08_Vienna.pdf (4.10.2008)
- Luomi-Messerer, Karin (2008b): From Vocational Education and Training to Higher Education: Possibilities for enhancing permeability by using the VQTS model. In: Bernd Baumgartl, Michele Mariani (ed.s) Vol 7c: From Here to There: Mileposts for Higher Education Institutions. Series navreme|publications No. 7c, Ankara/Modena, forthcoming.
- Markowitsch, Jörg; Benda-Khari, Silvia; Prokopp, Monika et al. (2007): Neuausrichtung der berufsbildenden Schulen für Berufstätige. Eine Studie im Auftrag des bm:ukk. Krems. To be published in 2008
- Mück-Puelacher, Kathrin; Winkelmayr, Peter (2007): Studie des Fachverbandes der Elektro- und Elektronikindustrie. Technisch ausgebildete Mitarbeiter in der Elektro- und Elektronikindustrie. Status quo-Erhebung, Problemfelder, Forderungen der Unternehmen. Zusammenfassung. Unpublished working paper
- Postgraduate.at (2008): Weiterbildung Österreich - Fernstudium Elektro, Energie- und Informationstechnik. Online: http://www.postgraduate.at/MBA/Weiterbildung.htm?Region=Oesterreich&Fachbereich=Technik.Elektro%2C_Energie-_und_Informationstechnik&order=&orderType= (14.10.2008)
- Schlögl, Peter; Lachmayr, Norbert (2004): Motive und Hintergründe von Bildungswegentscheidungen in Österreich. Eine repräsentative Querschnitterhebung im Herbst 2003. Wien. Online: http://www.oeibf.at/_TCgi_Images/oeibf/20061213101934_oeibf_03-02_Bildungswegentscheidungen.pdf (14.10.2008)
- Statistik Austria (2006): Hochschulstatistik 2005/2006. Wien: Verlag Österreich GmbH
- Statistik Austria (2008): Bildungsklassifikation International Standard Classification of Education – ISCED 1997. Online: http://www.statistik.at/web_de/klassifikationen/klassifikationsdatenbank/weitere_klassifikationen/bildungsklassifikation/index.html (15.10.2008)
- Studienbeihilfenbehörde (2008): Studienberechtigungsprüfung. Online: <http://www.stipendium.at/stbh/studienfoerderung/sonstige-foerderungen/studienberechtigungspruefung/> (14.10.2008)
- TGM (2008): Höhere Lehranstalt für Elektronik. Online: <http://www.tgm.ac.at/index.php?id=4> (14.10.2008)
- University of Applied Sciences Technikum Wien (2008): Elektronik – Detailinformationen. Online: <http://www.technikum-wien.at/img/db/docs/3332.pdf> (14.10.2008)
- University of Applied Sciences Technikum Wien (2008b): Electronics – Electronic Engineering. Online: http://www.technikum-wien.at/study_program/bachelor/electronics/ (14.10.2008)
- University of Applied Sciences Technikum Wien (2008c): Electronics – Business. Online: http://www.technikum-wien.at/en/study_program/bachelor/electronics___business/ (14.10.2008)
- WKO (2007): Prüfungsstatistik 2006. Übersicht über die im Jahr 2006 in Österreich abgelegten Module in der Meister-, Befähigungs-, Ausbilder- und Unternehmerprüfungen (Stichtag 31.12.2006). Online: <http://wko.at/statistik/Extranet/Lehrling/Meisterpruefung2006.pdf>
- WKO (2008): Lehrlingsstatistik 2007. Online: <http://wko.at/statistik/Extranet/Lehrling/inhalt.htm> (14.10.2008)

Annex

College of Electronics – TGM Wien

At VET College *TGM*, students in the first two years acquire general and basic technical knowledge and practical skills in workshops. After the third year, they specialise in telecommunication, technical computer science or biomedical engineering (TGM 2008).

The certificate supplement lists ‘skills and competences’ of graduates of the VET school for electronics (Europass Österreich 2008, 2008b, 2008c):

- knowledge of the theoretical and practical principles of electronic components and circuits;
- production and application of principles of electronic components and circuits;
- application of principles of quality, project and product management;
- subject-relevant CAD-applications;
- construction, dimensioning, design and production of electronic products;
- employment of the principles of marketing, staff guidance, negotiation skills, contracting and financing;
- oral and written communication on business-relevant subjects in the mother tongue and one foreign language.

The profile for specialists in technical computer science further includes:

- knowledge and application of the subject areas microelectronics (measurement of open- and closed-loop control systems, sensors), broadcasting technology (audiovisual media, analogue and digital broadcasting), computer technology (microprocessors and controllers, development of hard- and software);
- knowledge of software-and computer-aided engineering, computer networks as well as data transfer, micro-electronics and software optimisation;
- subject-relevant skills and knowledge of components in electronics and digital engineering, of measuring technology, device and system technology, their relevant materials, procedures, product and system development.

The profile for specialists in telecommunication further includes:

- knowledge and application of the subject areas microelectronics (measurement of open- and closed-loop control systems, sensors), broadcasting technology (audiovisual media, analogue and digital broadcasting), computer technology (microprocessors and controllers, development of hard- and software);
- substantive knowledge of the areas of radio, mobile phone, satellite and communication technologies, consumer electronics;
- development, production, sales, operation and maintenance of means of telecommunication;
- skills and knowledge of components in electronics and digital engineering, of measuring-, device- and system-technology, their relevant materials, procedures, product and system development.

The profile for specialists in telecommunication further includes:

- substantive professional education in the subject areas of computer-aided processing of images and electronic instruments for diagnosis and therapy as well as their construction;
- skills and knowledge of components in electronics and digital engineering, of measuring-, device- and system-technology, their relevant materials, procedures, product and system development;
- application of the principles of medical terminology, laboratory techniques, diagnostics and therapy specific to the individual industries;
- developing, testing and producing biomedical devices.

For all specialisations, the range of occupation includes employment in fields of activities with a high degree of responsibility as an employee or entrepreneur in various branches of power engineering, industrial electronics, measurement and control technology.

Specialists in technical computer science can, with relevant professional experience, work as office communication engineers, electronics engineers, radio and video electronics engineers and, after passing a test of suitability, work in a technical office.

Specialists in telecommunication can, with relevant professional experience, work as electronics engineers, electrical machinery engineers, radio and video electronics engineers and, after passing a test of suitability, work as office communication engineers or in a technical office.

Specialists in biomedical engineering can, with relevant professional experience, work as electronics engineers, electrical machinery engineers, radio and video electronics engineers and, after passing a test of suitability, work in a technical office, as acoustic aid engineers or office communication engineers.

3. The Finnish Case of Recognition in Initial Vocational Education and Training

Marja-Leena Stenström & Leila Leino

Introduction

In Europe strategies have been developed to increase mobility and to acknowledge the competences and learning outcomes provided by vocational education (the Copenhagen Process) and by higher education (the Bologna Process). Mobility is supported by an increase in the transparency of education. The EQF (European Qualifications Framework) is the common recommendation for increasing transparency and approving the knowledge and skills acquired in education. International transparency makes it easier to compare qualifications and competences between different countries. The ECVET - European Credit Transfer System for Vocational Education and Training - is targeted at developing the transfer system in vocational education (Commission of the European Communities 2005; Rouhiainen & Valjus 2003).

The committee of the Finnish Ministry of Education (2004) was appointed to define the principles for recognition of general and vocational upper secondary studies, prior studies and other prior learning. The purpose of the committee was also to explore ways to give credits for studies or for other prior learning essentially applicable to a programme; to explore ways to create more efficient recognition of prior learning when students move from secondary to higher education; and to propose ways of monitoring recognition of prior learning (Finnish Ministry of Education 2004).

One of the key policy aims in Finland as well as elsewhere has been the improvement of cost-effectiveness, performance and flexibility in education and training. The Finnish committee (Finnish Ministry of Education 2004) investigated recognition and accreditation of prior learning from three different perspectives: 1) procedures for accreditation of prior learning in application to education, 2) recognition and accreditation of prior studies and other learning during studies, and 3) recognition procedures used in competence-based and similar qualifications. Finnish educational legislation provides for the recognition of prior learning and it is most widely used in competence-based examinations. The recognition of prior learning in initial vocational training for young people and adults takes the form of accreditation of studies and other competencies. In higher education, the emphasis has been more on accreditation of previous studies than any other form of recognition (Ministry of Education 2004).

This report describes a good practice of recognition of learning outcomes in Finnish initial vocational education, namely recognition of vocational skills demonstrations abroad. Vocational skills demonstrations are part of formal initial vocational education and training. The findings of this report are based on the results of the Finnish ECVET –project (FINECVET) that was carried out during the years 2004-2007, and teacher interviews in two vocational colleges in southern Finland. The article begins with general information about the Finnish education system. Next, there is a description of the studies in the fields of

Building Maintenance Technology and Construction, which are chosen for this case. Finally, a description of the Finnish existing system and relevant instruments is presented.

Education in Finland

The key words in Finnish education policy are quality, equity and internationalization. The current priorities in educational development are the following: 1) to raise the level of education and upgrade competencies among the population and the work force, 2) to improve the efficiency of the education system, 3) to prevent exclusion among children and young people, and 4) to enlarge adult learning opportunities. The Ministry of Education is the highest education authority in Finland. It supervises publicly subsidized education and training provision (from primary and secondary general education and vocational training to polytechnic, university and adult education). The Ministry of Education and the National Board of Education are responsible for implementing education policy. They are also partly responsible for administering the education system at the central government level; however, many matters are decided by the education and training providers themselves (Finnish Ministry of Education 2007a).

In Finland, all children complete a nine-year (this may be extended to 10 years for some students) compulsory basic education. Basic education is free general education and it is provided for the whole age group in comprehensive schools. The local/school curriculum is based on a national core curriculum. Schools cooperate with pupils' homes and a pupil is entitled to special-needs education, if necessary. Completing the basic education syllabus gives eligibility for all upper secondary level (post compulsory level) education. This is divided into general education and vocational education and training, as shown in Figure 1. General upper secondary schools provide a three-year general education programme which leads to the national matriculation examination. Vocational upper secondary schools also provide three-year study programmes, and these lead to vocational qualifications. Students in upper secondary schools have also the option of studying for both a vocational qualification and the matriculation examination at the same time. Both forms provide eligibility for further studies at polytechnics and universities. Adult education and training is available at all levels.

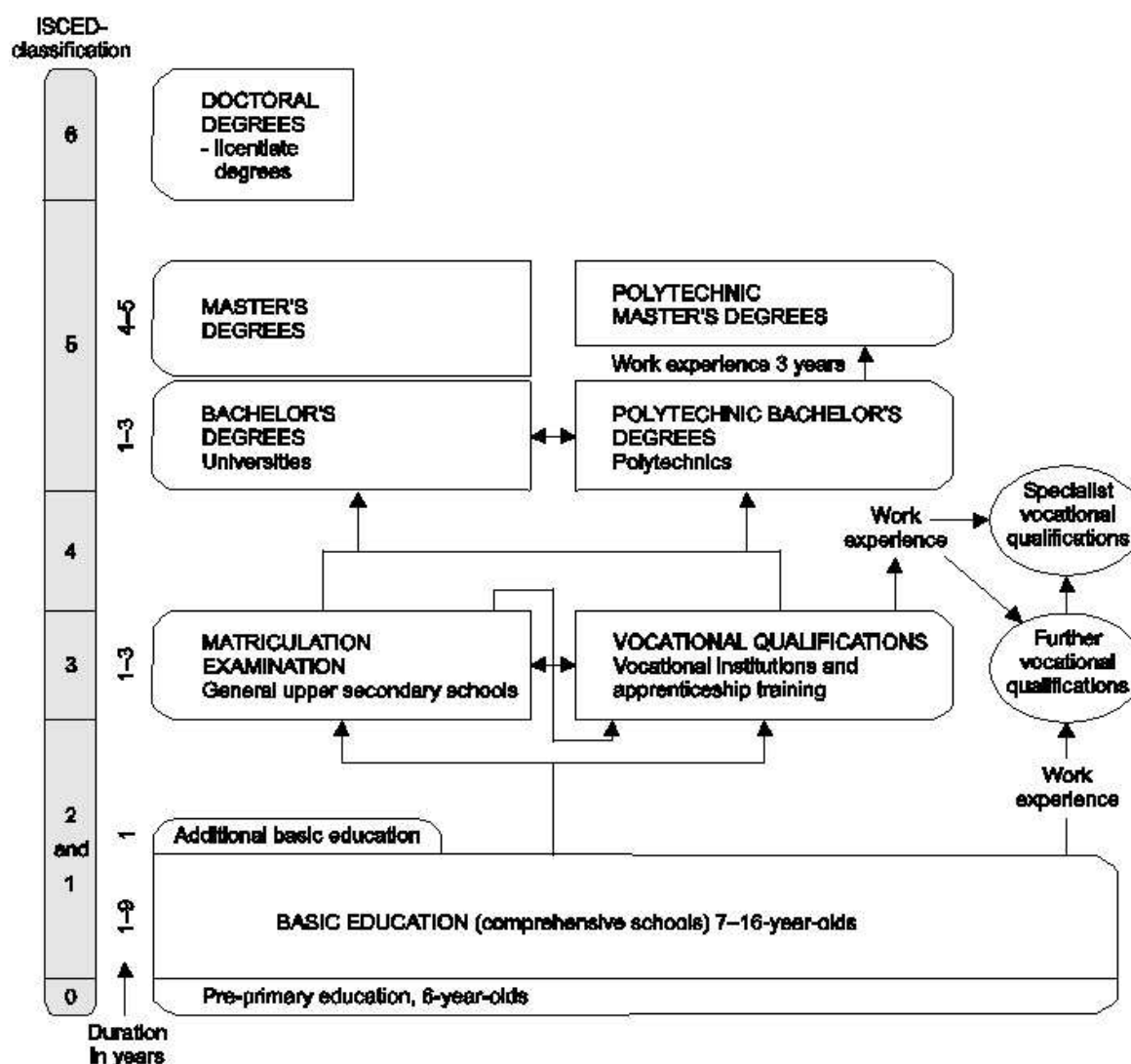


Fig 1 The Finnish education system (Finnish Ministry of Education 2007a)

Initial vocational education and training

Initial vocational education and training (VET) is built on the basic education syllabus. Vocational qualifications consist of 120 credits and take three years to complete. One year of study consists of 40 credits, with one credit equivalent to 40 hours of study by an average student (includes contact hours, preparation, assignments, etc.). The duration of studies is up to 40 credits shorter for those who have completed the general upper secondary school syllabus, as some of these studies will be accredited. Studies can be taken in the following fields:

- Humanities and Teaching
- Culture
- Social Sciences, Business and Administration
- Natural Sciences
- Technology and Transport

- Natural Resources and the Environment
- Social and Health Care Services and Physical Education
- Tourism, Catering and Home Economics

Vocational qualifications (*ammattillinen perustutkinto*) can be completed in one of the following three ways: 1) school-based education and training, 2) apprenticeship training, or 3) as competence-based qualifications. School-based education and training is the most common, and it is carried out in vocational institutions (*ammattilliset oppilaitokset*). Apprenticeship training is based on an employment agreement (apprenticeship contract) between a student and an employer and confirmed by the education provider. The third route to a vocational qualification is through a competence test administered by a qualification committee. These competence tests have been used since the year 1994. (Finnish Ministry of Education 2007b; Finnish National Board of Education 2007b).

Higher education system

The higher education system consists of polytechnics (*ammattikorkeakoulu*, also known as universities of applied sciences; in German *Fachhochschule*), and universities (*yliopisto*). Polytechnics are practically oriented and their mission is to train experts to serve the working life and carry out research and development (R&D) in supporting educational and regional development. The universities focus on scientific research and research-based education (Finnish Ministry of Education 2007a; Finnish National Board of Education 2007a).

Adult vocational education and training

Adult education is provided at all levels of education. Adults can study for vocational qualifications and further and specialist qualifications, or study in further and continuing education without aiming at a qualification (Finnish Ministry of Education 2007a).

Qualifications in vocational adult education and training are carried out as competence-based qualifications (*Näyttötutkinto*) and thus enable working-age adults to gain qualifications without necessarily attending formal training. However, most candidates have taken part in some preparatory training. In competence tests, adults demonstrate their vocational skills regardless of where or how skills have been acquired.

The system of competence-based qualifications is the most established form of recognition in the Finnish vocational education system. Recognition of prior learning is of great importance in Finnish vocational education and training (VET) structure through the development of competence-based qualification system. These qualifications can be demonstrated and recognised in officially approved practical skill tests. Candidates can take their exams after or during formal training or without any formal training at all (Nevala 2007.) Although taking part in competence tests does not necessarily require formal preparation, many candidates acquire preparatory training, in which individual learning programmes are offered. Initial vocational education provides preparation for initial vocational qualifications. Preparatory training for candidates of further and specialist vocational qualifications is arranged by additional and supplementary vocational training (Nyyssölä 2004).

These competence-based qualifications came into force in 1994 with the implementation of Vocational Qualifications Act 306/1994 and they were included in the Act on Vocational Adult Education (1998) (see Appendix 1). The Finnish National Board of Education created the framework in close cooperation with main labour market organisations and teachers. Competence-based qualifications consist of 1) vocational qualifications, 2) further vocational qualifications and 3) specialist vocational qualifications. Vocational qualifications completed as competence-based qualifications fully correspond with the qualifications completed in school-based vocational education and training. For further vocational qualifications candidates must demonstrate the vocational skills required from skilled workers in their field. At present the vocational qualifications framework comprises 52 vocational qualifications, 187 further vocational qualifications and 118 specialist vocational qualifications. (Finnish National Board of Education 2007b; 2007c).

The amount of students participating in the year 2006 in each type of vocational education is presented in the table below. The main route in Finnish VET is curriculum-based initial vocational education, especially school type of vocational education.

Education	Students		
	<i>School type of vocational education</i>	<i>Apprenticeship Training</i>	<i>Total</i>
Curriculum-based initial vocational education	125 674	363	126 037
Preparatory initial vocational education for competence-based qualification	30 862	21 654	52 516
Preparatory education for further vocational qualification	38 445	18 388	56 833
Preparatory education for specialist vocational qualification	7 259	14 227	21 486
Total	202 240	54 632	256872

Tab 1: *Students in all types of vocational education, 2006 (source: Statistics Finland 2008)*

Validation of formal, non-formal and informal learning

The terms »accreditation«, »recognition« and »validation« are used closely linked to each other, although their meanings differ slightly from each other. The terms are understood in this Finnish report as follows:

- *Accreditation*: process of accrediting an institution of education and training, a programme of study, or a service, showing it has been approved by the relevant legislative and professional authorities by having met predetermined standards.
- *Recognition*: the process of granting official status to skills and competences either through the award of certificates or through the grant of equivalence, credit units, validation of gained skills and/or competences
- *Validation*: the process of assessing and recognising a wide range of knowledge, know-how, skills and competences, which people develop throughout their lives within different environments, e.g. through education, work and leisure activities.

In terms of the recognition of formal, non-formal and informal learning, individual educational institutions are given a great deal of freedom in applying the framework provided by the legislation in practice. There is also separate legislation on the recognition of formal, non-formal and informal learning at polytechnics (see Appendix 1).

In its general definition, ‘recognition’ means that a student can compensate for some of the studies required for a given ongoing qualification with studies, practical work or working experience acquired elsewhere. The legislation makes accreditation process students’ subjective right to some extent. In vocational education and training, accreditation has become an established practice and it is increasingly used in order to shorten study times and avoid overlapping of studies. In addition, recognition is closely linked to student assessment (validation) (Nyyssölä 2004).

Recognition is based on the Act on Vocational Education (630/1998; see Appendix 1). This allows for studies to be arranged slightly differently if students are already considered to have some of the necessary knowledge and skills in the curriculum. In addition, students have the right to be validated with studies completed elsewhere, if the objectives and main content of these studies comply with the curriculum. Summer jobs and previous work experience shall be accredited, if the competence acquired through these is determined to comply with the objectives of the curriculum. The educational institution needs to compare conformance of studies with the curriculum in terms of objectives and core contents. When needed, the correspondence of competence shall be verified by means of different skills demonstrations. In order to promote recognition and facilitate it, various forms of assessment shall be developed (Nyyssölä 2004).

In polytechnic adult education, the time spent to complete a degree is usually slightly shorter than in regular polytechnic education because of previous studies and work experience. Completed open polytechnic studies may be recognized in case the student enters to degree-oriented polytechnic education. Also open university education may be accredited in degree studies. In most fields, there is a specific ‘*open university track*’, which gives students the possibility to study for a degree upon completion of a required number of credits at an open university (Nyyssölä 2004).

Eligibility for further studies

Since 1st of August 2001, all programmes leading to initial vocational qualifications take three years to complete and comprise 120 credits. They all give general eligibility for both polytechnics and universities. As seen in Table 2 other possibilities to enter to polytechnics are through completing competence-based vocational or further vocational qualification. Specialist vocational qualification itself doesn’t give eligibility for applying to higher education studies; in addition competence-based vocational qualification or vocational qualification, less than 3 years is needed in order to have general eligibility for higher education.

Vocational Qualification	Eligibility for further studies
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1. Vocational qualification (at least 3 years)	General eligibility for higher education
2. Vocational qualification (length less than 3 years)	Eligibility for the same field in the Polytechnics
3. Vocational qualification (less than 3 years) <i>and</i> completing the qualification to 3 years <i>or</i> further or specialist vocational qualification <i>or</i> work experience of 3 years in the field after the qualification	General eligibility for Polytechnics
4. Further vocational qualification	Eligibility for the same field in the Polytechnics
5. Further vocational qualification <i>and</i> completing the qualification to 3 years <i>or</i> specialist vocational qualification <i>or</i> work experience of 3 years in the field after further vocational qualification	General eligibility for Polytechnics
6. Specialist vocational qualification	No eligibility for further studies

Tab 2: *Eligibility for higher education completing a vocational qualification. (source: Finnish Ministry of Education, 2007c.)*

Background and description of the Finnish Case

The FINECVET project

Finland has been involved in the national FINECVET (Finnish ECVET) project that was carried out by the Finnish National Board of Education in the years 2004-2007. This two-stage project aimed to prepare implementation of the ECVET system in Finland. The project was one of the first national ECVET projects in Europe (Finnish National Board of Education 2008b.) The ECVET system was developed and tested within seven VET providers and nine different upper secondary level vocational qualifications, one of them being the Vocational Qualification in Building and Maintenance Technology. This sector was chosen for our CREDIVOC study because of being the most advanced of the Technological Qualifications (Table 3).

The objectives of the FINECVET project were the following (Finnish National Board of Education 2008): 1) to define the concepts of the ECVET system and how they apply to the Finnish education system; 2) to test the effectiveness of the European Credit Transfer System for Vocational Education and Training (ECVET) in different upper secondary vocational qualifications; and 3) to prepare a national information and guidance plan for education providers and representatives of the working life for the purpose of implementing the ECVET model.

The most important FINECVET project results are as follows (Finnish National Board of Education 2008):

- The project developed models to describe entire qualifications or their studies of different scopes in terms of knowledge, skills and competence.
- The project put forward a proposal to determine credit points and the level of studies within the EQF. The proposal suggests that one year of study and a three-year qualification would equate to 60 and 180 credit points respectively.

- In terms of assessment of learning outcomes, the project tested the assessment criteria and documentation forms developed for Finnish vocational skills demonstrations (assessment documentation form applied to the ECVET system).
- The project prepared a Learning Agreement document template, which is student-specific and filled in before the start of a student exchange.
- The project prepared a Memorandum of Understanding document template, which is a mutual general agreement between an education provider and its international partner.
- The Europass Mobility document was used for student exchange.
- A credit transfer process model was produced for one qualification.

Vocational colleges participating in this case

Vantaa Vocational College Varia (2008b), located in Southern Finland next to Helsinki, provides initial vocational education in six branches of study: culture; transportation; hotel, restaurant and catering; health and social welfare; as well as electrical engineering and technology. Their international operations focus on student exchange between European countries. The college also takes part in numerous European projects on education and youth development. As a general rule, international operations are organized on a branch-specific basis and are directly connected to instruction or its development. The lecturer interviewed is teaching in the study programme of building maintenance technology and has taken part in various European level projects and FINECVET-project. The project »Investigating and developing the teacher occupation safety in European countries« aims to analyze the management and teaching of occupational safety in the basic vocational training in four European countries. Another objective is to present the contents of the training in the different countries, compare them, and if possible, compile a proposal for joint training contents for instruction in occupational safety. The project »Evaluation of study results abroad« aims to increase the students' abilities to move and work in another EU country. The students undertake a three-week on-the-job-learning period in a foreign company; the requirement is that the companies can offer tasks compliant with the degree as well as instruction in English. During the training period, the students give a vocational demonstration to which the on-the-job training is related. The project tests the grade documentation form for vocational demonstrations, devised by the Finnish National Board of Education.

Mäntsälä College (2008), located in Southern Finland, provides education and training for students wishing to become professionals in the sectors of natural resources, technology and transport, and hotel, catering and home economics. The lecturer interviewed is teaching in the study programme of construction and he has taken part in European projects and the FINECVET- project. The latest project dealt with on-the-job-learning. Eight students of the study programme in construction had their three weeks on-the-job-learning period in a French enterprise. Four of them gave the skills demonstration in concreting and reinforcing. Both French and Finns took part in the assessment of skills demonstrations. The assessment was done within the guidelines decided together with French participants.

The chosen sector/field in the Finnish case

The study programmes of Building Maintenance Technology and Construction (Table 3) were chosen for the Finnish case because of being the most advanced of the Technological Qualifications in developing transfer systems.

Sector/Field (<i>sektori</i>)	Technology, Communication and Transport
Vocational Qualification (<i>perustutkinto</i>):	*Vocational Qualification in Building Maintenance Technology (<i>Talotekniikan perustutkinto</i>) * Vocational Qualification in Construction, Builder (<i>Rakennusalan perustutkinto</i>)
Study programme (<i>koulutusohjelma</i>)	*Study Programme in Heating, Plumbing and Ventilation Engineering (<i>LVI-asennuksen koulutusohjelma</i>) *Study Programme in Construction (<i>Talonrakennuksen koulutusohjelma</i>)

Tab 3: Sector/ field, vocational qualifications and study programmes in the Finnish case.

Vocational Qualification in Building Maintenance Technology

The student who has qualified in Building Maintenance Technology is required to have broad general knowledge and versatile skills, because the tasks in this field are typically wide-ranging. In the field of HPAC tasks are typically vast and employers expect their employees to have a broad general understanding of the field. On the other hand many tasks of the field require more and more demanding special skills. The students who have completed these qualifications have basic knowledge of the field and in addition special knowledge in one of the following three study programs (*koulutusohjelma*): Property Maintenance; Heating, Plumbing and Ventilation Engineering; Technical Insulation (see Table 4) (Koulutusopas 2008).

Study Programme in Heating, Plumbing and Ventilation Engineering

A HPAC-mechanic installs, repairs and maintains heating, plumbing and ventilation systems and pipes in buildings. Most often he/she works in an enterprise that has HPAC-contracts in new and repair construction production. He/she can also work in construction material industry (elements) or in the field of maintenance. A pipe fitter works with heating and plumbing systems and an air conditioning mechanic with air conditioning systems (Koulutusopas 2008.)

Students in Heating, Plumbing and Ventilation Engineering have the following two compulsory choices:

1. Basic skills in building maintenance technology (unit 1), Measurement, control and automation technology (unit 2), Sheet metal work and basic installations (unit 3), and Ventilation installations (unit 4);
2. Basic skills in building maintenance technology (unit 1), Measurement, control and automation technology (unit 2), Heating and plumbing installations (unit 5) or Refrigeration technology and cold piping (unit 16), and Welding technology (unit 6).

Students need to choose three optional units (unit 12 to unit 27) or they can study one wider unit (See Table 4 for details).

Unit	Description of the study unit of Building Maintenance Technology
1	Basic skills in building maintenance technology
2	Measurement, control and automation technology
3	Sheet metal work and basic installations
4	Ventilation installations
5	Heating and plumbing installations
6	Welding technology
7	Maintenance of heating, plumbing and ventilation systems
8	General property work
9	Building automation and electrical systems
10	Insulation of building maintenance technology equipment
11	Industrial insulation
12	Heating, plumbing and ventilation planning for small houses
13	Maintenance of heating and plumbing equipment
14	Building sheet metal work
15	District heating and equipment
16	Cleaning and maintenance of ventilation systems
17	Refrigeration technology and cold piping
18	Basic adjustments (orientation module in heating and plumbing or ventilation)
19	Oil heating and oil burner installations
20	Renovation of heating, plumbing and ventilation systems
21	Special piping
22	Swimming pool equipment and water quality
23	Grounds maintenance
24	High temperature insulation
25	Ship insulation
26	IT applications in building maintenance technology
27	Electrification of heating, plumbing and ventilation equipment
28	Institutional study module
29	Free-choice studies included in the vocational studies

Tab 4: Study units of the Vocational Qualification in Building Maintenance Technology.

Vocational Qualification in Construction

The student who has qualified in Construction is required to have broad general knowledge in doing variable work tasks. He/she is able to finish general work tasks in the construction site partly independently and partly in the team under the guidance of other skilled workers. The students who have completed this qualification have basic knowledge of the field and in addition special knowledge in one of the following three study programs: Infrastructure Construction (Infrastructure Builder); Construction (Builder); Earthmover Operation (Earthmover Operator).

Study Programme in Construction

In the study programme of Construction the student can specialize in carpentry, masonry, tiling, or concreting and reinforcing. A qualified person is able to do independently storing and arrangement work at construction sites. He/she is also able to do work independently according to the given instructions and other basic tasks with safety and quality. A builder can do under the guidance of a skilled worker or as a team member work of carpentry, masonry, and concreting both in new and renovation construction sites. He/she can use the basic tools, suitable working methods and materials of construction site. Study units in Construction are mentioned in Table 5.

Unit	Description of the study unit in Construction
1	Basics of construction
2	Carcassing work
3	Construction engineering
4	Masonry
5	Tiling and plastering
6	Foundations and carcassing carpentry
7	Interior carpentry
8	Concreting and reinforcing
9	Renovation
10	Log construction work
11	Hydraulic engineering and earthwork
12	Civil engineering
13	Road construction
14	Road maintenance
15	Basics of property maintenance
16	Waterproofing
17	Steel construction
18	Earthmover technology
19	Earthmover technology
20	Traffic engineering
21	Lorry technology
22	Business and information technology in infrastructure construction
23	Construction and utility equipment
24	Institutional study module

Tab 5: Study units in the Vocational Qualification in Construction

The target group according to the criteria

Students who have completed vocational qualifications in the sector/field of Technology, Communication and Transport are needed to compensate the retiring workers. More than an average amount of retiring workers have vocational qualification in the fields of Construction and in Building Maintenance Technology (HPAC). The field of Construction stresses more

and more repair and basic renovation work. Especially in construction engineering it is estimated that the rate of employment is upward because of the increasing importance of rebuilding, renovation and minor repair, and this functioning needs more workers than new construction production (Koulutusopas 2008).

Training for upper secondary vocational qualifications is available mostly in vocational institutions and in the minor form of apprenticeship training. VET is intended both for young people and for adults already active in working life. They can study for vocational qualifications and further and specialist qualifications, or study in further and continuing education without aiming at a qualification.

Characteristics of the vocational upper secondary qualification can be described as follows (Finnish Ministry of Education 2007b):

- The vocational qualification has been designed to respond to labour market needs.
- The qualification is based on working life occupations and the competencies required.
- The qualification is 120 credits, which takes three years of full-time study, unless prior learning can be counted towards the qualification.
- The qualification includes at least 20 credits of on-the-job learning.
- Starting in 2006, a vocational skills demonstration in the form of a competence test shall be included in vocational qualifications as proof of having reached the goals given to vocational studies.
- The training is built on the basic education syllabus.
- Prior learning acquired in training, working life or other learning environments can be counted towards the qualification.
- Matriculated students can also study in initial VET. Their prior studies are equivalent to some 30 credits, which are counted towards the vocational qualification.
- A vocational qualification gives general eligibility for polytechnic and university studies.

The joint application system

The joint application system to general upper secondary schools, vocational upper secondary schools and some folk high schools is a national procedure that Finnish educational institutions use when selecting new students for these types of schools.

In the selection of students for vocational upper secondary training, points are awarded for general academic success and success in the relevant subjects, for work experience, for results in the entrance examination or possible aptitude test and for gender (in male or female dominated fields, points are given for the minority gender). Especially young people without previous vocational education are given priority in the selection. The aim is to secure an opportunity for each applicant to obtain one vocational degree (Koulutusnetti 2008.)

Description of the existing Finnish system and relevant instruments

Content and procedure of the existing system

In Finland there are no national levels for vocational qualifications; they consist of study units that are parts of qualification. Vocational study units are composed on the basis of functions in working life and they are named according to activities at working life. Study units are nationally decided and defined by the Finnish National Board of Education. Knowledge, skills and competence are in some form included in the objectives. The objectives of study units are described as learning outcomes. VET providers decide on procedures, processes and agreements concerning student exchange. Recognition of prior learning is regulated by Act and Decree on vocational education and training (in force from 1.1.2006). Recognition is based on learning outcomes, not on learning time. VET providers decide on the recognition and assessment (validation) of prior learning (Kärki 2007).

Documents of assessment

Vocational skills demonstrations (Ammattiosaamisen näytöt)

On-the-job learning is guided and goal-oriented study and it takes place at the workplace. In this work-related module, which is 20 credits or more, the student learns some of the practical skills included in the qualification. At different points during their training in initial VET, students demonstrate the skills they have learned in tests arranged as either practical work situations or as practical assignments. These skills demonstrations assess how well the student has achieved the competencies needed in the labour market. The aims and assessment criteria of the skills demonstrations are determined in the core curricula issued by the National Board of Education. The tests are devised and implemented in cooperation with business and industry and other employers. VET providers appoint special bodies to plan and set the tests and also appoint the examiners (Finnish Ministry of Education 2007b).

Skills demonstrations consist of practical work tasks performed by students. Through doing the tasks students show how well they have achieved the skill needed in working life according to the objectives of the core curriculum. During a skills demonstration an evaluator follows and observes the student's working. Skills demonstrations are evaluated in assessment discussions; in addition to the student most often the teacher and a work life-representative are present. The student is evaluated with relation to demands presented in advance. The targets of assessment in skills demonstrations are as follows:

- Command of work processes;
- Command of work assignments (command of tools, working methods and materials);
- Command of the knowledge that forms the foundation for work;
- Command of occupational safety;
- Common core skills; and
- Common emphasis

The FINECVET project developed a template for an assessment documentation form applied to the ECVET system, where learning outcomes are assessed in terms of knowledge, skills and competences (Autere 2008; Mäkinen 2007, 2008). This form was not tested in

practice during the project. The Finnish targets of assessment comparing with learning outcomes are described in terms of Knowledge, Skills and Competence in Table 6.

Targets of assessment	Learning outcomes
Command of the knowledge that forms the foundation for work Command of occupational safety	Knowledge
Command of tools, working methods and materials Command of occupational safety	Skills
Command of work processes Core skills common to all fields Common emphases	Competence

Tab 6: *Finnish targets of assessments vs. learning outcomes*

Assessment criteria and targets of assessment are concretized in each learning unit. Assessment criteria have three levels: satisfactory (T1), good (H3), and excellent (K5). Assessment of skills demonstrations has the general grading scale (T1, T2, H3, H4 and K5 (A 603/2005)). The grade of skills demonstrations is decided by teachers and work-life representatives. The grade and its statement are marked in the skills certificate (*näyttötodistus*). Evaluation forms are designed by institutes, and filling the forms during the evaluation makes the statement of assessment possible later. This is important especially when the main part of a study unit is demonstrated through several skills demonstrations. There is a challenge as well during a combined skills demonstration (two or more study units). The following information should at least be marked (Finnish National Board of Education 2005):

- The name of the student
- The study unit / part of it
- The place of the skills demonstration
- Description of the contents of skills demonstration
- Every target and grades
- Arguments of the grade
- Notice of possible complement of the skills demonstration
- Signatures

Documents of assessment in Heating, Plumbing and Ventilation Engineering

Four obligatory study units in Heating, Plumbing and Ventilation Engineering are described in the following Table 7. The essential information of knowledge, skills, and competences is described in connection with each study unit. Also study points are presented (study points equal three times study weeks).

Study unit (numbers as in National Core Curriculum)	Knowledge	Skills	Competence	Points	Documents of assessment
Unit 1. Basic skills in building maintenance technology (<i>Talotekniikan perustaidot</i>)	Good indoor climate. Networks and components for HVAC. Why and how much man need to heat houses.	Use of basic hand and power tools for HVAC-technology. Basic methods used by fitting and manufacturing.	Student is being able to use basic hand and power tools for fitting and component manufacturing tasks. He/she has to handle tools on safety way.	90 points (30 study weeks)	Skill demonstrations (3 parts) Exercises (3-5 independent) Exams (5-6 different) Card (test) for firing works. Card (test) for occupational safety.
Unit 2. Measurement-, control- and automation technology (<i>Mittaus-, säätö- ja automaatiotekniikka</i>)	How and why to make measurements on right way. Right handling of equipments.	Use of most ordinary equipments for measure of fluids and heat	A student has to carry out basic measurements in heating, plumbing and ventilation systems and indoor climate	18 points (6 study weeks)	Skill demonstration Exam
Unit 3. Sheet metal work and basic installations (<i>Ohutlevytyöt ja perusasennukset</i>)	Choice and use of right materials. How to cut sheets on economical way.	Use of basic tool for sheet metal works. Basic work methods for ventilation parts and installations.	A student has to carry out basic work in sheet metal work involved in ventilation engineering.	66 points (22 study weeks)	Skill demonstration Exams Exercises Assessment for on-the-job learning
Unit 4. Ventilation installations (<i>IV-asennustyöt</i>)	How ventilation system works. Different kind of systems and parts needed there. Handling of air and fluids in ducts.	Basic methods for installation and fittings. How to work in construction site and follow occupational safety rules.	A student has to carry out basic work for ventilation fitting and insulation.	60 points (20 study weeks)	Skill demonstration Exams Exercises Assessment for on-the-job learning

Tab 7: Example of four obligatory study units in *Building Maintenance Technology* (source: Mäkinen 2007)

Skills demonstration connected to study unit 4, »Ventilation installations« is described as an example in the following.

Skills demonstration of the study unit »Ventilation installations«

A student makes installation work of ventilation pipes and equipment according to work drafts and work explanations. He/she will make plans for possible alternative ventilation systems and writes up the necessary part and materialists. The skills demonstration can be one of the following examples:

- A pipe-installation work in a normal room.
- A ventilation installation work of pipe system in a machine room (in cooperation with a mechanic).
- An installation work of ventilation pipes in a small house and the installation of equipment; or the installation of ventilation system in a flat (together with many students)

Targets of assessment in the skills demonstration are the following:

1. Command over work process
 - a. Work task planning
 - b. Installation-work in a small house
 - c. Installation work elsewhere
2. Command over work task
 - a. Control over methods
 - b. Choosing and using the equipment
 - c. Choosing and using the materials
3. Command over knowledge that is the base of the work
 - a. Operational principles of the systems
 - b. Plans and commands
 - c. The nature of work and pricing
4. Command over safety at work
5. Core skills
 - a. Learning skills (assessment of own work performance)
 - b. Problem solving skills
 - c. Interactional and communicational skills
 - d. Co-operational skills and control over working time.
6. Common emphasis
 - a. Service- and consumer skills

Instruments relevant for the target group

The following results are based on the teacher interviews (Appendix 2) and the final report of the FINECVET project (FINECVET 2008). In the Tables 8 and 9 the learning outcomes of parts of qualification are described as knowledge, skills and competence. Also the credit point system is described and there is room for assessment. This form (Table 8) is tested during the FINECVET-project in Vantaa Vocational College, Varia. In this project a challenging aspect was deciding on how much detail learning outcomes should include. It was seen that the comparison of studies was made easier through exact description of learning outcomes. In general it was seen that the description of learning outcomes as knowledge, skills and competence increased mutual understanding. In this project credit points of separate part of the qualification became difficult, because of differing national legislation. In many countries description is based on the time used for studies. In Finland credit points are due to learning outcomes (FINECVET 2008).

In the FINECVET project various assessment experiences of learning outcomes were aggregated. An interesting example is a project concerning skills demonstrations of construction qualification performed in France. Partners in Training Consortium of Central Uusimaa, Apprenticeship Training Centre and Mäntsälä College in co-operation with partners of a French enterprise compiled an assessment form of skills demonstrations/work tests. It included names of all involved (student, college, enterprise), work completed, description of

the settings of skills demonstration (content), and the technical documents. The assessment consists of the following parts (see Table 8).

Competence/Osaaminen	Tools used	Justification and demands of assessment	Pass	Fail
Knowledge				
Skills				
Social competence				
Verbal assessment:				

Tab 8: *Assessment part of the form of a skills demonstration, Finnish-French co-operation (Kenda College)*

As seen in Table 8, students' competence is divided in three parts, knowledge, skills and social competence. The discussions with the teacher stressed the following: knowledge is gained through reading and through following the teaching; skills consist mainly of manual skills, but it is also important to know the process 'how to handle the material in a right way'; in the term social competence the following are stressed: sustainable development, quality, customer-oriented attitude, co-operational skills in the workplace. The last two columns pass and fail were taken according to the French solution concerning assessment. There is also space for verbal assessment; this assessment was reconciled to be positive and encouraging. Finally, at the bottom of the assessment form there was space for the signature of the responsible instructor. According to the teacher interviews, one of the important issues was the occupational safety. The assessment focus was the use of tools and how other persons were taken into account. The Finnish suggestion was that occupational safety assessment should be included for all competence levels.

Vantaa Vocational College Varia was responsible for a credit transfer process model (see Tables 7 and 9). The tool is described as a chart. The first column shows the names of the units and in the next three columns there is a description of learning outcomes in terms of knowledge, skills and competences. In addition, credit points of each unit and documents of assessments are described in the document.

Study unit (numbers as in National Core Curriculum)	Knowledge	Skills	Competence	Points	Documents of assessment - Skill demonstration - Exams - Exercises - Assessment for on-the-job learning - Card (test) for firing works. - Card (test) for occupational safety
Unit 1, Unit 2, Unit 3...					

Tab 9: *The structure of description of learning outcomes (Vantaa Vocational College Varia)*

The chart was used in all three countries that participated in the project of Building maintenance technology, namely in Finland, Germany and the Netherlands. The form was filled both in native language and in English. The differences in assessment were discovered compared to Finnish partners' use of the core curriculum as guiding documents. During the process the meaning of documents received more emphasis, but the greatest challenges were the definition of credits and understanding it as doing the decision of assessment and confirming it. It was difficult to find documentation of study attainments of separate units of a qualification, but finally the documents, e.g. certificates of demonstrations signed by teachers, were approved. The recognition and official validation of qualifications were done in each of the participating countries according to their own practices (FINECVET 2008).

In this project there is a description of how the certification of study attainments are confirmed in each of the participating country after the process of recognition and revised. For example, in Vantaa vocational college the suggestion is given to a council of specific field (*alakokstainen neuvottelukunta*), and the council will make the proposition to the institution (*toimielin*) concerning vocational skills demonstrations and to the directorate (*johtokunta*) concerning curriculum. The definitions of study attainments are made according to the valid regulations of each country, and they must be 1) confirmed by each provider of training, 2) done according to documents that advice student assessment, and 3) documented well enough (FINECVET 2008).

In order to make the transfer of students' attainments easier the official documents of each party providing training will be modified. For example, when performing a Finnish skills demonstration abroad, connection to local curriculum is needed. This is why the organiser of training should take care to have the transfer procedure mentioned in their curriculum. The problems in the transfer system have been discussed deeply in Vantaa vocational college and the differences of systems and principles of each country have been taken into account. An important message to providers of training is to decide the recognition and validation method of study attainments completed elsewhere. A process description could be performed of the model generated during this project. The process could include 1) the description of learning outcomes, 2) the documents of assessment of learning outcomes, 3) the decision making process of the provider of training, and 4) the formalization of study attainments (FINECVET 2008).

Conclusion

In this state-of-the art report initial vocational education was chosen, because it is prevalent in Finnish vocational education and training. The initial vocational qualification gives access to apply to higher education studies and this is confirmed by legislation. The case of this report was recognition of courses studied abroad.

In the next phase, the focus will be moved to recognition of prior learning in continuing education, namely adult vocational education and training. The Council of European Union (2008) has decided as specific measures for the period 2008-2010 for developing a culture of lifelong learning to »closely cooperate in identifying and removing barriers of adult learning, and in establishing demand-driven, high quality provision and facilities for the adult learning

field, including e-Learning and distance learning opportunities». Also higher education and vocational education institutions are encouraged to reach out more to adult learners and facilitate »the development of methodologies and tools needed to assess key skills and competencies — including those acquired mainly outside the formal learning system — and have them validated and defined in terms of learning outcomes, while investing in the promotion of validation and recognition procedures«.

References

- Autere, H. 2008. FINECVET project - national pilot project on ECVET. Presentation in Closing Seminar of FINECVET project April 17 2008. Retrieved 12 May 2008 from <http://www.oph.fi/page.asp?path=1,443,83821,84556>
- Eurybase 2007/08. The Information Database on Education Systems in Europe. The Education System in Finland. Retrieved 20 August 2008 from http://www.eurydice.org/ressources/eurydice/eurybase/pdf/0_integral/FI_EN.pdf
- Commission of the European Communities. 2005. Commission staff working paper. Towards a European qualifications framework for lifelong learning. Brussels.
- The Council of the European Union 2008. Council conclusions of 22 May 2008 on adult learning C 140/10. Official Journal of the European Union 6.6.2008. Retrieved 30 September 2008 from <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2008:140:0010:0013:EN:PDF>
- FINECVET 2008. FINECVET 2 –project. Application of the European credit transfer system for vocational education and training (ECVET) in Finland. Final report. The Finnish National Board of Education. Retrieved 20 August from <http://www.oph.fi/info/sanasto/>
- Finlex 1994. The Act on Vocational Qualifications 1994. Ammattitutkintolaki 306/1994. Retrieved 20 August 2008 from http://www.finlex.fi/fi/laki/alkup/1994/?_offset=25&_max=1599
- The Finnish Ministry of Education 2004. Aikaisemmin hankitun osaamisen tunnustaminen koulutusjärjestelmässä (Recognition of prior learning in the educational system). Reports of the Ministry of Education, Finland 2004:27. Retrieved 21 May 2008 from <http://www.minedu.fi/OPM/Julkaisut/?lang=eng>
- The Finnish Ministry of Education. 2007a. Education System in Finland. Retrieved 15 November 2007 from <http://www.minedu.fi/OPM/Koulutus/koulutusjaerjestelmae/?lang=en>
- The Finnish Ministry of Education. 2007b. Vocational Education and training in Finland. Retrieved 15 November 2007 from http://www.minedu.fi/OPM/Koulutus/ammattillinen_koulutus/?lang=en
- The Finnish Ministry of Education 2007c. Ammatillisten tutkintojen kehittämisperiaatteet ja asema koulutusjärjestelmässä . Reports of the Ministry of Education, Finland 2007:1.
- The Finnish Ministry of Education 2007d. Aiemmin hankitun osaamisen tunnustaminen korkeakouluissa. Reports of the Ministry of Education, Finland 2007:4.
- The Finnish National Board of Education 1999. Ammatillisen koulutuksen opetussuunnitelman ja näyttötutkinnon perusteet. Talotekniikan perustutkinto. Retrieved 17 March 2008 from <http://www.edu.fi/julkaisut/maatarkset/ops/talotekniikka.pdf>
- The Finnish National Board of Education 2003. Ammatillisen koulutuksen opetussuunnitelman ja näyttötutkinnon perusteet. Talotekniikan perustutkinto. Muutos 47/011/2003. [Core curriculum and skills demonstrations in Vocational Education and Training. Building Maintenance Technology. Amendment 47/011/2003] Retrieved 17 March 2008 from <http://www.edu.fi/julkaisut/maatarkset/ops/talotekperus.pdf>

- The Finnish National Board of Education 2005. Kansallinen ammattiosaamisen näyttöaineisto. Talotekniikan perustutkinto. Retrieved 17 March 2008 from <http://www.oph.fi/nayttotutkinnot/>
- The Finnish National Board of Education. 2007a. Finnish Education System. Retrieved 15 November 2007 from <http://www.oph.fi/english/page.asp?path=447,55149,4951,15059>
- The Finnish National Board of Education. 2007b. Vocational Education and Training System in Finland. Retrieved 15 November 2007 from <http://www.edu.fi/english/pageLast.asp?path=500,574,4951,15059,11261>
- The Finnish National Board of Education. 2007c. Competence-Based Qualifications 1st of January 2007 (5/2007). Helsinki: Hakapaino.
- The Finnish National Board of Education 2008a. Application of the European Credit Transfer System for Vocational Education and Training (ECVET) in Finland. Final report summary of FINECVET 2 –project. Retrieved 22 April from <http://www.oph.fi/pageLast.asp?path=1,443,83821,83987>
- The Finnish National Board of Education. 2008b. Legislation Concerning the Recognition of Qualifications. Lainsäädäntö tutkintojen tunnustamisesta. Retrieved 20 August 2008 from <http://www.oph.fi/page.asp?path=1,17629,2280,28741,79173>
- Kärki, S.-L. 2007. Development and implementation of ECVET-system in Finland. Presentation in. München 2-4.6.2007 in German Presidency Conference »Lernraum Europa verwirklichen« »Realizing the European Learning Area« »Réaliser l'Espace Educatif Européen«. Retrieved 31 March 2008 from <http://194.97.156.141/media/pdf/forum1/forum1a-kaerki.pdf>
- Koulutusnetti 2008. Retrieved 6 May 2008 from <http://www.koulutusnetti.fi/?file=323>
- Koulutusopas 2008 – Yleisopas. Retrieved 14 March 2008 from <http://www.oph.fi/koulutusoppaat/Koulutusopas.pdf>
- Mäkinen, J.-V. 2007. FINECVET. Talotekniikan perustutkinto. Presentation at the Conference Pätevyudet näkyviksi in 12 Decemer 2007. Espoo. Retrieved 5 March 2008 <http://www.oph.fi/pageLast.asp?path=1,436,13979,65315,79049,79085>
- Mäkinen, J.-V. 2008. (2008). Presentation of FINECVET pilots: Vocational Qualification in Building Maintenance Technology. Presentation in Closing Seminar of FINECVET project April 17 2008. Retrieved 12 May 2008 from <http://www.oph.fi/page.asp?path=1,443,83821,84556>
- Mäntsälä college 2008. Retrieved 6 March 2008 from http://www.keuda.fi/portal/oppilaitokset/keuda_mantsala/in_english/
- Nevala, A.-M. 2007. European Inventory on Validation of Informal and Non-formal Learning. Finland. C3342 / December 2007. ECOTEC Research & Consulting Ltd. In Manuel Souto Otero, Jo Hawley and Anne-Mari Nevala (eds). A final report to DG Education and Culture of the European Commission. 2007 Update. Retrieved August 20 2008 from <http://www.ecotec.com/europeaninventory/publications/inventory/EuropeanInventory.pdf>
- Nyysölä, K. 2004. Achieving the Lisbon Goal: The Contribution of Vocational Education and Training Systems. Country Report: Finland. Retrieved 20 August 2008 from http://www.refernet.org.uk/documents/Country_Report_Finland.pdf
- Rouhiainen, P. & Valjus, S. 2003. Towards closer European cooperation in vocational education and training. The Leonardo da Vinci programme supporting the Copenhagen Declaration – Case Finland. Helsinki: The Finnish National Board of Education, Leonardo Centre, Centre for International Mobility CIMO, Leonardo Unit.
- Statistics Finland 2008. Statistics of Vocational Education. Retrieved 20 August 2008 from http://www.stat.fi/til/aop/2007/aop_2007_2008-06-16_tie_001.html

Vantaa Vocational College Varia 2008a. Core Curriculum of Building Maintenance Technology. Talotekniikan perustaidot. Opetussuunnitelma. Vantaan ammattiopisto Varia. Retrieved 6 March 2008 from http://www.vantaa.fi/i_perusdokumentti.asp?path=1;216;6444;6450;10369;10377;10397

Vantaa Vocational College Varia 2008b. Participation in global cooperation. http://www.vantaa.fi/en/i_alaetusivu.asp?path=110;29972;56869

Appendix 1: Legislation concerning vocational education and training

The Act on Vocational Qualifications 1994 Ammattitutkintolaki 306/1994. Ammattitaito voidaan osoittaa sen hankkimistavasta riippumattomissa tutkinnoissa siten kuin tässä laissa säädetään. Tutkinnot ovat ammatillisia perustutkintoja, ammattitutkintoja ja erikoisammattitutkintoja.

The Act on Vocational Education and Training (1998). Laki ammatillisesta koulutuksesta 08/21/1998, 630/1998. The act prescribes on the vocational upper secondary education and vocational upper secondary degrees, e.g. provision of education and training, instruction, curricula, on-the-job learning, apprenticeship training, special needs education, evaluation and assessment.

The Act on Vocational Adult Education (1998). Laki ammatillisesta aikuiskoulutuksesta 08/21/1998, 631/1998. The act prescribes e.g. on the contacts to the world of work, provision of education, further education and training, students' rights and obligations, competence-based qualifications, evaluation and assessment and funding.

The Act of Polytechnics 1995. Ammattikorkeakoululaki 03/03/1995, 255/1995. The law prescribes e.g. on the following: administration, steering and evaluation, language of instruction, degrees, student admission, teachers and other staff, funding.

Legislation Concerning the Recognition of Qualifications 1986/ 2007. Laki ulkomailla suoritettujen korkeakoulututkintojen tuottamasta virkakelpoisuudesta. 07/11/1986, 531/1986, Renewed 1093/2007.

Finnish legislation concerning the recognition of foreign qualifications has been renewed from 1st of January 2008. The recognition of professional competence of citizens of EU/EEA countries, who have gained their professional competence in another EU/EEA country, is henceforth regulated by a new law (1093/2007). Recognition decisions concerning other foreign qualifications are made in accordance with law (531/1986). (Finnish National Board of Education 2008b.)

The decree on the Implementation of the General System of Recognition of Professional Qualifications of EC Citizens 1997. Asetus Euroopan yhteisön yleisen tutkintojen tunnustamisjärjestelmän voimaansaattamisesta 05/30/1997, 520/1997. The decree prescribes on the procedure of applying for the recognition of qualifications.

The Decree on Vocational Adult Education 1998. Asetus ammatillisesta aikuiskoulutuksesta. 11/06/1998, 812/1998. The decree prescribes on the requirements for competence-based qualifications.

The Decree on Vocational Education and Training 1998. Asetus ammatillisesta koulutuksesta 11/06/1998, 811/1998. The decree prescribes on the following: studies and their scope, counselling, on-the-job learning, apprenticeship training, special needs education, assessment and evaluation.

The Degree on Polytechnics 1995. Asetus ammattikorkeakouluista 03/03/1995, 256/1995. The decree prescribes on the following: administration of polytechnics, polytechnic degrees, studies, study programmes, EU legislation and international agreements, credit transfer, certificates, academic year, student admission, requirements for teaching staff.

Appendix 2: Teacher interviews 21-22 May 2008

A short description of the project

- 1 About the sector
 - a) The name of the qualification _____
 - b) The students (joint application, student intake, student motivation)
 - c) The framework of studies (*lectures, on-the-job-learning, skills demonstrations*)
- 2 The process of recognition in your college. (Certificates, documents, portfolio, personal study plan, others)
- 3 The process of recognition in your college. (Certificates, documents, portfolio, personal study plan, others)
- 4 What kind of methods do you use in the recognition process? (See Table 6 for details)
- 5 In which situations recognition/validation of studies is used?
 - a) How is recognition used in general in your college?
 - b) What kind of accreditation system is used, when studies are performed in other sectors of your college/ in other colleges?
 - c) What kind of possibilities do your students possess in getting his/her studies recognized elsewhere? (Experiences of co-operational projects)
- 6 Describe in details the material of assessment
 - a) Ammattiosaamisen näyttö / skills demonstration. What is evaluated?
 - b) Harjoitus / Exercise. What does this mean?
 - c) Koe / (Exam). What does this mean?
 - d) Työturvallisuuskortti / Card (test) for occupational safety. What parts are included in it?
- 7 The benefits and disadvantages of the recognition process (student and teacher view).
- 8 The validation of qualifications in your college

4. Validation of Acquired Experiential Learning Outcomes within the French VET System: Functioning and Role in Promoting Professionalisation and Lifelong Learning

M'Hamed Dif

Introduction: Research methodology and target groups

In France, the Vocational Education and Training (VET) stream constitutes the second basic component of the whole French educational and training system (E&T) after the general educational system. It plays an important role in connecting the latter to the world of employment and the production sphere through its increasing capacity of promoting professionalisation and learning path fluidity and complementarity within and between formal, informal and non-formal learning through a variety of transparency and recognition of qualifications basic instruments such as the validation of acquired experiential learning (VAE) and competence audit (Bilan de competences). In this context and within the framework of the CREDIVOC project (2007-2009) investigation, this paper report explores and analyses the functioning, role and performances of the existing French »VAE« regime (i.e. Validation of Acquired Experiential learning) with the aim of identifying its transference feasibility as an effective practice to other contexts in Europe. The adopted methodology in this investigation is mainly based on desk research and documentation completed eventually by focus group meetings and interviews with experts and representatives from implementing silent partners and other involved stakeholder in order to prepare, especially during the second year of the CREDIVOC investigation, a supporting case study. In this connection, a specific reference will be made to the exemplary case of »technicians in electro-mechanical engineering« in the field of »Sciences and techniques« (as it will be exemplified for instance through the case of VAE within the ULP) who benefit from VAE regime throughout the grid of qualification/certification levels within the French NQF in this sector.

The French state of the art report consists of three basic sections and an overall conclusion. The first is an introductory overview of the overall structure of existing VET. The second section explores the VAE regime development, functioning and instruments in practice. The third section examines the performance of VAE in terms of a quantitative input-output flow analysis of its beneficiaries, including its qualitative contribution to the achievement of its ultimate objectives such as: the promotion of learning path-fluidity and complementarity between formal and non-formal learning systems and career development trajectories of its beneficiaries. The concluding section (section IV), deals basically with drawing some overall concluding remarks concerning the transference feasibility criteria of VAE instruments to other contexts in Europe as an effective practice for transparency and recognition of qualifications and Lifelong Learning promotion.

Overall structure of the existing VET system

Within the overall structure and functioning of the educational and training (E&T) in France, the end of the compulsory education for all pupils under the age of 16 effectively marks the

start of the Vocational Education and Training (VET) stream. In this connection, the French VET system constitutes the second basic component of the whole educational and training system after the dominant general educational stream. The present VET system is composed of two basic network streams: the Initial Vocational Training (IVET) and the Continuing Vocational Training (CVT) (Dif, 2007).

Initial Vocational Education and Training (IVET)

The Initial Vocational Education and Training (IVET) system is, in its turn, made up of two basic systems: the initial vocational education (IVE) and the initial vocational training (IVT).

Initial Vocational Education

The initial vocational education is a full-time school-based system in one of the two educational streams: technological and vocational education undertaken at college and university levels.

At the upper secondary colleges (lycées), the vocational and technological education leads to the following degrees:

- The vocational aptitude certificate (CAP) or a vocational studies diploma (BEP) at the end of a two or three-year course based on alternation between vocational schools/centres and training within the enterprises. They allow their holders to have an easy direct access to the labour market.
- The final upper secondary college diplomas: the professional baccalaureate (Bac.Pro.) and the technological baccalaureate (BTn). They allow their holders to have access to higher education.
- The high technician diploma (BTS): It is a two/three-year university level degree which prepared within the upper secondary schools (lycées).

At the university and within the framework EU standardised »LMD (Licence-Master-Doctorate)« regime (launched via the higher education reform of 2002) whose implementation was generalised during 2006, vocational education leads to obtaining Professional Bachelor and Master diplomas. All these undergraduate and post-graduate diplomas can also be prepared within the framework of particular work-related contracts such as the apprenticeship contracts.

In fact, the initial vocational and technological education plays an important role in keeping students familiar with the new technological change. In addition, it contributes to smoothing the transition between schools and working life.

Initial Vocational Training

There are three methods of organising IVT: apprenticeship, alternating vocational training and other specific training (or inclusion/re-inclusion) programmes which integrate within the framework of specifically targeted measures.

A- Apprenticeship:

Apprenticeship in France has its historical roots in the mediaeval guilds with their strict hierarchy of apprentices, journeymen and master craftsmen. Today, apprenticeship is an employment contract comprising an alternation between school-based initial vocational training and work-based practical training, i.e. apprentices receive theoretical training at an Apprentice Training Centre (CFA) and acquire practical skills within an enterprise. Apprenticeships culminate in a vocational or technical training diplomas or an officially recognised title. In other words, apprentices prepare the same vocational and technological diplomas prepared in the initial vocational education (IVE) as it is confirmed by the apprenticeship reform Act 87-572 of 23 July 1987.

Within the apprenticeship system, the employer is required to arrange for the apprentice's practical training by appointing an apprentice master (*maître d'apprentissage*) for this purpose.

The apprentice master is a skilled employee who gives the apprentice on the job work assignments and tasks and secures the follow-up according to an annual schedule of progress drawn up through an agreement with the apprentice training centre. This training must be validated by a diploma or title.

Apprenticeship is basically funded by employers with the support of the State and regional councils. During the apprenticeship period, the apprentice receives a salary ranging from 30% to 80% of the national minimum guaranteed wage depending on the apprentice's age and the length of time he or she has served under the apprenticeship contract.

B- Alternating vocational training:

Following the National Inter-professional Agreement of the 5th December 2003, the 2004 Act (4 May) concerning »LLL and social dialogue« introduced the »Professionalisation Contract« (Contrat de professionnalisation: CP) which has become since the 1st of October 2004, the substitute of the previous three vocational inclusion contracts (vocational qualification contract, vocational guidance contract and the vocational adaptation contract). It combines an alternation between work within an enterprise and training within a training institution (such as CFA). Its objective is to allow young people under the age of 26 and without professional qualification to complete their training at any level, including job-seekers aged 26 years and more. The objective enables its beneficiary to obtain a »Vocational Qualification Certificate (CQP: Certificat de Qualification professionnelle)«, a title or a qualification referenced by the collective agreement.

The duration of the contract or the professionalisation is 6 or 12 months, with the possibility of extending it to 24 months depending on sector agreement and the specific case of the beneficiary and/or the nature of the undertaken training. The salary of the beneficiary is a percentage of the minimum guaranteed wage which goes from 55% up to 85% (and even beyond) depending the age and the qualification level.

The funding is provided by an accredited fund collector and manager called OPCA obtained thorough the professionalisation contribution of 0.5% of the overall payroll (or 0.15% for firms with less than 10 employees).

C- Other specific and accompaniment measures:

They are socio-vocational inclusion and accompaniment measures targeting job-seekers within the age range 16-25 who left school without vocational qualification. They also concern long duration unemployed and unskilled adults beyond 25 years old.

Continuing Vocational Training (CVT)

CVT concerns adult individual already embarked on their working life, or they are just entering it with the main aim of:

- Helping them to adapt continuously to changing working techniques and conditions,
- Maintaining or improving their vocational core competences and specific skills,
- Contributing to the development of their work-related functional and promotional flexibility/mobility in particular and socio-professional promotion in general.

Since its formal introduction by the 1971 Act of 16/07/1971, the CVT has undergone important extensions and enrichment concerning its functioning, instruments and active role of social partners and other stakeholders on national and regional levels. The CVT has always been composed basically of two basic components: Employer-Directed CVT (ED-CVT) and Employee Self-Directed CVT (SD-CVT)

Employer-Directed CVT

Employer-oriented and directed continuing vocational training (ED-CVT) is the dominant component of the French CVT system. It is generally carried out through the vocational training plan of the organisation (private or public). It includes all kinds of short term and medium term vocational training decided and implemented by the organisation in favour of its employees. It is the result of a concerted action within the enterprise aiming at the promotion of internal functional labour flexibility and adaptability. For the enterprises, the training plan is usually financed through the firm's overall obligatory contribution to an accredited vocational training funds collector and manager (on branch and regional levels) called »OPCA« (representing now an overall minimum contribution by the enterprises of 1.6% of their total wage bill).

The contributions of enterprises to the development of a vocational training system adapted to their needs through ED-CVT have been continuously increasing during the whole period of this new era since the 1971 Act. For instance, between 1980 and 1994, the number of trainees financed by companies had doubled. The amount of money put in by companies was very important representing for instance in 1994 about 3.3% of their total wage bill (about the double of their legal financial obligation).

However, the continuing vocational training developed (directly and indirectly) by employers is mainly characterised by its short-term and punctual nature with the aim of adapting »core employees« to their changing functional tasks (Germe and Pottier, 1996).

Employee- Self Directed CVT

As the second basic component of CVT networking, self-directed continuing vocational training (SD-CVT) is considered as the employee's choice and preference guided form of training. It is usually carried out through three main formally institutionalised vocational training regimes:

A – Leave for self-directed continuing vocational training (LSD-CVT):

Officially introduced in 1971, LSD-CVT (*Congé Individuel de formation: CIF*) regime was designed to allow any worker, over his or her working life, to take paid leave (under minimum requirements adapted to the nature of work contracts) to pursue self-initiated and directed training programmes independent of the organisation's training scheme with the guarantee of maintaining the work contracts during the training periods (Paul, 1992; Guilloux, 1996). It was created to promote free choice and equal access to learning and training by introducing three interdependent guarantees (Gahéry, 1996; Guilloux, 1996):

- A guarantee of free-choice in the sense that the beneficiary of this kind of leave is free to choose any type of training programme outside the organisation's usual training scheme. The training undertaken can be vocational with a variety of ultimate aims such as the promotion a job conversion and mobility within the organisation or just a simple adaptation to changes in technology and labour market structures. The training programme can also be non-vocational with the aim of allowing the trainee to acquire general qualifications and/or get more involved in the social and cultural life.
- A guarantee of equal chance for having access to learning and training within this regime. This means that all workers with different types of work contracts can benefit from it. Originally, LSD-CVT was designed and implemented exclusively in favour of workers recruited according to non-limited duration work contract. It took twenty years for this regime to adapt to the situation of precarious employment. In December 1991, it was officially extended to include employees on fixed duration contracts and temporary workers.
- A guarantee of autonomous funding and management. Since 1984, the LSD-CVT has been financed through a special fund held and managed by an independent parity organism (called OPACIF). This fund is fed by a compulsory contribution from the employers representing at the moment 0.20 % of the total amount of wages paid to their employees. The state takes into charge a part of the training costs. However, the state contribution is variable over time and still generally limited to financing special cases of vocational training leave such as long term training leaves and the training leaves within small companies (with less than 10 employees).

B – Leave for the validation of acquired experiential learning (VAE leave):

In accordance with the Social Modernisation Act of 2002 and the implementation Decree of 3 May 2002 concerning VAE, the employee can undertake a leave for VAE (*congé pour la validation des acquis de l'expérience*) financed in the same way as LSD-CVT.

C – Leave for competencies audit (LCA):

Leave for Competence Audit (Congé de Bilan de Compétences: CBC), which can be taken by any employee who possesses a working experience of five years, of which one year at least was with the last employer. It allows its beneficiaries to have their experiential vocational and personal qualifications assessed and to be able to state clearly their own competencies and career development projects. Its costs are taken into charge in the same way as those linked to LSD-CV. As is the case with the LSD-CVT regime, LCA is adaptable to the individuals' employment status: permanent, limited duration or temporary employment. Moreover, the beneficiary of these regimes has the right to the same kind of guarantees: free-choice, equal access, autonomous funding and management.

Individual Right for Training (DIF)

The Act of 4 May 2004 on lifelong vocational training introduced an individual right to training for everyone in employment, transferable from one company to another under certain conditions (redundancy, business closure or restructuring). The right is exercised at the initiative of the employee but in consultation with the employer. So it is half-way between ED-CVT and ESD-CV. The acquired credits in terms of duration are 20 hours per year, which can be accumulated over a period of 6 years. The training usually takes place outside the enterprise and taken in charge by the employer.

»VAE« development, functioning and instruments

VAE development: background overview

The notion of identifying, assessing and formally recognising the individual's informal and non-formal experiential learning outcomes is not new to the French educational and training system. Its introduction has been a gradual process in scope and content. Its origin goes back to the 1934 Act of July the 10th. In fact this act provided the first general conditions for the delivery of an »engineer« grade to individuals who accumulated at least five years of working experience in engineering (Lenoir, 1996). Then, the 1985 Decree (of the 23rd August) extended it under the name »VAP« (Validation des Acquis Professionnels: Validation of Acquired Professional experiential learning) to allow adults to have access to different forms of formal learning at university level (leading to national degrees starting from at least the supervisor-high technician level, i.e. level III) through the accreditation of their prior formal, informal and non-formal learning. Its generalisation to all categories of working individuals had to wait until the 20th of July 1992, the date of its official introduction by the 1992 Act and successive complementary and implementation regulations (Ravat, 1997a, 1997b; Terrot, 1997; Dif, 2002 and 2007). However this generalisation had, at the same time, restricted its application to only prior work-based non-formal learning. This is why it has been further extended and enriched during the first half of this decade, under a new generic acronym name »VAE« (Validation de Acquis de l'Expérience: Validation of Acquired Experiences), through the »Social Modernisation Law« of 17 January 2002 to include, in addition to work-based learning, experiential learning outcomes gained through prior social and cultural

activities. This includes reducing the required period of prior experiential learning from five to three years.

VAE functioning, financing and instruments

VAE objectives

As promoter of life long learning, the accreditation of experiential learning in the spirit of 1992 Act and its recent enrichment (through the Social Modernisation Act of 2002), is a generalised codification of a new individual right, based on two innovative concepts (1992 Act; Perker & Lairre, 1997; 2002 Act; Dif, 2007):

- Life experience at workplace and outside it is not limited to the application and use of knowledge acquired within the traditionally well established formal educational and training institutions. On the contrary, it is a continuing learning process, which can produce equally recognised competencies and knowledge, which allow for the development of further formal, informal and non-formal learning.
- Furthermore, it contributes to the promotion of learning path-fluidity and complementarity between formal, informal and non-formal learning within an open dynamic and multidimensional approach to identity formation and development in an active citizenship.

It is an individualised inclusive right for a continuing access to the process of experiential learning assessment and certification under a certain number of conditions. It allows any individual, who could accumulate regularly or irregularly an experience of three years, as a full-time or a part-time worker in at least one activity related to a targeted degree, to apply for an exemption in the required exam-units. Therefore, the beneficiary can be an employee, an artist or an independent worker. This is possible regardless of whether the candidate is still working or looking for work at the moment of applying for an accreditation (Dif, 2007).

Moreover, as a summative instrument for validating experiential learning, the »VAE« is to be distinguished from another individualised right for access to a »Bilan de Compétences (BC)« (i.e. a »Competence Audit«). The latter is simply an audit of the individual's personal and professional competencies with the basic aim of supporting the beneficiaries' projects for career development/re-orientation and related further training and learning. As a formative and guidance instrument, it does not give its beneficiary the right to any direct formal accreditation or certification.

VAE access and functioning procedure

The access procedure to VAE regime in its last generalised version can be grouped into a succession of three main stages (Dif, 2007; Hawley, 2007; Feutrie, 2006):

1st stage: Information and individualised guidance

There are many sources of information and guidance for interested individuals in VAE. In addition to the VAE national governmental website <http://www.vae.gouv.fr>, each academy, department and university at regional level is equipped with at least one information and

guidance provision centre and related website. This allows the potential candidates to have direct access to necessary information and accompanied guidance to complete an initial feasibility application file which outlines their experience in relation to the qualification validation and certification they want to apply for. For this purpose, they can also access the related online »qualification/certification-occupational referential« as standard reference frameworks which outline the knowledge, skills and competence they should possess in order to be awarded the relevant qualifications. Then this initial dossier is submitted to the accreditation/certification body for the relevant qualification, which decides within 2 months on the application validity to go on for the second main stage.

At the university level for instance (according to a recent interview with managers of VAE departments), the VAE functioning at this stage is clearly implemented through a succession of two basic interconnected steps:

Step 1: Reception and individualised information and guidance

This includes in its turn two basic steps:

1. Individualised reception and listening to the candidates in order to help them to explicitly formulate and/or reformulate their VAE needs and expectations in connection with the existing »teaching units«, diplomas and VAE modes (access to further learning within the VAE framework of 1985 or access to certification in accordance with the 2002 Act).
2. Individualised targeted information provision and guidance for the candidate to formulate/reformulate her or his VAE project.

Step 2: Pre-application admissibility: Completing and submitting the (administrative) admissibility application file. This is a two-step process:

1. An individualised accompaniment feedback process through its three basic parts:
 - Part 1: Description of his or her learning and professional trajectory, project and motivation (commitment) in close connection with subject of application and the identified targeted diploma. This should be done in 2 to 3 pages.
 - Part 2: Prior experiential activity description (in close connection with the subject of the application and its identified targeted diploma). This should be done in about 10 pages at most.
 - Part 3: A CV which should be detailed in 2 to 3 pages. It has to put forward clearly all exercised activities and acquired (specific and transversal) competences in close connection with the VAE application subject and its identified targeted diploma.
2. Justified feasibility decision: Here the completion and submission of the pre-admissibility application usually goes through an individualised and accompanied feedback process between the applicant and the accompanying person. When the pre-admissibility application is formally completed, it is submitted to the person(s) in charge of the identified targeted diploma to look into the admissibility of the application and to take a justified feasibility decision (concerning the pedagogical content and meeting the requirement of acquired experiences of three-years in the domain). In both cases of refusal and acceptance, the

decision has to be justified. If the justified favourable decision leads the launch of the third stage (including guidance for further development of the application file), the motivated unfavourable decision may include guidance and reorientation towards another VAE/ diploma or access to further learning.

2nd stage: Preparation of the candidate's portfolio of acquired learning experiences:

Once the initial pre-admissibility application is approved, the candidate proceeds to the preparation of his or her complete VAE dossier: the »portfolio of acquired experiences and competences«. From this stage onward, the candidate is strongly recommended to continue having an accompanying or mentoring support. The completed application is generally a four-part file:

- The first part has to include all the formal documents necessary for admission [e.g. an application for exam-exemption units, a motivation letter, a formal proof of 3 years of (regularly or irregularly) working experience, a full description of previous occupational and training tracks, and an affidavit for correct information].
- The second part gives a full description of previous occupations related to the targeted diploma. It includes a presentation of previous employers and occupations, and a full description of at least two main activities related to the subject of the requested validation (including the conditions in which they were performed).
- The third part is a complement to the previous parts. It contains further information chosen voluntarily by the candidate to back up his or her candidature for an accreditation.
- The fourth part is made up of different questionnaires which cover basic exam-units related to general or transversal core competences (such as French language, mathematics, physics, foreign languages, etc.).

3rd stage: Assessment and validation by a Jury:

The assessment and validation process takes place at an accredited centre for this purpose. It is taken charge by a jury which must be constituted and chaired in accordance with VAE related general regulations and those specific to each type of qualifications. In general a quarter of its members must be from the qualified representatives of the relevant occupational sector. Half of them must be representing employers and the other half has to represent employees with an equal balance between men and women. There are no further formal regulations regarding the remaining members of the jury, except the fact that no staff from the candidate's company is allowed to be a member of the jury. Except in certain cases in higher education, the accompanying advisors who helped the candidate to prepare his or her VAE application file are also excluded from the VAE jury. Although the general regulations are the same, the composition and role of the VAE jury is slightly different. The president or the director of the higher education institution nominates the chair and members of the jury. The VAE jury in this case must be made up of a majority of teachers/academics and must include at least one member from a company or external organisation (connected with the occupational sector of activity) with the exclusion of the candidate's employer organisation.

The jury's role in this stage can be divided into three key steps:

Analysis and assessment of all the information contained in the application file to identify the applicant's prior experiential knowledge and competences which comply with the requirements of the candidate's targeted certification (in accordance with a standard qualification/certification-occupational activity referential to secure a minimum of quality assurance).

Interview: this allows for obtaining complementary information and clarifications from the candidate concerning his or her submitted portfolio of acquired experiences and competences. If in general the interview may take place at the request of the jury or the candidate, it is compulsory in higher education.

Deliberation and final decision: The VAE jury then proceeds to deliberation and takes as an outcome of the overall assessment one of the following final decisions: a full validation (and awarding related certification), a partial validation (some exemption units) or refusal to award the requested qualification/certification.

VAE financing

As for the VAE financing, it is dependent on the candidate's employment status as follows:

For employed individuals there three open possibilities:

- Within the framework of ED-CVT: the enterprises training plan;
- Within the framework of »DIF« (Individual right for training) scheme;
- Within the framework of ESD-CVT: VAE leave scheme (financed through an independent accredited parity funds collector and manager called OPCA (Organisme Paritaire Collecteur Agréé)).

For unemployed/job-seekers, there are two possibilities:

- ASSEDIC (Association for Employment in Industry and Commerce) which manages unemployment insurance funds
- Regional authority (Regional council)

For self-employed individuals, VAE is financed by a Training Insurance Fund collector and manager called FAF (Fonds d'Assurance Formation).

VAE functioning instruments within the French national qualification framework

The output of VAE process covers a wide range of certifications distributed through the French nomenclature for vocational qualification levels (ranging from I to V).

There is a grid of levels used in different manners according to the awarding bodies (certificateurs) responsible for the certifications (Bouder & Kirsch, 2007):

- Level 1: It concerns executives, engineers, managers and experts possessing qualification level through education and training equal or superior to the Master degree and more (Baccalaureate + five year or more in higher education level).

- Level 2: Middle managers and experts possessing a qualification level through education and training equal to a Bachelor degree or a first year of a »Master« (Baccalaureate +3 and 4 years of higher education).
- Level 3: High technicians and supervisors with a qualification level corresponding to the Baccalaureate plus two-year higher education level.
- Level 4: Team leaders, technicians and highly skilled workers possessing a technological or a vocational Baccalaureate (BTn or Bac.Pro.), a Technician or a Vocational Certificate (BT and BP).
- Level 5: Skilled workers and employees holding CAP (Vocational Aptitude Certificate) or BEP (Vocational Studies certificate).

The process of diplomas creation connected with this grid (levels within the »French Qualification Framework: FQF«) is based on the combination of two referential standards: »occupational referential« and »diploma/curricular referential«.

- The first referential standard (»occupational referential«) refers to the identification of the main missions and tasks to be performed by the future holder of the diploma, including the specification of the conditions under which they will be implemented.
- As for the second (i.e. »the diploma referential«), it requires establishing a list of the corresponding skills and knowledge required effectively by the employment process itself.

The Technical Accreditation Commission of technological qualifications (Commission technique d'homologation des titres et diplômes de l'enseignement technologique) which is in charge of this process, was substituted by the National Commission for Vocational Certification (CNCP) in January 2002 through the Social Modernisation Act which was the same legislation that set in place the »VAE« regime (Hawley& Roy, 2007).

The CNCP body had three key objectives:

- Establishing and maintaining a National Repertory for Vocational Qualifications/certifications (Répertoire National des Certifications Professionnelles - RNCP);
- Overseeing the reform and updating of qualifications (diplomas and certificates) on the basis of developments in education and the labour market;
- Providing recommendations to organisations that deliver vocational qualifications and provide information about the relationship between different types of qualification.

The National Commission for Vocational Certifications (CNCP) is composed of 43 members: ministerial representatives (16), social partners (10), qualified experts (11) and representatives of the Chambers of Commerce (3) and the Regions (3). It has also set up a specialized Commission to examine requests to include qualifications in The National Repertory for Paraprofessional Qualifications (Répertoire National des Certifications Professionnelles - RNCP). The RNCP which is functioning on the basis of a national secretariat and a regional networking was also created in 2002, on the initiative of the state but with the participation and agreements of social partners. Its purpose is »to catalogue all

existing qualifications and certificates in order to be able to establish bridges and equivalences between them, with a view of promoting employees' mobility and preparing career plans».

Depending on the delivering bodies, there are three main categories of certifications:

- National Vocational Certificates (diplomas) delivered by the State through its different ministries (education, agriculture, youth & sport) automatically and permanently registered in the national repertory »RNCP«.
- Vocational Qualification Certificates (»CQP: Certificats de Qualification Professionnelle«) created and delivered by the sectors under the responsibility of social partners. Their registration (for 5 years) within »RNCP« is requested by the concerned sector bodies and approved by the commission »CNCP«.
- Certificates and titles delivered by chambers of commerce, public or private institutions under their own names. They can also be registered (also for 5 years) within the National Repertory for Professional Certifications (RNCP) on request and after the approval of the National Commission for Vocational Qualification Certifications »CNCP«.

By the end of 2006, the RNCP contained over 3,500 vocational qualification (or certification) descriptors of which over 1,300 descriptors had been registered by request and subjected to an evaluation by the CNCP. The remaining ones were provided by national ministries and were included automatically. Today, there are over 4,100 descriptors available in the RNCP database (Hawley & Roy, 2007).

In this connection, it is very important to underline that the French educational and training (E&T) system is now based on one single system of qualification and certifications, rather than separate systems for those qualified through VAE and those qualified through formal routes. Certificates and titles awarded by different educational and training bodies do not differentiate between certifications obtained through VAE instrument and those obtained via school-based formal routes. This might be quite different in many other European countries (Hawley & Roy, 2007; Boudier & Kirsch, 2007).

Moreover the VAE functioning was further reinforced through the higher education reform of 2002, leading within the EU standardised three-cycle-system (Bachelor – Master – Doctorate, named in France LMD: Licence-Master-Doctorat) to the simultaneous introduction and implementation of ECTS (European Credit Transfer) distributed through the French Qualification Framework (FQF) level grid structure as follows (M.E.N., 2006) :

- FQF3 (Bac. +2): 120 ECTS for BTS (High Technician Certificate) and 120 ECTS for DUT (University Diploma in Technology);
- FQF2 (Bac. +3 and 4): 180 ECTS for the Bachelor degree (Licence) and 240 ECTS for the first year of Master degree (M1);
- FQF1 (Bac. +5): 300 ECTS for Master degree (2nd year of Master degree: M2).

»VAE« observed performance

The VAE performance can be assessed in terms of its contribution to the achievement of two layers of interrelated objectives:

- The intermediary objectives specific to its effective implementation and functioning in practice, i.e. in terms of input/output flow (basically quantitative indicators);
- The ultimate objectives such as its contribution:
 - To the development of learning-path fluidity between formal and non-formal learning;
 - To the individual beneficiaries' LLL, employability, flexibility and mobility in particular, and their socio-professional promotion in general.

VAE performance in terms of input/output flow

In order to keep track of the development and its performance, it is important to distinguish between two periods: prior to the 2002 Act and afterwards (Dif, 2000 and 2007).

Its performance prior to the 2002 Act

Prior to the 2002 Act, there is a distinction between two level-categories of certification and further learning for which the accreditation is usually requested:

- Accreditation for vocational and technical certification linked to the secondary school vocational education and training system (where only the 1992 Act and its implementation decree of 1993 were applicable).
- Accreditation for access to the university-level further (general, vocational and technological) learning and certification. Here both the 1985 Decree (concerning access to higher education) and the 1992 act are applicable.

A- At the secondary school level of certification:

In 1998, 3,383 accreditation applications were examined (against only 971 in 1995). 77 % of them were made by working individuals, and 23% concerned those who were unemployed and still searching for work. The participation of the latter (unemployed individuals) had been observed to be increasing (compared to 20% in 1995). The majority of the applicants (seven out of ten) were aged between 25 and 40 years old. About six out of ten had already accumulated a working experience of 10 years at least. Women were represented through 55% of the total number of submitted applications (M.E.N.R.T, 2000).

As for the requested form of certification, the applicants were interested in all kinds of existing certificates. But, they have a higher preference for »BTS« (higher technician diploma) represented by 44.7%. 21.7% have increasing preferences for »CAP« (the vocational aptitude certificate). The third position, is occupied by both the vocational certificate (»BP«) and »Bac. Pro« (Vocational Baccalaureate) with about 14%. All these diplomas were predominantly requested within the activities of the tertiary sector (69%) and the industry (26%) (M.E.N.R.T, 2000).

The applicants' motivations were basically linked to their decisions to have their experiential work-related learning formally recognised. They represent about 52% of the whole number of applicants. Only 17% were motivated by job-conversion and mobility (M.E.N.R.T., 1998/2000).

Concerning the rate of intermediary and final success, 88% of the accreditation applicants succeeded in obtaining partial or full exam-exemption-units in 1998. 69% of these success cases were obtained in the tertiary sector, followed by industry with 26.3% (leaving only 4.7% to the construction sector). As for the final certification, out of 5,360 candidates during the period of 1995-1997, 47% of them succeeded in obtaining their targeted diplomas (M.E.N.R.T., 1998).

B- At the university level of certification:

According to a survey carried out in 1998 by the DPD (Department for Programming and Development) and the DES (Department of Higher Education) of the Ministry of National Education (MNRT) concerning the effective practice of VAE:

Most of the universities have responded favourably to the implementation of the generalised version of the »VAE« by creating the necessary organisational structures for the identification, assessment and the accreditation of experiential learning. About 12,000 accreditation applications were treated in 1998 to a variable degree by all the universities.

The dominant tendency to continue with the application of VAE (VAP at that time) in its version limited to the framework of the 1985 Decree: 90% of the accreditation applications are treated within this framework, i.e. over a third of the universities still did not make use of all the possibilities offered by the generalisation of VAE regime in its 1992 version. This is basically due to the difficulty in making the necessary practical arrangements for its strict implementation at the university level. The VAE in its 1992 version required the use of modular courses in coherence with the prior experiential learning and the individual units of the targeted diplomas tested by an independent jury. In order to increase their chance of success, most of the applicants had preference for an examination based on inter-modular compensations.

A high rate of accreditation in both versions of »VAE« regime: 80% in the case of the limited version of »VAE« (1985 Decree) and 75% in its generalised form (1992 Act).

The beneficiaries of VAE regime in its two versions were predominantly employed individuals representing 59%. The unemployed individuals represented only 27%.

Most of the beneficiaries of the VAE go for general education disciplines: 40% for three-to-four-year university degrees (B.Sc. and M.Sc.), and between 20%-25% of them for two-year university degrees. Then those who have preference for vocational education diplomas came with 20% at a postgraduate level and less than 10 at the graduate level.

VAE performance after the 2002 Act

On the whole, VAE has gradually gained, especially after the 2002 Act, an increasing real welcome and interest, particularly in terms of public opinion and individuals. Since its

creation in 2002, there has been a considerable increase in demand from less qualified individuals seeking to take up this offer of a ‘second chance’ and to progress towards a higher level of qualifications. A total of over 50,000 certifications were awarded between 2002 and 2005 (10,700 in 2002; 17,700 in 2003 and 26,700 in 2005). In 2005, over 3,000 candidates were awarded a full certification by the Ministry of Employment alone – almost twice the number in 2004 (Hawley & Roy, 2007).

In 2004, the regional information stand points (PRCs) received 70,000 individuals for information. 70% of them benefited from individualised guidance interviews. 36,000 effectively submitted their applications for assessment and validation by the VAE jury. About half of these applicants were successful in obtaining their certificates or titles, distributed as follows (Labruyère, 2006):

- According to the candidate’s employment status, age and gender
 - 2/3 employed (against 1/3 unemployed/job-seekers);
 - 30 to 45 year old individuals constitute the dominant age group;
 - 2/3 women.
- According to the level of certification:
 - Level V certification (CAP & BEP): 42%.
 - Level IV (Bac. Pro., BT et BP): 23%
 - Level III (Bac+2): 25%
 - Level II (Bac+3 and 4) : 7%
 - Level I (BAC+5 and more): 3 %.
- According to certification delivery body:
 - National certificates delivered by the ministry of education are the most requested form of certification especially BTS (High Technician Certificate), Level 4 professional certificates and level 5 certificates (CAP).

VAE contribution to the achievement of its ultimate objectives

In terms of its contribution to the achievement of its ultimate objectives and missions mentioned above (i.e., the second set of performance evaluation criteria), the »VAE« has many advantages for the beneficiaries, for the organisation and the integration between formal and non formal learning (Dif, 2001 and 2007).

For the beneficiaries, the »VAE« has many interdependent advantages, namely:

- Social recognition and promotion of work as means of access to lifelong learning and certification.
- Promotion of vocational and social mobility: Through a continuing accreditation of work-related knowledge and access to further learning, the individuals are more able to:
 - Increase the level of their qualifications and open possibilities for job promotions;
 - Develop and diversify the portfolio of their knowledge, competencies and identities;
 - Adapt to changes in employment requirements and working conditions.

As for its contribution to bridging the link between formal and non-formal learning, it can be achieved through its following interdependent fundamental roles:

- Widening the scope of diploma delivery modes, whereby the traditional formal educational and training activity is no longer the unique way for certification. Learning at and from work is considered, according to this regime, as another mode of vocational and technical diploma delivery.
- Establishing, therefore, a new dynamic and more coherent relationship between occupational activity and formal modes of certification.
- Facilitating the creation of a real self-initiated and directed matching between vocational education and training, employment requirements and the individual's needs for identity and carrier development.
- Development of a learning path-fluidity and complementarity within and between different components of the educational and training system as a whole.

Even for the employer, the »VAE« regime constitutes a new external indicator for human resources evaluation and development within the organisation. It is more objective than the internal performance evaluation procedures. Through a process which combines both »occupational referential« and »diploma/curricular referential«, the organisation can develop a system which allows for the identification of reliable criteria to be used in optimising its recruitment/training policy and career development schemes for its employees.

However, in spite of all these identified roles of the regime in favour of employees, employers and the development of learning-path fluidity between formal and non-formal learning, the VAE is still not all shortcoming free instrument in practice (Dif, 2001 and 2007):

First, it is not a »pure« inclusion regime as it practically excludes workers without any initial qualifications at all and non-occupationally active individuals;

Secondly, it does not practically cover all the fields of work-related learning. Some highly institutionalised and powerful »corporatist type of identities« are still rigid and not open to the application of the regime. This case can be found, for instance, in the medical, paramedical and pharmaceutical sector.

Overall conclusions

VAE role and its transference feasibility

In the light of the above analysis of the VAE functioning, instruments and performance within the French VET system (sections I, II and III), it is important to underline that VAE transference feasibility as an effective practice for LLL promotion is based on meeting three categories of interconnected common ground criteria within both original and/or recipient countries. These criteria include: the VAE observed effectiveness in the original country, its integration of the European dimension and the existence of contextual receptivity in the recipient country.

The first criterion is its observed effectiveness in the original implementing country. According to this basic criterion, the VAE, especially in its extended and enriched versions, has many far reaching implications for the promotion of lifelong learning, professionalisation, employability and mobility as it effectively allows for recognising effectively that:

- School-based formal learning is not necessarily of greater importance than experiential learning which can be made visible via VAE instruments.
- Learning has a »life-wide« dimension which brings the complementarity of formal, informal and non-formal learning into one focus, implying that learning can and does take place within the family and the community, in daily social and leisure, cultural and working-life.
- A learning path-fluidity and complementarity within and between formal education and training and informal and non-formal learning can be established by allowing for an equal individualised access to the accreditation of all kinds of experiential learning outcomes based on common referential criteria.
- That individuals can develop their own professional identities in a more dynamic and multidimensional context, and consequently be more prepared to cope with the requirement of change and increasing demand for flexibility and mobility;
- The existing qualification/certification delivery system can be further enriched and widened in scope to allow for an increased access to certification and lifelong learning inside and outside the dominant formal school-based learning system.
- By combining occupational referential with diploma/curricular referential in the process of certification creation and inclusion in the national repertory of vocational certification, it contributes to an effective matching between employment requirements in the labour market and the expected learning outcomes. For this purpose, the National Employment Agency (ANPE) has recently established a direct web link between ROME (Répertoire Opérationnel des Métiers et des Emplois) and the national repertory for vocational certification (RNCP) in order to improve its training and employment guidance and counselling for job-seekers.
- That transparency and recognition of learning outcomes based on one single system of qualifications/certifications connected with the use of modularisation and ECTS system, contributes directly and effectively to the development of national and sectoral qualification framework (NQF and SQF) increasingly integrated within the EQF.
- As a summative instrument for the accreditation of informal and non-formal learning outcomes, the VAE is supported up-front, since the mid 80s, by the existence of a more formative approach to the identification and assessment of experiential learning outcomes called Competence Audit (»Bilan de Competences: BC«). It permits the identification and valorisation of the individual's:
 - professional and personal competences,
 - abilities and potential capacities,
 - interests and motivations.
- It allows effectively its beneficiary:

- to draw up a career/learning strategy
- to support an external or internal 'mobility'
- to develop competencies within a profession
- to design a training path
- to prepare for undertaking a VAE.

The second criterion is the »European dimension« criterion. As a transparency and recognition of informal and non-formal learning instrument, the VAE integrates well within the common ground strategy guidelines and recommendations of the »Lisbon-Bologna-Copenhagen« process for the promotion of cooperation and exchange of effective practices within and between all EU countries through:

- Improving quality and effectiveness of education and training throughout life in Europe for the creation of knowledge-based economy and society;
- Introduction and effective implementation of the European three-cycle (Bachelor-Master-Doctorate) higher educational system, based on modularisation, ECTS system and diploma supplement;
- Development and implementation of national and sectoral qualification frameworks connected with the European qualification framework (EQF);
- Creation of ECVET and common ground principles for identification, assessment and validation of informal and non-formal learning.

The third criterion for exchange and transference feasibility of effective practices between EU partner countries consists of the existence of favourable contextual receptivity in the recipient country. Given their voluntary collective adherence to the implementation of »Lisbon-Bologna-Copenhagen« process strategy guidelines, especially in connection with the LLL promotion through the implementation of common principles for transparency, mobility and validation of informal and non-formal learning instruments, most of the EU countries possess now the required contextual receptivity for cooperation, exchange and/or transference of related effective practices and instruments.

References

- BJORNAVOLD, J. (2000): Making learning visible: identification, assessment and recognition of non-formal learning in Europe, CEDEFOP, Thessaloniki.
- BOUDER, A. & KIRSCH, J.-L. (2007): »The French Vocational Education and Training System: like an unrecognised prototype? In European Journal of Education, Vol.42, N° 4, 2007, pp.503-521.
- CENTRTE INFFO (2002): « Vers une nouvelle culture de la reconnaissance du travail et des activités », Supplément à INFFO FLASH N° 588-589, avril-mai.
- DIF, M. (2007): »Accreditation of experiential learning in vocational education to foster professionalisation«, in Bernd Baumgartl, Fatma Mizikaci and Dean Owen (Eds.): »from here to there: Mileposts of European higher education«, Naverme/Publications, Vol.7B, March, pp.151-159
- DIF, M. (2002): »Accreditation for Experiential Learning in France: Evaluation and perspectives«, In S.Manning, T. Griffiths & M.T. Oliveira (eds.), VETNET ECER 2002 Proceedings: »Current research in European vocational education and human resource development« (<http://www.b.shuttle.de/wifo/abstract/!ecer02a.htm#Dif>).
- DIF, M. (2001): »Competence assessment and accreditation for an integrated formal and non-formal

- learning: a French perspective, paper presented at JNET Fourth International Conference, 16-18 July 2001, University of Wolverhampton, UK.
<http://www.leeds.ac.uk/educol/documents/00001784.htm>.
- EC (2007): »The European Qualifications Framework (EQF)«, European Communities, 2007.
- FEUTRIE, M. (2006) : la validation des acquis de l'expérience à l'université, Université des Sciences et Technologies de Lille, Doc. 23/08/2006
- GAHERY, R. (1996): 1971 – 1996: 25 ans de formation professionnelle en France, In Problèmes économiques, N° 2460, 21 février, pp. 7-12.
- GERME J-F. & POTTIER F. (1966) : « Les formations continues à l'initiative des individus en France : déclin ou renouveau ? » Revue Formation Professionnelle, 1996, CEDEFOP, n°8-9, pp54-61
- GUILLOUX, P. (1996): Le congé individuel de formation: Genèse et évolution d'un droit (1966-1996), Editions L'Harmattan, Paris.
- HAWLEY, J. & ROY, S. (2007): »European inventory on validation of informal and non-formal learning: France«, CEDEFOP.
- KIRSCH, E. (1999) : « Evaluer les acquis de l'expérience : Entre normes de certification et singularité des parcours professionnels », Céreq Bref, n° 159, décembre , pp.1-4.
- KNOCK B., PADDEU J., SAVOYANT A., TESSIER J. & RIVOIRE B. (2002) : « Validation des acquis par l'éducation nationale : Dix ans d'expérience », in Supplément à INFFO FLASH, N°588-589, avril - mai, pp.4-5
- LABRUYERE, CH. (2006) : « La VAE, quels candidats, pour quels diplômes ? », Céreq Bref ,n° 230, May 2006. <http://www.cereq.fr/cereq/b230.pdf> .
- LABRUYERE, CH. et al (2002) : « La validation des acquis professionnels : Bilan des pratiques actuels, enjeux pour les dispositifs futurs », Céreq Bref n° 185, avril , pp.1-4.
<http://www.cereq.fr/cereq/b185.pdf> .
- LENOIR, H. (1996): La reconnaissance et la validation des acquis dans l'enseignement supérieur, In Actualité de la Formation Permanente, N° 141, mars - avril, pp. 58-65.
- M.E.N. (2006) : «Formations et diplômes », Ministère de l'Education Nationale (MEN).
- M.E.N.R.T., (2000): « Validation des acquis professionnels par le système éducatif: une nouvelle composantes de l'activité de certification », Note d' Information, N° 41, octobre.
- M.E.N.R.T. (1998): Validation des acquis professionnels (1994-1997): bilan et perspectives, Publication du Ministère de l'Education Nationale, de la Recherche et de la Technologie (M.E.N.R.T.).
- OECD (2003) : «Le système français de qualification : son impact sur la formation tout au long de la vie »,
- PAUL, J.-J. (1992): Le congé individuel de formation dans les trajectoires professionnelles, In Formation-Emploi, N° 39, juillet-septembre, pp.55-75.
- PERKER, D. & LAIRRE, V. (1997): Validation des acquis professionnels: mise en œuvre d'un nouveau droit, In INFFO: Le point sur la validation des acquis professionnels: le dossier, pp.33-40.
- RAVAT, D. (1997a): La validation des acquis professionnels, In INFFO: Le point sur la validation des acquis professionnels: le dossier, pp.22-24.
- RAVAT, D. (1997b): Le système de validation des acquis professionnels français, In Actes du Séminaire: Validation des acquis professionnels, mobilité et changement en PME: une recherche de convergences européennes, Strasbourg - du 10 au 12 décembre 1997, pp.17-22
- TERROT, N. (1997): Histoire de l'éducation des adultes en France, L'Harmattan, Paris.

5. Accreditation of Prior Learning in the Transition from Continuing Vocational Training to Higher Education in Germany

Wolfgang Miskens, Roland Tutschner & Wolfgang Wittig

The education and VET system in Germany

General school education

Compulsory schooling in Germany starts at the age of six years and usually takes nine years (ten years in some federal states). Subsequent to compulsory education those young people under 18 who no longer attend general education are required to attend a part-time vocational school. Put simply, compulsory schooling in Germany lasts from six to 18 years and for apprentices in the dual system up to the end of their training.

In most German states the educational pathways separate after the four-year primary school (in some states after six years) and lead into the so-called »tripartite« school system, which is made up of the three dominant school types of secondary school (*Hauptschule*), secondary modern school (*Realschule*) and grammar school (*Gymnasium*). There also exist comprehensive schools (*Gesamtschulen*) where different types of school-leaving qualifications are offered.

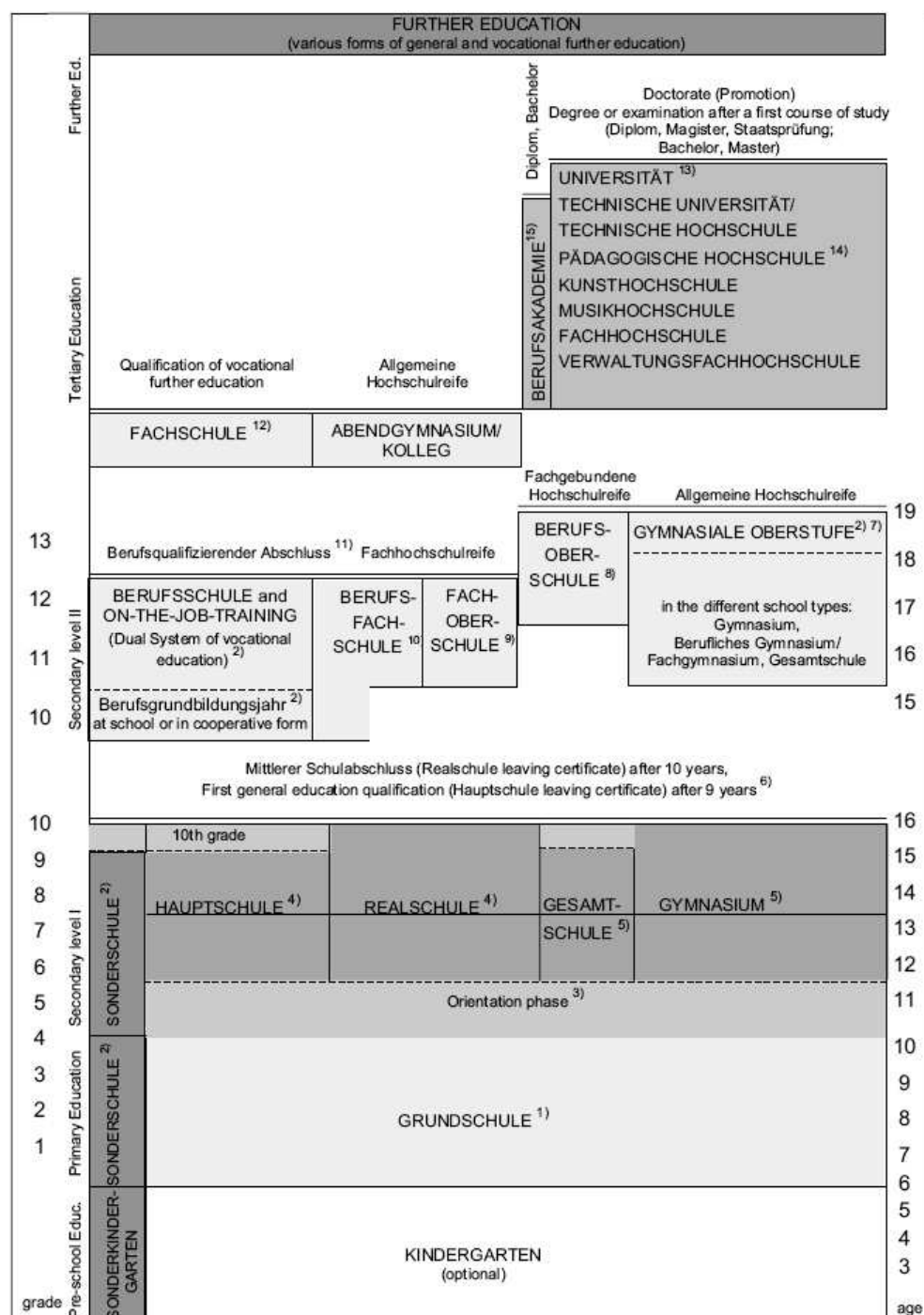


Fig 1: The German education system (source: <http://www.kmk.org/>, accessed 24.04.2008)

Dual vocational education and training

The core of vocational education and training in Germany is the dual system of vocational training according to the Vocational Education Act (*Berufsbildungsgesetz* – BBiG) and the Crafts Code (*Handwerksordnung* – HwO). The system is called »dual« because the process of education and training takes place at two learning venues: in the training company and in school. Dual apprenticeship training in one of the currently 346 recognised training occupations normally takes three years (Hippach-Schneider et al. 2007, p. 26). The successful

completion of an apprenticeship programme enables the graduate to work as a skilled worker in one of these recognised occupations. In the dual system young people whose educational pathways had been divergent meet again after their 15th year of age, for school-leavers from different types of schools can in principle find a training place in this system as no school-leaving certificate is required for admission.

The dual system is the largest part of upper secondary education. Approximately 53% of an age cohort undergo training in a recognised occupation. The training regulations are prepared in collaboration with the social partners and enacted as decrees by the federal government. In terms of organisation there is a shared responsibility of enterprises, chambers of commerce and state authorities. While the enterprises organise the in-company training under the supervision of the chambers, the school authorities of the states are responsible for the school-based part of apprenticeship. The chambers, representing the business sector, play a fundamental role in supervision and administration. In particular they are responsible for the final examinations.

No vocational training	Full-time vocational schools / assistants / health care / civil service trainees	Dual system	Dual system university education (dual studies)	University studies
15%	15,4%	47,5%	5%	17%

Tab 1: Structure of an age cohort by type of qualification, 2004 (source: BIBB 2007)

No school qualification	Hauptschulabschluss	Realschulabschluss	HE entrance qualification	Schulisches Berufsgrundbildungsjahr	Berufsfachschule	Berufsvorbereitungsjahr	Others
2,3%	27,6%	35,8%	16,1%	2,6%	10,4%	2,4%	2,8%

Tab 2: Trainees in the dual system (newly concluded apprenticeship contracts) by school leaving qualification, 2006 (source: BMBF 2008)

However, vocational education and training according to BBiG and HwO is not confined to initial training, but also includes the domain of advanced or continuing vocational education and training. Above the level of initial VET there is a complex system of advanced vocational examinations that are organised by the chambers as well. These advanced training programmes (*Aufstiegsfortbildungen*) lead to vocational qualifications that qualify for management tasks. We will discuss this part of continuing vocational education and training in more detail in the following section.

School-based vocational education and training

In Germany two types of vocational schools can be distinguished, both of which are part of the upper secondary school system although certain programmes are classified by the ISCED system as part of tertiary education (see below). On the one hand there are the part-time vocational schools within the dual system. As mentioned above, they represent the school-based part of dual apprenticeship training. On the other hand there are various institutions of

school-based VET, namely the full-time vocational schools (*Berufsfachschulen*), the technical high schools (*Fachoberschulen*), which lead to the entrance qualification for universities of applied sciences, the vocational high schools (*Berufsoberschulen*), which offer specialised entrance qualifications for universities, and the technical colleges (*Fachschulen*).

The **full-time vocational schools** (*Berufsfachschulen*) are institutions of initial vocational education and training subsequent to general education. They offer an alternative pathway of training in certain recognised occupations besides the dual system, which are mostly regulated by state law instead of federal law. Approximately every sixth vocational degree is obtained at a full-time vocational school. In addition, these schools also offer training in occupations of the dual system to a small extent. The most significant training programmes in terms of numbers of participants are occupations in healthcare and nursing, which are not part of the dual system.

Unlike the *Berufsfachschulen*, the **technical colleges** (*Fachschulen*) build upon a completed programme of initial vocational education and training (either apprenticeship or school-based training). Therefore they are part of the system of continuing vocational education and training. Their mission is to qualify skilled workers who have some work experience for management tasks and for the independent exercise of complex and sophisticated work tasks (see no. 4.1 of the Framework Agreement on Technical Colleges). This also applies to the colleges of technology, which are at the core of the German part of the CREDIVOC project. The advanced training of technicians typically builds upon vocational training in the dual system and enhances the professional knowledge and competences. If certain conditions are fulfilled (see section 3), graduation from a technical college also entails the entrance qualification for universities of applied science.

Advanced vocational training

However, the type of practice-oriented continuing VET offered by the technical colleges is an exception within the German system, for the majority of continuing vocational education (excluding higher education) takes place within the system of advanced vocational qualifications administered by the chambers. Unlike initial VET, there are no regulated training programmes for these higher-level occupations, but only admission requirements and assessment standards for the examinations.

Three levels of advanced vocational qualifications are offered in the chambers' area of responsibility: (1) certificate courses for specialists, (2) advanced occupational degrees that build upon a completed programme of initial vocational education (e.g. senior clerks, foremen, master craftsmen), (3) business specialists (*Betriebswirte*). In terms of admission requirements and the level of qualification the advanced training of state-certified technicians at technical colleges can be considered as equivalent to level 2 of the chamber system. This view is also supported by the fact that German technical colleges are ranked at the ISCED level 5B. The amendment of the Crafts Code of 17 May 2005 explicitly recognised the equivalence of state-approved technicians or designers on the one hand and master craftspersons on the other: graduation from a technical college is fully equal to a master craftsperson's test.

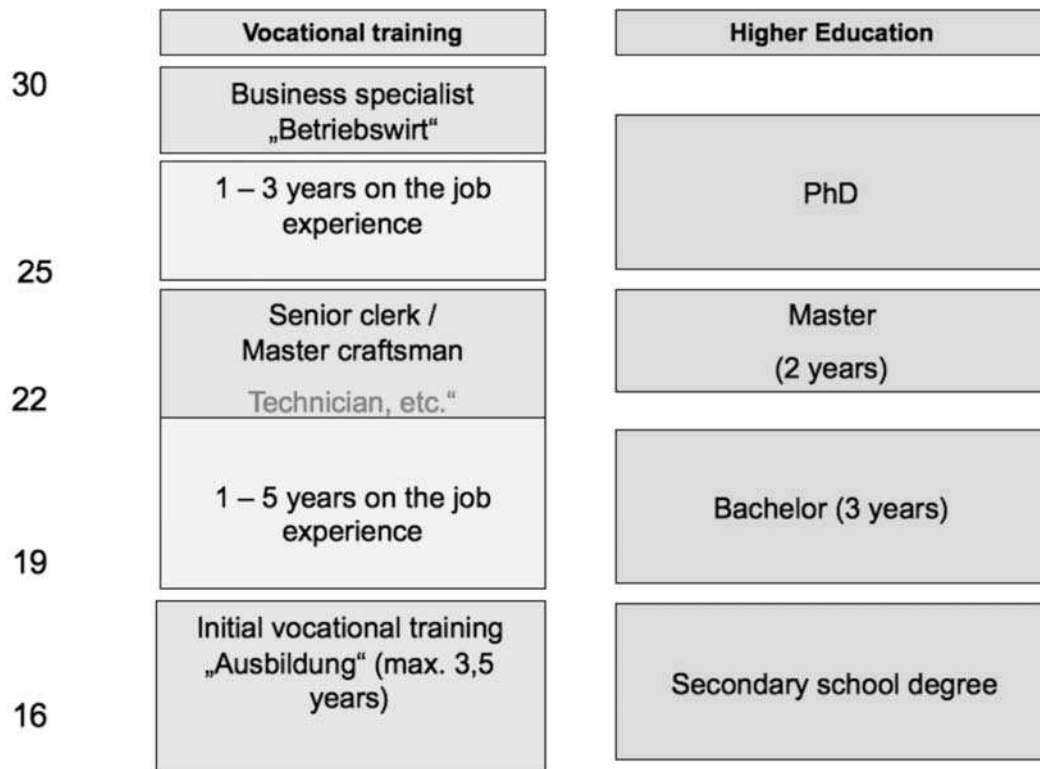


Fig 2: Vocational training and higher education in Germany

The advanced training of state-certified technicians

Technicians' role and qualification in general

State-certified technicians are practice-oriented senior staff at the level of middle management. Originally the vocational profile of technician was created as a link between master craftspersons and graduate engineers. Technicians also compete with these two groups for career advancement in the company. After the reorganisation of higher education programmes in the course of the Bologna process the technician's qualification has most likely to be ranked between the levels of master craftsman and bachelor. According to the results of a study by Jansen, Hecker and Scholz (1998) technicians are favoured by employers for specialised tasks in the production process while junior and middle management positions are preferably filled with master craftsmen or foremen. In work preparation, quality management and technical services technicians are also employed. Senior positions, however, are more often assigned to engineers. This is even truer of research and development functions (BMBF 1998).

The fundamental definition of the role of state-certified technicians can be found in the Framework Agreement on Technical Colleges of the Permanent Conference of Education Ministers. The relevant passage reads: »The aim of training in technology is to qualify skilled workers with relevant vocational qualifications and professional experience for finding solutions to technical and scientific problems, for management functions at the middle level and for entrepreneurship.« The vocational profile of state-certified technicians therefore is

roughly equivalent to the second level of advanced vocational qualifications within the chamber system.

In order to be awarded the title »state-certified technician« (*Staatlich geprüfter Techniker*), candidates have to attend the relevant study programme at a technical college and pass the final public examination. The technician's qualification is not an academic degree, but a recognised vocational qualification. Unlike the initial and advanced vocational qualifications according to the Vocational Education Act and the Crafts Code, which are subject to federal legislation, the technician's qualification, being a school-based profile, is subject to the legislation of the states. The latter co-ordinate their education policy within the framework of the Permanent Conference of Education Ministers (KMK). As regards vocational education and training at technical colleges, the legal basis is the Framework Agreement on Technical Colleges (KMK decision no. 429 of 7 November 2002), which is implemented by the states in their school laws and training regulations. For instance, in the state of Hessen the general mission of technical colleges is described in § 42 of the School Act²², and the advanced training of technicians is regulated in the decree on training and examinations at technical colleges²³ of 7 May 2007.

Technical colleges can be part of vocational colleges or training centres, independent private schools or state schools. Most schools for technicians are vocational colleges or independent technical colleges.

The admission requirements for the advanced training programme for technicians in Germany are as follows:

- Completed vocational education in a recognised occupation that is relevant for the objectives of the technicians' programme and
- At least one year of professional experience in the occupation in question after completion of the training programme.
- Applicants who do not have a recognised vocational qualification may be admitted if they prove at least five years of skilled work experience in a relevant field.

On average the students have four to five years of professional experience before entering the technical college (VdT website).

The continuing training for technicians lasts four semesters and normally takes place in full-time programmes of two years or in four-year part-time programmes. Although there are no standardised curricula, the training programme comprises a minimum of 2,400 hours of instruction. The programme is divided into two phases of equal duration. Transition from the first to the second phase depends on at least sufficient marks in the compulsory subjects (see below).

²² Hessisches Schulgesetz (Schulgesetz – HSchG –) in der Fassung vom 14. Juni 2005 (GVBl. I S. 442), zuletzt geändert durch Gesetz vom 11. Dezember 2007 (GVBl. I S. 921).

²³ Amtsblatt des Hessischen Kultusministeriums Nr. 06/07 S. 338.

Contents of the programme, examinations and fees

The subjects of the technicians' programme are organised in four modules, of which the first three (modules I–III) constitute the mandatory part:

- Module I (general subjects, 400 hours): e. g. languages, mathematics, social studies
- Module II (basic technology, ca. 1,000 hours)
- Module III (applied technology, ca. 1,000 hours)
- Elective subjects (ca. 240 hours).

The first module is covered in the first as well as in the second phase of the programme. The basic technology module, on the other hand, is covered only in the first phase while instruction in applied technology takes place only in the second phase.

In the course of the advanced training for technicians a study project has to be carried out. This project may take the shape of a scientific piece of work, or may consist in the process of solving a practical problem. All necessary calculations and decisions have to be documented in a detailed report. The topic of the project and the grade achieved are listed in the final diploma.

The study programme is finished by a state examination that is composed of four exams in different subjects. In order to pass the examination, the average mark must be at least 4.0 (»sufficient«) with not more than one »fail« mark among the single exams. The marks from the previous semesters are not taken into account for the final result. They are relevant only for the admission to the final examination. The final examination is chaired by the local school authority.

As regards the costs of the programme, there are no tuition fees at most state-operated technical colleges. Students who attend full-time programmes may receive financial support. In some states, e.g. in Baden-Württemberg, tuition fees are charged for the advanced training of technicians. Where the technical colleges are run by the municipalities, financial contributions are also required from the students as only initial training must be free of charge whereas the technicians' programme is a part of continuing vocational education and training. Depending on the institution the fees vary from between €200 and €700 per semester.

Graduates, disciplines, specialisations and access to higher education

It is estimated that between 1970 and 2006 up to 30,000 technicians were trained per year at roughly 800 colleges in Germany. Accordingly the total size of this occupational group is estimated at 750,000 to 1,000,000 state-certified technicians (source: <http://www.technikerforum.de/news-24/bildungsgipfel-einladung-26-04-05-weilburg-6237.html>, accessed 19.05.2008). However, the statistical figures of the last years show that in the meantime the number of graduates per year has fallen to less than 20,000 (Statistisches Bundesamt 2007a, tab. 8.8).

Qualification	Number of graduates
»Fachwirt Technik (IHK)«	1,072
»Technischer Fachwirt (HwK)«	3,821
»Industriemeister IHK« (all domains including foremen)	7,439
Master craftsman	21,111
Engineer (university of applied sciences)	20,917
Engineer (university)	9,463
State-certified technician	14,589

Tab 3: Graduates in programmes for master craftspersons, senior technical clerks, technicians and engineers (2006)²⁴

The technician's degree can be achieved in a variety of disciplines, which are often further divided in sub-disciplines. The Federal Employment Agency distinguishes 77 disciplines in which technicians are trained, 15 of which are characterised by a specialisation in sub-disciplines that vary from state to state. The top rank is held by the field of mechanical engineering, which is divided into 13 sub-disciplines (including one non-specialised profile). When all these specialised disciplines are taken into account and overlaps are excluded, a total of 139 vocational profiles for state-certified technicians can be identified (source: BERUFENET database, <http://berufenet.arbeitsagentur.de/>, accessed 26.05.2008). The reason for this high diversification is the strong orientation of technical colleges towards the qualification needs of the local employers.

After completion of the advanced training programme for technicians, graduates have access to studies at universities of applied sciences, provided that certain conditions are fulfilled. The entrance qualification for universities of applied sciences is awarded together with the vocational certificate when the following conditions are met: the candidate must be in possession of a secondary school qualification at the beginning of the second phase of the technician's programme, and the final examination must cover the subjects specified by the KMK, namely, German, foreign languages and mathematics/science. Two of these three subjects can be covered by the coursework during the training programme. Accordingly the regulation for the state of Hessen stipulates that the qualification for universities of applied sciences is awarded when candidates have at least »sufficient« marks in German, English and mathematics. In one of these three subjects an additional exam must be written in the context of the final examination; the other two are covered by the marks achieved in class. According to the syllabus for the technician's programme, the subject for the additional exam is mathematics. German and English therefore have to be covered by the grades achieved in school instruction (see § 3, § 20 and § 29 of the decree on technical colleges).

²⁴ Sources: Statistisches Bundesamt 2007a; 2007b; 2007c

Initiatives for the enhancement and recognition of the technician's qualification

With regard to the training of technicians two initiatives for the recognition and enhancement of the programme as well as for the adequate validation of learning outcomes with a view to higher education programmes deserve particular attention. These are the Association of Technicians (*Verein der Techniker*, VdT) and the Working Group of Technical Colleges (*Bundesarbeitskreis Fachschule für Technik*, BAK FST).

The Association of Technicians has published a number of working papers and communiqués that promote these objectives and criticize the present accreditation policy of the universities. The criticisms are in particular:

- Technicians have only the initial practical semester accredited while the training programme at the technical college is not taken into account.
- Vocational learning outcomes proved by state-certified technicians, i.e. the completed initial vocational training, the professional experience and the completed training programme at the technical college are not accredited for the bachelor programme at the university.
- The technician's programme is a dead end for those graduates who achieve the entrance qualification for universities of applied sciences, for their actual level of education is not recognised by the universities of applied sciences.
- The vocational profile of state-certified technicians was ignored in the European framework for vocational education and training, which expresses an underrating and devaluation of vocational education and training in comparison to higher education.
- Graduates who attended a two-year college or a higher technical college in another country are awarded a bachelor's degree whereas graduates from German technical colleges do not even have the opportunity to have parts of their education accredited for bachelor programmes.

On the basis of this criticism the Association of Technicians has formulated a number of claims concerning the recognition and accreditation of the technician's qualification:

- Recognition of the technician's and the master craftsperson's profiles in European and international law similar to the recognition of foreign bachelor programmes at German universities.
- Establishment of a vocational profile for technicians at a level between master craftsman, Anglo-Saxon Bachelor and engineer.
- Reform and enhancement of the advanced training for technicians by means of a renaming of the technical colleges. An issue raised in this context is whether a two-year training programme is still up to date and whether it should be extended to three years, following the model of the graduate technician in Switzerland (source: <http://www.v-dt.de/>, accessed 25.05.2008).

The regular meetings of the BAK FST often had the form of discussion forums where experts from companies and ministries as well as researchers debated about the situation of technical colleges and their programmes in the context of economic, technical and political

trends. The future trends were discussed in these forums and recommendations for change as well as political claims were formulated.

The topics, criticisms and suggestions from these meetings give a good impression of the problems and challenges that technical colleges faced in the last years. It becomes obvious that the BAK FST aims particularly at the enhancement of the vocational profile of technicians and at a better recognition.

An important objective of the BAK FST is to clarify the status of state-certified technicians in comparison to engineers (see BAK FST 2008). A clearer description of the profile of technical colleges is advocated in order to better communicate the strengths of technicians as decision-makers in companies often do not know what to make of the term »technician«. One recommendation is to emphasize the particular competences of technicians and the high level of practical experience they acquire during their training process.

The BAK FST also aims to compare the advanced training of technicians with study programmes at universities of applied sciences with a view to accrediting the learning outcomes of technicians for higher education. The introduction of the European Credit Transfer System for Vocational Education and Training (ECVET) is seen as an opportunity for adequate documentation of the qualification and competences of state-approved technicians. The draft German Qualifications Framework is criticized because unlike the master craftsman the technician is not explicitly mentioned.

The changes in higher education in the course of the Bologna process are perceived as a chance to raise awareness of the practice-oriented education and training of technicians. At the same time there are concerns that the ranking of the technician's qualification between master craftsman and bachelor might be called into question.

In order to make the vocational profile of state-certified technicians more attractive it is recommended by the BAK FST to concentrate the various branches of study and to standardise the training programme, i.e. to reduce the number of specialised disciplines and programmes. A further claim is that the technician's qualification should be placed at the level 6 of the European Qualifications Framework and supplemented with the title »Bachelor Professional«.

These debates show that there are not only difficulties regarding the positioning of technicians within the company hierarchy, but that the advanced training of technicians will also turn out to be a dead end if the learning outcomes achieved by technicians are not properly taken into account when access to higher education is at stake. The demonstration of equivalence and the identification of learning outcomes that are fit for accreditation in relevant undergraduate programmes at universities of applied sciences would be a first step towards a valid accreditation of technicians' knowledge, skills and competences in higher education. The following section discusses how such a procedure for recognition and accreditation could be organised and what steps would be necessary for its implementation.

Accreditation of technicians' learning outcomes: the Module Level Indicator

General approach

Until now the Module Level Indicator (MLI) has been applied exclusively in the context of blanket accreditation of vocational qualifications on higher education degrees. This kind of accreditation aims at exemption of study modules. If there are learning outcomes from continuing vocational education which are equivalent to the learning outcomes of a study module in higher education, this module might be exempted for the owners of the corresponding vocational qualification. Even the grades of vocational qualification are transferred to the study module(s).

History and relevance

The Module Level Indicator has been developed in the context of the project »Network for Qualifications North-West«. The duration of the project was from 10/2005 to 6/2008. It was funded by the German Federal Ministry of Education and Research and the European Social Fonds (ESF). It was part of the funding initiative ANKOM (Accreditation of Vocational Competencies on Higher Education), which consisted altogether of 12 regional pilot projects. In each of the 12 ANKOM projects new procedures and instruments for the accreditation of prior learning were developed. The results of the pilot projects were implemented at some universities and universities of applied sciences in Germany.

The pilot projects were preceded by a resolution of the KMK in 2002 and a common recommendation of the BMBF, HRK (German Rectors' Conference) and KMK in 2003. These documents made possible accreditation of competencies that were gained outside of higher education up to 50% of the credit points of a programme of study in higher education.

Today accreditation of vocational learning outcomes in Germany is practised by most of those programmes which are mainly financed by participants (continuing education master programmes and programmes of private universities). However, in public funded standard university programmes mostly there don't exist any possibilities for accreditation of prior vocational learning.

Institutions which offer programmes that are financed by participants are often interested to implement far-reaching possibilities for accreditation, in order to save costs of lecturers. This leads to the question of quality assurance of accreditation procedures. Because of this one of the explicit objectives of the ANKOM initiative was the development of *quality assured* accreditation procedures.

Level

In Germany the 16 federal Länder are responsible for higher education. Each Land has its own Higher Education Act. In 2007 the federal responsibility for higher education was transferred to the Länder. The Federal Higher Education Law has been abrogated in 2008.

Whereas *access* to higher education is regulated in the Higher Education Acts of the Länder, this is not the case for exemption of higher education modules by means accreditation of prior vocational learning. Therefore the universities are responsible for the implementation of accreditation procedures (aiming at exemption). However, all university programmes have to be accredited by an accreditation agency. These agencies evaluate the quality of the study programmes based on the recommendations and resolutions of the KMK.

In the course of most ANKOM projects, which were regional pilot projects, accreditation of prior vocational learning was tested only in the context of a single programme of study.

Regulation

The Higher Education Acts of Lower Saxony and Bremen do not include any regulation of accreditation. Therefore up to now accreditation of prior learning is regulated by the universities on their own. In Lower Saxony an amendment of the Higher Education Act regarding accreditation is planned.

The examination regulation of the Bachelor programme »Business Administration in small and medium enterprises« includes a clause about »Accreditation of prior learning«, which also implies the accreditation of prior vocational learning.

Availability of information about accreditation

The website of the Bachelor programme »Business Administration« at the University of Oldenburg (<http://www.bba.uni-oldenburg.de>) provides detailed information regarding possibilities and procedures of accreditation for students and potential students. At this website one can find detailed lists of the modules, which will be exempted due to a formerly achieved vocational qualification.

General information on accreditation procedures and the pilot project »Network for Qualifications North West« may be found at the project's website <http://www.web.uni-oldenburg.de/anrechnung>.

The website of the ANKOM initiative <http://ankom.his.de> provides information on all of the 11 participating pilot projects.

People involved / target groups / users

The blanket recognition procedures at Oldenburg University are coordinated by the Wolfgang Schulenberg Institute. The Schulenberg-Institute appoints an independent expert. This expert is instructed regarding the accreditation procedures and instruments by the researchers of the institute. The expert has to compare the content of the learning units of the vocational qualification with those of higher education. Additionally a level comparison (by means of the MLI) has to be performed by the expert.

The comparisons of the experts are based on documents (e.g. curricula, study material, text books, and examinations). These documents are provided by the lecturers at university and the vocational training institutions.

Based on the results of these comparisons, the Wolfgang Schulenberg Institute compiles an accreditation recommendation. This recommendation may be confirmed by the examination commission and subsequently published by the programme's coordinator.

So, potential students, who already completed a vocational qualification, find detailed information on the programme's website, which modules will be exempted, if they would actually enrol in the programme.

These students that already completed vocational qualifications are the target group of the accreditation procedure. In Germany exist numerous vocational qualifications. Some of these qualifications are full-time school-like programmes; some of them are on-the-job part time offerings.

The main target group of the CREDIVOC project are technicians who intent to enrol in a university programme. In the preceding ANKOM project people with continuing vocational management qualifications were the main target group.

Roles and responsibilities

In the context of the one-off checking of equivalence:

Vocational training institutions:

- provide documents about contents, learning types, and learning outcome assessment of the vocational qualifications (curricula, text books, examinations, examination regulations et al.)

Programme coordinators in higher education:

- provide documents about contents, learning types, and learning outcome assessment of the study programme
- inform the potential students about the possibilities of accreditation (subsequently to the confirmation of the accreditation recommendation)

Examination commission of the university programme:

- checks and confirms the accreditation recommendation

Employees of the Network for Qualifications/ employees at Schulenberg Institute:

- supervise the work of the experts
- evaluate and interpret the comparison's results
- analyse the MLIs that were filled in by the experts
- compile an accreditation recommendation

Experts (evaluators):

- compare the content of vocational learning units and higher education study modules
- evaluate the level of the learning units by means of the MLI
- compile an equivalence report

When a student makes use of the accreditation procedure:

The (potential) students who have already finished continuing vocational training:

- submit their vocational training certificate to the examination office

Examination office:

- determines which modules may be accredited (based on the vocational training certificate and the accreditation recommendation)
- informs the potential student about the scope of exemption

Methodology of accreditation

Assessment of learning outcomes

The experts are instructed to identify approximately between 10 and 15 different learning outcomes per learning unit. They have to derive these learning outcomes from the available documents (curricula, examination tasks, student's essays, textbooks, lecture notes et al.). These learning outcomes are filled in to the learning outcome matrix by the experts. Afterwards have to weight the relative importance of these learning outcomes.

Equivalence check

The equivalence check is carried out in two separate steps:

- a comparison of the learning outcomes with regard to content by means of the learning outcome matrix
- a comparison of the learning units form vocational training and higher education with regard to level.

The level of a learning unit may be assessed by means of the »Module Level Indicator« (MLI). This instrument consists of 51 items, which refer to the learning outcomes of a learning unit.

The MLI's 51 items are aggregated into 9 result scales. These scales are named:

- Scope and actuality of knowledge
- critical understanding
- multidisciplinary
- problem solving
- relation to practice
- innovation
- autonomy
- communication
- consideration of ethical and social problems

These 9 result scales are again aggregated into a comprehensive total score. This total score represents the level of a module.

If there is a correspondence between the learning outcomes of vocational training and those of a higher education module with regard to content (of at least 70%) as well with regard to level, accreditation will be recommended.

The Module Level Indicator (MLI) is based on the European Qualifications Framework for Lifelong Learning (EQF).

Transformation of grades

A transformation of grades from vocational education to higher education is possible, if the two grading systems are comparable. In the case of blanket accreditation the grades from the vocational training certificate are included in the higher education diploma. Sometimes one study module in higher education is related to more than one learning unit in vocational training. In this case a weighted mean of the grades of the vocational learning units is used as grade of the related study module.

Tools and instruments

Module Level Indicator

The Module Level Indicator (MLI) is an instrument for the evaluation and level assessment of learning units (e.g. modules or subjects) in formal learning contexts. The aim of the MLI development was an instrument that made it possible to compare the level of higher education modules and vocational training learning units.

The MLI is not related to specific disciplines or professions. That means it is applicable to any formally taught subjects.

The instrument was designed for the assessment of learning units by experts. These expert's judgements should be based comprehensive information about learning outcomes, types of learning, and assessment methods of the learning unit to be assessed.

The second preliminary version of the MLI that was released on 3.4.2007 consists of 51 Items.

This MLI-Version may be completed in about 5 to 10 minutes.

Most of the Items were derived from various comprehensive qualifications frameworks, particularly from:

- EQF-draft from 8.7.2005
- EQF final version
- German higher education QF
- NICATS

Additionally, a few items were derived from the results of some qualitative interviews that were conducted with higher education lecturers and examiners at vocational training institutions.

The contents of all of the items are related to the learning outcomes of learning units. That means that the MLI doesn't relate to individual persons.

Statistically the scales of the MLI were constructed based on explorative principal component analyses.

Learning Outcome Matrix

The Learning Outcome Matrix is a spreadsheet template that was developed in the context of the HE-LEO Leonardo project.

This spreadsheet provides the possibility to fill in and weight learning outcomes. Afterwards the coverage of these learning outcomes by the outcomes of another learning unit may be filled in. The spreadsheet automatically calculates the total correspondence between the study module and (one or more) vocational learning units.

Documentation of procedure/results

The experts perform the equivalence check based on a manual. The equivalence check is documented in a report. This report is evaluated and interpreted by the employees of the Schulenberg Institute. The report is complemented by further analyses' results. Based on the expertise the accreditation recommendation is compiled.

The equivalence reports are kept in the Schulenberg Institute. These reports can be consulted e.g. in the context of programme accreditation procedures.

These reports are also accessible to members of the examination committee. The accreditation recommendation has to be confirmed by them. This confirmed recommendation is published on the programme's website.

Individual applications for accreditation are documented and kept by the examination office.

Quality Assurance

The accreditation procedure of the Network for Qualifications North-West is completely in correspondence to the accreditation guideline which was published in 2008 by the scientific monitoring of ANKOM. This guideline defines standards for quality assured accreditation procedures.

The quality of a higher education programme might depend on the type of accreditation of prior learning procedures of this programme. Because of this these procedures are considered in the programme accreditation. The accreditation agencies examine the importance of accreditation of prior learning with regard to the programme's profile und try to find out, to which extent the recommendations of the KMK and the regulations of the higher education laws of the Länder regarding accreditation are implemented.

Formal, non-formal, and informal learning

Blanket recognition procedures exclusively refer to the outcomes of formal learning. The »technician« qualification that shall be examined in the CREDIVOC project is full-time or part-time classroom training. And also the equivalence checks that were performed in the

course of the ANKOM project »Network for Qualifications North-West« aimed at formal vocational trainings of the Chambers of Industry and Commerce.

In international comparisons the German continuing vocational qualifications are often characterized as »non-formal learning«, because they are vocational training programmes. However, this categorization does not reflect the structure, the learning types, and the types of assessment of these qualifications, which clearly conform to formal learning processes.

In the ANKOM-projects procedures and methods for the recognition of non-formal and informal learning were developed, too. The students can make use of these so-called »individual accreditation« possibilities in addition to the blanket recognition.

Modules, units

The blanket recognition procedure is basically applicable to any structured formal learning units. Because most of the German higher education study programmes were modularized in the course of the Bologna process, until now all equivalence checks were performed on the level of modules. That means that for each module of a programme is was separately assessed, if its learning outcomes are covered by equivalent outcomes from vocational training.

Modules were always exempted entirely. It made no sense to exempt parts of modules, because these modules, due to their types of learning and learning outcome assessment, could not be divided.

The vocational training programmes which were examined up to now were mostly structured in subjects. The learning outcome assessments of these subjects in most of the cases were written examinations.

Some of the newer vocational qualifications are structured according to the learning field approach. Here the examinations are related to the integrated contents of more than one subject.

In the context of the equivalence check the Module Level Indicator was used referring to modules (in higher education) or referring to subjects (in vocational education).

Connections with EQF, ECTS, ECVET, NQF

There are strong relationships between the MLI and the EQF. On the one hand some of the MLI items were directly derived from the EQF's descriptors. On the other hand a main objective of the MLI development was, to predict direct EQF ratings as precisely as possible. So, one could say that the MLI is a kind of operationalization of the EQF at the level of learning units.

The MLI's function is a (quantitative) visualisation of the outcomes of a learning unit. Thus the MLI was constructed in accordance with the ECVET's request for a development of new methods for the description of qualifications based on learning outcomes (Commission of the European Communities, 2006, p. 13).

In the ECTS-system the accreditation of vocational learning outcomes is regulated as »ECTS for Lifelong Learning« (EU Commission, 2005, p. 16). Here is stipulated: »Universities are in the position to link learning outcomes achieved outside the institution to credits they award to comparable learning outcomes acquired in their formal degree programmes. In other words: they can award waivers using their formal programme as a reference point.«

The blanket recognition procedure is exactly based on this conception. Study modules will be accredited, if equivalent learning outcomes are gained in vocational training. The students are awarded the appropriate credit points. These credits refer to the workload of the higher education study modules (due to the ECTS system). The real workload of these learning outcomes in vocational training is irrelevant to the accreditation procedure.

In Germany up to now doesn't exist a comprehensive national qualifications framework. However, such a qualifications framework (German Qualifications Framework) is under construction. So far, any drafts of this framework weren't published.

However, in 2005 a qualifications framework for German higher education degrees (Qualifikationsrahmen für Deutsche Hochschulabschlüsse) has been established. This framework is essentially based on the Dublin Descriptors – complemented with some specifics of the German qualification system. This qualifications framework provided a basis for the development of the MLI. Some of the MLI's items were derived from the descriptors of this framework. However, it is not this framework but the EQF which serves as the point of reference for the Module Level Indicator.

Experiences: Strengths and weaknesses

The blanket recognition procedure was implemented to the programme »Business Administration« at Oldenburg University in September 2007. Today, this procedure is highly accepted by the lecturers. Since then, several more equivalence checks referring to additional vocational qualifications were conducted. Today, more than 10 different vocational qualifications are accredited to this study programme.

The blanket recognition is a substantial element of the programme's marketing. The coordinators of this programme actively get in touch with those employees, who have completed one of the relevant vocational training programmes.

Blanket recognition offers participants of vocational training programmes the opportunity to find out reliably their individual scope of accreditation, even before they have enrolled in a programme at university. Because of the small effort of blanket recognition students make use of this procedure much more often than of individual accreditation.

Furthermore the blanket accreditation has strengthened the cooperation between vocational training institutions and the University of Oldenburg. The vocational training institutions (e.g. the Chambers of commerce) have started to inform their participants about the University's programmes and possibilities for accreditation.

An advantage of blanket recognition is the relatively low effort of the accreditation procedure after completion of the equivalence check. Owners of a vocational training certificate get their prior learning accredited without problems. They just have to submit a

copy of their certificate to the examination office. This procedure doesn't cause much effort neither for the university nor for the students.

The implementation of a blanket recognition procedure in the programme »Bachelor Business Administration« at Oldenburg University increased the attractiveness of the programme considerably.

However, the diversity of vocational qualifications and training programmes in Germany caused problems to blanket recognition. Equivalence checks would have to be performed for any combination of vocational training and higher education study programme. This procedure is too expensive for vocational trainings and study programmes with only a few participants.

So far, all equivalence checks were performed in the context of pilot projects. It is unclear as to how the equivalence checks will be financed after the completion of these projects. Up to now, the German educational system does not provide any resources for the accreditation of prior learning.

Non-discrimination

The blanket recognition procedure refers to vocational training programmes – not to individual persons. When implementing a blanket accreditation scheme the university (as awarding body) guarantees that any owner of the vocational training certificate in question is exempted from those modules which are enumerated in the accreditation recommendation.

Because this procedure doesn't relate to individual characteristics (e.g. age, gender, or nationality) of the certificate's owner, discrimination is avoided.

However, blanket recognition is restricted to those vocational qualifications which were checked for equivalence before. Similar learning outcomes of different qualifications or informal learning are not validated by this type of accreditation. Because of this, in addition to blanket recognition individual accreditation procedures should be implemented.

Facilitation of lifelong learning

Many vocational qualifications in Germany are dead ends. That means there are no continuing learning opportunities in terms of recognised qualifications for the alumni of these qualifications. So, the owners of these vocational certificates often don't have a chance to be promoted.

Blanket recognition procedures facilitate the transfer from vocational to higher education. Educational careers may be planned more individually. Dead ends in the educational system are abolished.

Availability of information

The project's website <http://www.uni-oldenburg.de/web/anrechnung> provides detailed information about the blanket recognition procedures (in German only).

For potential students who are interested in accrediting their prior (vocational) learning the website of the target programme »Bachelor Business Administration« <http://bba.uni-oldenburg.de> provides useful information.

The equivalence checks' expertises are not publicly available, because they include detailed evaluations of specific study modules and subjects. However, in the context of programme accreditations these expertises are accessible.

Easy to understand

The blanket recognition procedures »encapsulate« the complex elements of the equivalence check. These complex elements are part of the expertise. However, the people involved don't have to read this expertise to make use of the accreditation procedure. The accreditation regulations that were derived from the expertises are quite easy to understand.

Conformity with European policies

Already in 1999 the European Ministers of Education asked for a credit points system for higher education, whose »credits could also be acquired in non-higher education contexts, including lifelong learning, provided they are recognised by receiving Universities concerned.« (Bologna declaration, 1999)

This objective of the Bologna declaration was exemplarily realized with the blanket recognition system.

Trust

The universities guarantee that any owner of the specified vocational training certificate gets exemption from study modules to the full predefined extent. Thus, the universities put trust in the vocational training institutions with regard to several aspects. They trust the vocational training institutions

- that the documents which they submitted as basis for the equivalence check reflect validly the real learning outcomes of the owners of the vocational certificate.
- that any owner of the certificate possesses the certified knowledge, skills and competencies.
- that the examinations (and other learning outcome assessments) of the vocational qualifications are performed due to quality assured standards.

On the other hand the vocational training institutions have to put trust in the universities, when they give access to their textbooks and examinations and allow an evaluation of their courses by the experts.

Reliability, validity, and objectivity of assessment

As an indicator for the reliability of the MLI-scales internal consistencies (Cronbach's alpha) were calculated. This consistency coefficients are based on N=84 assessments of modules.

- broad and up-to-date knowledge: $\alpha=.87$

- critical understanding: $\alpha=.95$
- multidisciplinary: $\alpha=.77$
- problem solving: $\alpha=.62$
- relation to practice: $\alpha=.88$
- innovation: $\alpha=.84$
- autonomy: $\alpha=.76$
- communication: $\alpha=.81$
- consideration of ethical and social problems: $\alpha=.89$

The reliability of the unweighted comprehensive MLI-scale is $\alpha=.92$.

Correlations between the MLI results and direct EQF level ratings of modules by experts may be interpreted as indicators of construct validity, because the MLI was designed as an indicator of module levels on the basis of the EQF.

Table 4 shows the bivariate correlations between the MLI result scales direct EQF ratings.

Variables		Knowledge	Skills	Competency	EQF
broad and up-to-date knowledge	Pearson's correlation	,516(**)	,312(**)	-,042	,285(**)
	significance (2-tailed)	,000	,004	,706	,009
	N	84	84	84	84
critical understanding	Pearson's correlation	,506(**)	,348(**)	-,179	,230(*)
	significance (2-tailed)	,000	,001	,104	,035
	N	84	84	84	84
multidisciplinary	Pearson's correlation	,547(**)	,388(**)	,148	,407(**)
	significance (2-tailed)	,000	,000	,178	,000
	N	84	84	84	84
problem solving	Pearson's correlation	,580(**)	,541(**)	,296(**)	,535(**)
	significance (2-tailed)	,000	,000	,006	,000
	N	84	84	84	84
practice	Pearson's correlation	,330(**)	,394(**)	,633(**)	,542(**)
	significance (2-tailed)	,002	,000	,000	,000
	N	84	84	84	84
innovation	Pearson's correlation	,546(**)	,483(**)	,290(**)	,500(**)
	significance (2-tailed)	,000	,000	,007	,000
	N	84	84	84	84
autonomy	Pearson's correlation	,440(**)	,427(**)	,417(**)	,498(**)
	significance (2-tailed)	,000	,000	,000	,000
	N	84	84	84	84
ethics	Pearson's correlation	,362(**)	,333(**)	,370(**)	,415(**)
	significance (2-tailed)	,001	,002	,001	,000
	N	83	83	83	83
MLI (raw scale)	Pearson's correlation	,634(**)	,525(**)	,274(*)	,541(**)
	significance (2-tailed)	,000	,000	,012	,000
	N	84	84	84	84

* This correlations is at a 0.05 level (2-tailed significant).

** This correlation is at a 0.01 level (2-tailed) significant.

Tab. 4: Correlations of the MLI scales with direct EQF ratings.

All scales of the MLI are highly significant correlated to direct EQF ratings. The MLI scales »relation to practice«, »innovation« and autonomy show the highest correlations to direct EQF ratings. The non-standardized MLI comprehensive score correlates $r=.54$ ($p>.001$) with direct EQF level ratings. These are preliminary results because of the insufficient number of ratings ($N=84$) up to now.

The objectivity of the MLI scales has not been examined so far.

Flexibility in case of curriculum changes

In case of changes of the curriculum of the university's target programmes, which have implemented blanket accreditation, only the equivalence between the added modules and the vocational training programmes has to be checked additionally.

Curriculum changes in the vocational trainings mostly require a complete replication of the equivalence check (that means for all modules).

Efficiency

After completion of the one-off equivalence check, blanket recognition causes very little effort and costs to all persons involved (examination office's employees, programme coordinator, accreditation applicants). So, the cost-benefit ratio especially for the applicants is very good.

Table 5 shows a summary of costs and benefits of different accreditation types.

	non-standardized	standardized	
	case decision	individual accreditation	blanket accreditation
Aspects of costs			
<i>One-off costs</i>			
Expert (evaluator)	No one-time costs for expertises in the context of case decisions or individual accreditation		high expenditure of time (approx. 150 h)
Educational expert			high expenditure of time (approx. 90 h)
Examination office			no one-time expenditure of time
Lecturers			small expenditure of time (2 h per Module)
<i>Running costs</i>			
Applicants	expenditure of time: approx. 1 h	expenditure of time: approx. 35-40 h	expenditure of time: approx. 0.5 h
Lecturers	expenditure of time: approx. 2 h	expenditure of time: approx. 1.5 h	no running costs for personnel
Programme coordinators	expenditure of time: approx. 1 h	expenditure of time: approx. 10 h	
Examination office	expenditure of time: approx. 1 h	expenditure of time: approx. 0.5 h	expenditure of time: approx. 0.5 h
Benefits to applicants			
Time	Avoiding redundant learning reduces opportunity costs (AP)		
	Accreditation facilitates enrolment to continuing university programmes (AP and CO)		
	mostly small extent of accreditation (AP and CO)		large extent of accreditation is possible (AP and CO)
Fees	Little costs for accreditation (AP and CO)		
	Accreditation without fees is possible (AP and CO)	Accreditation requires fees (AP and CO)	Accreditation without fees is possible (AP and CO)
Content	Only formally acquired competencies can be accredited (AP and CO)	Formally and informally acquired competencies may be validated (AP and CO)	Only formally acquired competencies can be accredited (AP and CO)
Certification	Formerly acquired certificates may be validated (AP)	Certification of informal learning → increase in »external market value« (AP)	Formerly acquired certificates may be validated (AP)
		Disadvantage: Danger of fluctuation increases (CO)	
Lack of specialised workforce	Stimulates lifelong learning, although the acceptance of prior learning is insecure (PP und UN)		Efficient coverage of workforce demand (CO) and additional options for promotion (AP)
Certainty	Low certainty because of unstandardized procedure (AP and CO)	High certainty because of systematic procedure (AP and CO)	Accreditation is guaranteed by UN (AP and CO)
	long-range planning of learning is less supported in case of blanket accreditation (AP)		Long-range planning is possible (AP)
Benefits to provider of accreditation			
Legal certainty	Accreditation decisions may be inconsistent → less legal certainty (UN)	More legal certainty, because of consistent decisions about accreditation (UN)	
Attractiveness of programme portfolio	Attraktivität des Leistungsportfolios steigt grundsätzlich durch Möglichkeiten der Anrechnung (HS und BB)		
	Less transparency of non standardized procedure (UN and VI)	Increased attractiveness because of better transparency (UN and VI)	
	Transfer procedure less transparent (UN and VI)		More transparent transfers from »dead ends« in vocational education to Higher Education (UN and VI)

(AP=Applicants, Co=Companies, UN=Universities, VI=Vocational Institutions)

Tab. 5: Summary of costs and benefits of different types of accreditation (Hanft et al. 2008)

References

- ANKOM (2008): *Anrechnungsleitlinie – Leitlinie für die Qualitätssicherung von Verfahren zur Anrechnung beruflicher und außerhochschulisch erworbener Kompetenzen auf Hochschulstudiengänge*, http://ankom.his.de/material/dokumente/ANKOM-Leitlinie_Broschuere_13_11_08_finalst.pdf
- BAK FST (2008): *Staatlich geprüfte Techniker/innen – qualifiziert für Europa*. Positionspapier des Bundesarbeitskreises Fachschule für Technik, 26.01.2008 (manuscript).
- BIBB (2007): *Schaubilder zur Berufsbildung. Strukturen und Entwicklungen. Ausgabe 2007*. Bonn: Bundesinstitut für Berufsbildung.
- BMBF (1998): 4.1.2 Verbleib und Beschäftigungsmöglichkeiten von Industriemeistern und Technikern, online document, <http://www.bmbf.de/de/9977.php> (accessed 19.05.2008).
- BMBF (2008): *Berufsbildungsbericht 2008*. Bonn/Berlin: Bundesministerium für Bildung und Forschung. http://www.bmbf.de/pub/bbb_08.pdf (accessed 19.05.2008).
- Bologna declaration (1999): The European Higher Education Area – Joint declaration of the European ministers of education. 19th June 1999, Bologna.
- Commission of the European Communities (2006): European Credit system for Vocational Education and Training (ECVET) – A system for the transfer, accumulation and recognition of learning outcomes in Europe. Brussels.
- European Commission, Directorate General for Education and Culture (2006): *ECTS Users' Guide – European Credit Transfer and Accumulation System and the Diploma Supplement*, Brussels.
- Hanft, A., Knust, M., Müskens, W., Gierke, W. (2008): Vom Nutzen der Anrechnung. Eine Betrachtung aus organisatorischer und ökonomischer Perspektive. In: *Betriebliche Forschung und Praxis*, 4/2008, 297-312.
- Hippach-Schneider, U./Krause, M./Woll, C. (2007): *Berufsbildung in Deutschland. Kurzbeschreibung*. Cedefop Panorama Series 136, Luxemburg: Amt für amtliche Veröffentlichungen der Europäischen Gemeinschaften.
- Jansen, R./Hecker, O./Scholz, D. (eds.) (1998): *Facharbeiteraufstieg in der Sackgasse? Entwicklungen und Perspektiven auf der mittleren Qualifikationsebene*. Bielefeld.
- Klieme, E./Leutner, D. (2006): *Kompetenzmodelle zur Erfassung individueller Lernergebnisse und zur Bilanzierung von Bildungsprozessen*. Überarbeitete Fassung eines Antrags an die DFG auf Einrichtung eines Schwerpunktprogramms, Frankfurt am Main/Essen, http://kompetenzmodelle.dipf.de/images/sppfiles/files/antrag_spp_kompetenzmodelle.pdf (accessed 16.10.2008).
- Statistisches Bundesamt (2007a): *Fachserie 11 Reihe 2, Berufliche Schulen, Schuljahr 2006/07*. Wiesbaden: Statistisches Bundesamt.
- Statistisches Bundesamt (2007b): *Fachserie 11 Reihe 3, Berufliche Bildung, Berichtszeitraum 2006*. Wiesbaden: Statistisches Bundesamt.
- Statistisches Bundesamt (2007c): *Fachserie 11 Reihe 4.2, Prüfungen an Hochschulen, 2006*. Wiesbaden: Statistisches Bundesamt.

6. Recognition and Validation of Prior Learning in Vocationally Related Education in Ireland

Justin Rami & John Lalor

Introduction

This report from the Irish partners forms part of the CREDIVOC project. CREDIVOC, a European Commission Lifelong Learning Programme, aims to identify, test and transfer instruments based on the principles of the European Qualifications Framework and ECVET through the exploration of the themes of »Transparency and Mobility through Accreditation of Vocational Learning Outcomes«. The report begins by outlining the current status of Vocational Education within the overall framework of the Irish Education system. It goes on to detail the developments in the Irish context with regard to Accreditation of Prior Learning in both the Vocational and Higher Education sectors and to discuss some of the more recent relevant legislative changes that have taken place in those sectors.

The report concludes by looking at those aspects of validation and recognition of prior learning by focussing on the project's common sector area, in this case Engineering. McCarthy et al (2001) suggest that 'VET systems can only be adequately understood with reference to the dynamic set of interrelationships between the education and training systems, the industrial relations system, the organizational structure of industry, and the class and status relations of the wider society as reflected in its political system' (p. 425).

It is important to observe that the context of any situation is relevant, no more so than in Ireland due to the rapid economic growth the country has experienced in the last ten to fifteen years. With Europe's drive to consolidate its policies within the economic sectors through its members towards a knowledge economy (Brinkley & Lee 2006) the streamlining and harmonization of qualifications systems is key to this success. To help with this success it is important to map current trends throughout Europe in vocational sectors.

Social and economic context of VET in Ireland

Up to the 1960s Ireland had a sharply differentiated two-tier post-primary system – academically oriented secondary schools and vocational schools. Vocational Schools provided a narrowly focused two-year continuation course of practical and applied studies. In the early 1960s, the Government embarked upon a series of reforms which included a strategy to broaden access and increase flexibility through the creation of new institutional models while introducing new curricula and pedagogical services to existing second level schools.

Universal free post-primary education was introduced in 1967, which led to greatly increased participation rates in secondary education. The immediate impact of the universal free post-primary education policy was greatly to expand enrolments in education beyond the mandatory school age. In 1972-3 (the earliest year for which age-specific enrolment rates are available) 58.3 percent of 16 year olds and 43.7 percent of 17 year olds were enrolled in

full-time education. Ten years later, these had risen to 76.3 percent and 58.4 percent respectively, and in a further decade, to 92.6 percent and 80.8 percent. Two new kinds of post-primary school were introduced: comprehensive schools in 1965 and community schools in 1970. As part of the program of education reform, the status of vocational schools was enhanced in the 1960s so that they were enabled to offer less rigidly technical education. Regional Technical colleges to ensure the provision of trained manpower were also introduced at this time. Participation in higher education, which was fee-paying, was low at around 10 percent.

For the next twenty years (from approximately 1970- 1992) Ireland experienced very difficult economic circumstances. Unemployment rates in the late 1980s and early 1990s peaked at around 17 percent, with higher rates for school leavers. Emigration, which had always been a feature of Irish society, also soared with thousands of secondary school and university graduates leaving the country every year. However, since the early nineties, Ireland has been experiencing a period of unprecedented economic growth, well ahead of the OECD average, achieving an average GDP growth rate of 4.8 percent between 1990-95, and 9.5 percent from 1995-2000. Since 2000, the per capita GDP of Ireland has grown at annual rates of 2.5%–4.2%, substantially exceeding the EU average in every year. In 2003, Ireland had the second highest GDP per capita within the enlarged EU -- almost one-third higher than the EU 25 average. The country benefited from a high level of investment by multinational companies and significant growth in the area of high technology enterprises such as information and communication technologies, chemical and pharmaceutical industries, and financial services. By 2000 the unemployment rate fell to below 4 percent, and in 2007 it is 4.5 percent. Instead of an older tradition of emigration, the pattern has shifted to inward migration and the active recruitment of foreign workers.

According to the latest census figures (CSO, 2006) the Irish population of approx 4.2 million comprises of over 400,000 people who have come to Ireland over the last 15 years from the enlarged EU, other parts of Europe, Asia, China, the U.K. and the Americas, attracted here by the economic upturn and other social factors. This inward migration trend is set to continue according to Government projections and this phenomenon is having and will continue to have great implications for social and economic policy over the coming decades. One of the arenas in which this will play out is that of Vocational Education and Training, as a considerable majority of those who have settled in the country have come to Ireland in order to work. This has brought issues of transferability of qualifications and access to further education and training to the forefront of the national debate.

Education system in Ireland

Education and training in Ireland function at a number of levels and strands including primary, secondary and higher education and vocational education and training (in-school post-school, in higher education and part-time) including apprenticeship. Adult Education and a wide range of training programmes aimed at school leavers, the unemployed and those in employment complete the picture.

Primary Education

Pupils generally begin their primary education, between four and five years of age. Primary education lasts for eight years.

Secondary Education

Secondary education is divided into junior and senior cycles. It is provided in four kinds of school: Secondary, Vocational, Comprehensive and Community. The same state examinations are taken in all types of school. Education is free of charge in all but 5% of secondary schools. The modern curriculum in second level schools is a blend of the traditional academic curriculum of the secondary school and the practical/ technical curriculum of the vocational school. Over the last two decades there has been some convergence between these two strands.

Junior Cycle

Compulsory education begins in primary school at six years of age, and ends at 16. The junior cycle provides for the final three years of compulsory education. The primary aim of the junior cycle is that children should complete a broad and balanced course of study in a variety of subjects relevant to their own personal development, the world of work and the enjoyment of their leisure and recreation. They will have achieved a level of competence in the various subjects, which will enable them to proceed to senior cycle education, to training or to sustainable employment. At the end of the junior cycle, students are entered for the junior Certificate Examination. This is a new, unified system of assessment and certification, first undertaken in 1992.

Senior Cycle

At the end of compulsory schooling, the majority of students enter senior cycle. The aims of the senior cycle are to encourage and facilitate students to continue in full time education during the post-compulsory period by providing a stimulating range of programmes suited to their abilities, aptitudes and interests. The objectives are to develop each student's potential to the full, and equip them for work or further education. Students may spend up to three years in senior cycle. The following are the main elements:

- Transition Year Programme Option
- Leaving Certificate
- Leaving Certificate Applied Programme
- Leaving Certificate Vocational Programme

Transition Year Programme

This programme is interdisciplinary and student-centred and is offered as part of a 3 year senior cycle. This option is intended to be a year of non-academic learning which emphasises the interpersonal and the experiential. Students at this stage are offered the opportunity to explore vocational areas in which they are interested.

Leaving Certificate Programme

The Leaving Certificate examination is held at the end of the senior cycle and is the terminal examination of the senior cycle. Students following the Leaving Certificate programme must take at least five subjects, including Irish.

Leaving Certificate Applied Programme

This programme is a self-contained two year programme and is person-centred involving a cross-curricular approach rather than a subject based structure. The Leaving Certificate Applied has three general headings:

- General Education
- Vocational Education
- Vocational Preparation.

Leaving Certificate Vocational Programme

This programme is based on the Leaving Certificate programme with a concentration on technical subjects. The vocational content of the programme has been strengthened by including three link modules on European Education, Preparation for Work and Work Experience.

Vocational Education and Training

Ireland does not have a single system for training young people. The following are the principal paths:

- Post Leaving Certificate (PLC) Courses. They are provided in second level schools and are certified by the FETAC.
- Apprenticeship, the traditional path to skilled worker jobs.
- Sectoral Training in areas such as tourism and catering, farming, fishing and nursing qualifications.
- Training Courses for first time jobseekers and young unemployed
- Youthreach for early school leavers, and Training Workshops for members of the travelling community, an indigenous ethnic minority.
- Vocational and Technical Education and Training in higher education.

Higher Education

Higher education in Ireland is provided primarily through four kinds of institutions. Some of these, the universities in particular, provide courses across a very wide spectrum. Institutes of Technology and other colleges of technology, and various specialist institutions such as business and management colleges, are largely involved in vocational education and training.

Universities

There are four universities in Ireland. The University of Dublin is the oldest, and has one college, Trinity College. The National University of Ireland (NUI) is a federal university with

constituent colleges in Cork (UCC), Dublin (UCD) and Galway (UCG). St Patrick's College, Maynooth, is a recognised college of the University. The NUI also has five recognised colleges associated with it. Dublin City University and the University of Limerick are independent universities. Both were formerly National Institutes for Higher Education, with a particular orientation towards business and technology.

Institutes of Technology

Institutes of Technology (IT), introduced in the 1970s, were originally called Regional Technical Colleges. Institute of Technology courses train for trade and industry over a broad spectrum of occupations and levels including business studies, engineering and technology, science, hotel, catering and tourism, and paramedical. Courses lead to Certificates, Diplomas and Degrees. Qualifications are mainly awarded by:

1. Qualifications (Education and Training) Act 1999 led to the establishment of the National Qualifications Authority of Ireland (NQAI). Secondly two award councils were set up under the provisions of the Act: FETAC, the Further Education and Training Awards Council, and HETAC, the Higher Education and Training Awards Council. FETAC & HETAC now have responsibility for a range of previous accrediting bodies including the National Council for Educational Awards (NCEA) and the National Tourism Certification Board (NTCB), an industry specific awarding body, certifying Tourism Craft and Diploma level programmes.
2. The Dublin Institute of Technology (DIT), established under the DIT Act 1992, comprises the Colleges of Technology, Catering, Marketing and Design, Commerce and Music. DIT awards have traditionally been recognised nationally and internationally by academic, professional and trade and craft bodies.

Colleges of Education and other Higher Education Institutions

There are five teacher training colleges for primary teachers. There are two colleges for teachers of Home Economics. A specialist college for teachers of Physical Education and Crafts, Thomond, has recently been incorporated into the University of Limerick. Teachers of Art are trained in the National College of Art and Design in Dublin, and their qualifications are validated by the NUI. All Colleges of Education and the two Colleges of Home Economics are associated with universities for their degree awards.

The Private Sector

There is a number of colleges that operate under private management in Ireland. These may be associated with business and accountancy and management, computers and secretarial, education, medicine, theology and philosophy. A number of courses in these colleges are validated by the FETAC & HETAC.

Adult and Continuing Education

In Ireland, adult education is taken to mean all education and training taken by people after a break in their initial education. It is a route by which adults acquire new skills and rediscover old ones. There are also elements of provision, which facilitate initial vocational education and training for people who have been socially or economically disadvantaged and unable to avail of early educational opportunities.

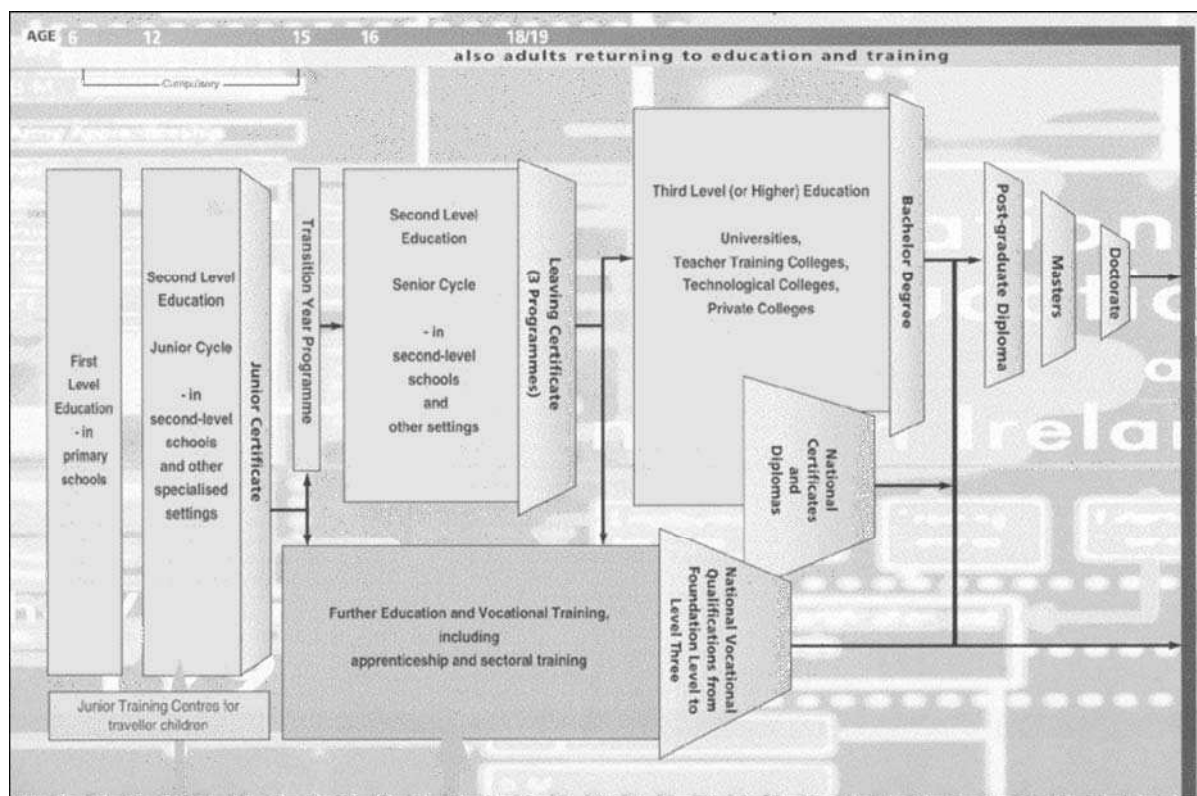


Fig 1: The Irish Education System (Source: DES, Government of Ireland, 2008)

VET system in Ireland

There is some debate as to the unity of such a system, but there is clear evidence in the Irish context of a range of structures, systems and agencies that play a significant role within VET' (McCarthy et al, 2001). A brief description of this system will therefore suffice for the purposes of this paper. At a policy level, there exists some unity on the principles that govern vocational learning in Ireland. These principles primarily relate to issues of access at all levels, recognition of achievements, progression to higher levels, quality, relevance and partnership in delivery, the espousal of a learner orientation as central to the VET' process and the promotion of lifelong learning. There also exists some agreement as to the priority areas (ibid). Less unity exists in terms of structures and delivery. However this paper will seek to try to describe existing vocationally related structures.

In Ireland, Vocational Education & Training (VET) embraces education and training which occurs primarily after second-level schooling and mainly in the further and continuing

education sector. VET also occurs in some third level institutions. A distinctive feature of further and vocational education generally is its diversity and breadth of provision, and its linkages with other services such as employment, training, area partnership, welfare, youth, school, juvenile liaison, justice and community and voluntary sector interests. A wide range of Government Departments, statutory agencies and voluntary and community organisations provide services in this area.

The Irish VET system
1: Upper Secondary level (post compulsory education)
<i>Leaving Certificate Vocational Programme o Leaving Certificate Applied Vocational Programme</i> These Programmes are based on the traditional national Leaving Certificate Programme but have a more diverse range of modular options such as European and International Business, Languages, Work Experience, and Enterprise.
2: Post leaving Certificate VET (Further Education)
<i>Adult & Continuing Education</i> These programmes are very diverse and varied. The range from Childcare Programmes to Travel & Tourism
<i>Vocational Training Opportunities Scheme (VTOS)</i> VTOS offers people an opportunity to return to full-time education if they are an unemployed adult or in receipt of certain benefits. One aim of the scheme is to give unemployed people education and training opportunities which will develop their employability.
<i>FÁS Training Courses & FÁS Traineeships</i> FÁS Training courses offer people an opportunity to develop or upgrade their skills in the commercial and industrial sectors if they are unemployed or redundant. Traineeships offer a mixture of on-the-job training with an employer and off-the job training in a FÁS Training Centre if you are either a first time job seeker or unemployed.
<i>Youthreach</i> Youthreach is part of a national programme of second-chance education and training in Ireland. The programme includes a considerable amount of personal development and exploration where participants needs, interests and capacities are fully taken into account. The programme is designed to provide young adults with opportunities for basic education, personal development, vocational training and work experience. It is for people between 15 and 20 years of age and who have left school without any formal qualifications
<i>Education and Training (other Government Agencies)</i> State agencies such as Fáilte Ireland, Bord Iascaigh Mhara (BIM), Teagasc, Coillte and the Crafts Council of Ireland offer you a range of specialist courses in their specific areas of work.
<i>Travellers Training Workshop</i> The Travellers are an indigenous minority group who have been part of Irish society for centuries. There are an estimated 25,000 Travellers in Ireland, making up more than 4,485 Traveller families. This constitutes approximately 0.5% of the total national population. Through the Traveller Training Centres they can gain practical skills and improve their literacy and numeracy skills at one of the 28 Senior Traveller Training Centres throughout Ireland, which are run through the VEC (Vocational Education Committee) and supported by FÁS.
<i>Department of Justice Workshops</i> Designed for people coming to education and training from the prison system or as an alternative to the prison system, you may find a suitable course under this scheme operated by the Department of Justice, FÁS and the VECs.
<i>Night Classes</i> Mainly Self-funded educational opportunities available through a range of night courses organised by local VEC, FÁS Training Centres and many of the colleges and universities throughout Ireland.

Tab 1: The Irish VET System (Source: DES, Government of Ireland, 2004)

Recent developments in VET in Ireland

In 1999 the Qualifications (Education and Training) Act was passed. This Act led to the establishment of the National Qualifications Authority of Ireland (NQAI). The main focus of this body is the establishment of a national framework of qualifications for non-university education awards at further and higher level, taking account of education, training, social partner, voluntary organisation and learner interests. As mentioned earlier in the text two award councils FETAC and HETAC have been set up under the provisions of the Act. Their role in their respective areas is to determine the standards of knowledge and skill or competence to be acquired by learners for awards that they make. Programme providers represent the interface between the majority of learners and the National Framework of Qualifications initiated by NQAI and are, therefore, critical to its successful implementation.

National Framework of Qualifications (NFQ)

The NFQ sets the overall standards of the awards of HETAC and DIT, as well as accommodating the awards of the universities. The Framework is the single, nationally and internationally accepted entity, through which all learning achievements may be measured and related to each other, and which defines the relationship between all education and training awards. The Framework of Qualifications comprises 10 levels, award types, level indicators (expressed as learning outcomes) and related policies on access, transfer and progression, including the Recognition of Prior Learning and Credit and is designed to facilitate the development of a credit accumulation and transfer system based on learning units (FETAC, 2007).

The framework is based on *learning outcomes* that are determined by standards of *knowledge, skill and competence*. The higher education and training awards are at levels 6 to 10. Vocational Education and Training is not explicitly described within the Framework as this can straddle Levels 5 to 8. The framework consists of major award types as set out overleaf. There are also minor and special purpose awards available at each level with supplemental awards available from Level 4.

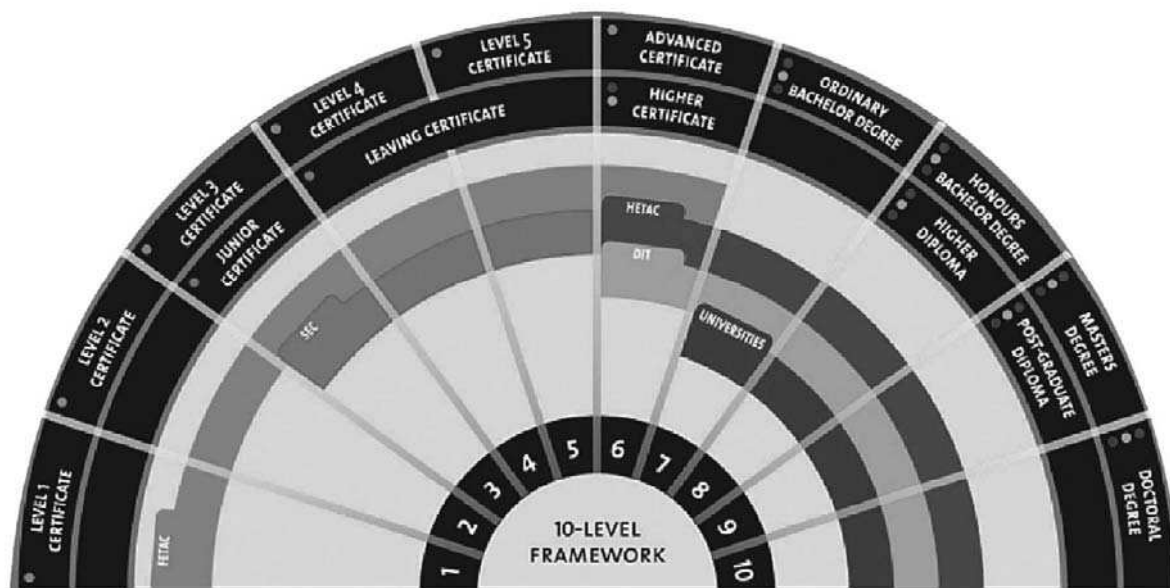
	Level (NFQ)	Major Award Types	
Higher Education	10	Higher Doctorate	Doctoral Degree
	9	Masters Degree	Post-graduate Diploma
Further Education (VET)	8	Honours Bachelor Degree	Higher Diploma
	7	Ordinary Bachelor Degree	
	6	Higher Certificate	
	6	Advanced Certificate	
Upper Secondary	5	Level 5 Certificate	
	4/5	Leaving Certificate	
Lower Secondary	4	Level 4 Certificate	
	3	Level 3 Certificate	Junior Certificate
	2	Level 2 Certificate	
	1	Level 1 Certificate	

Tab. 2: Table view of the Irish National Framework of Qualifications (adapted from: NQAI, NFQ 2007)

Awards at levels 6 to 10 with the exception of the Advanced Certificate at Level 6 (further education) may be made by HETAC, DIT, the Universities and IoTs (Institutes of Technology) with Delegated Authority. The implementation of the National Framework across the higher education system is well advanced. All awards included in the Framework are underpinned by legislative quality assurance arrangements.

- FETAC – Further Education and Training Awards Council
- SEC – State Examinations Commission (Department of Education and Science)
- HETAC – Higher Education and Training Awards Council

- DIT – Dublin Institute of Technology
- Universities



This diagram illustrates the national Framework of Qualifications. It is a 10-level framework. The award types are listed on the outer rings of the diagram. The awarding bodies (e.g. FETAC, State Examinations Commission SEC, etc.) are shown as coloured bands going across the spokes.

Fig 2: A visual representation of the Irish National Framework of Qualifications (source NQAI 2005)

European influences

ECVET and developments in Ireland

The proposed approach to ECVET has many parallels with the Irish national approach to frameworks, qualifications, credit and vocational education and training. Ireland is one of a few countries that have a single framework of qualifications, the National Framework of Qualifications, introduced in October 2003 (*described in previous section*). The national framework is designed to facilitate the development of a credit accumulation and transfer system based on learning units. In 2001 two awards councils were established (FETAC and HETAC) with responsibility respectively for further education and training and higher education and training. Their responsibilities include quality assurance of providers and programmes and making awards. Both Councils have similar functions with regard to their respective sectors. Higher education in Ireland fully supports the Bologna process and higher education credit operates in accordance with the European Transfer and Credit System (ECTS). The broad approach of the National Qualifications Authority of Ireland is to work

towards a national approach to credit that will facilitate a seamless transfer between further education and training and higher education and training. In principle the ECVET system should facilitate mobility and transfer for workers and students throughout the EU. The individual can transfer and accumulate learning outcomes in order to obtain a qualification. To facilitate the transfer process of learning outcomes, ECVET is based on:

- The description of qualifications in terms of learning outcomes (knowledge, skill and competence)
- The expression of qualifications in units of learning outcomes which can be transferred and accumulated.

To facilitate the understanding of qualifications and units, ECVET credit points are used as a numerical representation of each unit and to define its weight and its relative value compared to the whole qualification (FETAC, 2007). As part of the consultation regarding the ECVET, FETAC issued a formal response to the proposals in 2007. Although FETAC generally accepted the EQF and ECVET alignment it did have some concerns. The document stated concerns over the overlap of the EQF & ECVET.

‘The integration of ECTS and ECVET mechanisms has been clearly identified as an issue of concern by Irish stakeholders. Two parallel systems operating on different principles will complicate the implementation of ECVET. Coherence and mutual understanding need to be achieved between VET and higher education in order to facilitate learners moving across borders and across systems. Therefore, given the pending agreement on and introduction of the EQF, it may be opportune to commence discussions and development at a European level of a unified credit system/model (across VET and HE) to sit/link/accompany the EQF. Ireland recommends that the Commission establish a working group to look into this option. A standardised metric for the size of units as proposed needs to be determined before further progress is made on ECVET.’ (FETAC 2007)

The metric of 120 credits needs to be considered. In the Irish context 120 credits apply to a full major award. ECVET should have the facility to allow recognition of smaller credits e.g. 30-40 to be achieved while abroad to facilitate their accumulation towards the attainment of a full award in their home country which could amount to 120 credits. A standard size of 1 credit to 10 hours notional effort should be considered for VET. This metric can easily translate to the HE metric set for ECTS.

Competent body/institution A in Country X	Individuals transcript of record travels from A to B	Competent body/institution B in Country Y
<ul style="list-style-type: none"> – assesses certain individuals learning outcomes and – awards credit to the individual 	=>	<ul style="list-style-type: none"> – validates credits obtained and transferred by the individual and – recognises learning outcomes as part of the qualification to be obtained

Fig. 3: ECVET transfer and methodology for individual recognition.

‘Bologna’ Framework of Qualifications/European Qualifications Framework

The NFQ is aligned with the Framework of Qualifications for the European Higher Education Area (‘Bologna’ Framework). Running parallel to the Bologna Process is the development of the European Qualifications Framework (EQF) for lifelong learning. The National Framework is to be aligned with the EQF. Alignment facilitates the recognition of learning and supports access, transfer and progression for learners. To date there has been tentative referencing of the National Framework of Qualifications to the European Qualifications Framework.

NFQ - Ireland	EQF
1 & 2	1
3	2
4	3
5	4
6	5
7 & 8	6
9	7
10	8

Fig. 4: Tentative referencing of the Irish National Framework of Qualifications to the European Qualifications Framework (source FETAC (2007) Towards a European Credit System for Vocational Education and Training)

The European Credit Transfer and Accumulation System (ECTS) has been incorporated into the awards systems of HETAC, the IoTs, DIT and the Universities and most programmes are now ECTS compatible. ECTS is a learner-centred system for credit accumulation and transfer based on the transparency of learning outcomes and learning processes. It aims to facilitate planning, delivery, evaluation, recognition and validation of qualifications and units of learning as well as student mobility.

National perspective on Accreditation of Prior (Experience) Learning (AP(E)L)

The accreditation of prior learning is currently the subject of major debate across all sections of education and training in Ireland (Davidson & Nevala, 2007). Ireland was one of the first EU states to implement national legislation relating to the recognition of prior informal and non-formal learning. The introduction of the Qualifications (Education and Training) Act 1999 pays special attention to this in the section on ‘access, transfer and progression’. The legislation was designed so that any individual has the right to apply for Recognition of Prior

Learning (RPL) for the purpose of gaining an award or qualification in the National Framework of Qualifications (NFQ) or in accessing education and training programmes. This was very progressive thinking in 1999. Coughlan & Scanlon (2007) however suggest that the progress towards developing a national system has been fairly slow.

In 2004, the NQAI put together a national advisory group to devise a set of national principles for the recognition of prior learning in further and higher education in order to strengthen the introduction of policy and procedures for RPL in Ireland. In 2005, the NQAI published the »Principles and Operational Guidelines for the Recognition of Prior Learning in Further and Higher Education and Training«. This document aimed to provide a national approach to the recognition of formal, non-formal and informal learning, which could be used by education providers, awarding bodies and private sector companies. The principles agreed upon in the policy address the issues of quality, assessment, documentation and procedures for the review of policy and practice. They aim to encourage RPL, to bring consistency to RPL in Ireland and remove difficulties that may confront an applicant wishing to transfer within and between different education and training sectors. Because of this national approach the principles and guidelines have been utilised to varying degrees by the Vocational and Higher education sectors (Davidson & Nevala 2007). The NQAI insist that a 'national approach builds on and takes account of developments already taking place both nationally and internationally' (NQAI 2005, p.4). It also states 'that many awarding bodies are, or have been, actively developing their own policies and practices, thus there is a need to develop a national approach to ensure coherence and widespread acceptance of the outcomes of recognition' (ibid). The NQAI's intention is that these principles should be built on to develop operational guidelines which could be 'an exemplar of the nature of arrangements that further and higher education and training bodies (the Further Education and Training Awards Council, The Higher Education and Training Awards Council, the universities and the Dublin Institute of Technology) should consider putting in place' (ibid).

FETAC (Further Education and Training Awards Council)

The 1999 Act saw the establishment of FETAC, the Further Education and Training Awards Council. Under the terms of the Act, FETAC is charged with being the single national awarding body for further education and training. Among FETAC's roles and responsibilities are the design of arrangements linked to the assessment, transfer, validation and recognition processes and the description of qualifications in terms of units of learning outcomes.

FETAC was set up because of the need for learners to have a nationally recognised qualification that employers and educators could rely on. Although FETAC is not the only awarding body in Ireland it is the primary awarding body in the VET area. Each certifying organisation or local training provider that uses FETAC for accreditation purposes must use the established assessment systems outlined by FETAC.

FETAC's mission is to make quality assured awards in accordance with national standards within the national framework, creating opportunities for all learners in further education and training to have their achievements recognised and providing access to systematic progression pathways (FETAC, 2008). Primarily the training providers such as FAS, Further

Education Colleges, and Fáilte Ireland (Irish Tourism Development Authority) carry out the actual assessment within their own training environment with added external moderation from FETAC. Each training provider uses the FETAC module descriptor as the basis for assessing the work of the learner.

FETAC has been identified by the Irish team as being uniquely placed in terms of its mission and processes to act as a partner in this project. One of the principal factors which qualify FETAC for such a role is its approach to the provision and validation of assessment procedures. Through its contact with FETAC the Irish team has begun the empirical stage of the project. This work has been somewhat hampered by factors governing access to respondents and institutions. However it is possible to identify what we would regard as an instrument for the purposes of this study. In this particular instance the work done by FETAC in the area of its assessment policy and implementation would constitute such an instrument. (A link to an example of a full FETAC module descriptor is presented in Appendix 1). FETAC also consider the question of assessment instruments and define such an instrument as ‘the specific activity/task or question(s) devised by the assessor based on the specified assessment technique. For example, if the assessment technique specified in the Award Specification is an examination, the assessment instrument is the/an examination paper/ questions/case study’ (FETAC, 2007).

FETAC also issue guidelines on the design of such assessment instruments and require that they

- Be appropriate to the technique and fit for purpose
- Allow learners to generate sufficient evidence
- Enable evidence to be generated which can be measured against the learning outcomes outlined in the Award Specification
- Enable reliable assessment decisions by assessors
- Be selected to make the best use of available resources i.e. is ‘practicable’.

FETAC is required under the terms of the Qualification Act (Education and Training) 1999 to ensure that Education and Training providers develop and implement assessment procedures that are fair and consistent. Providers have a responsibility in the areas of assessing learners, verification and authentication of assessment approval of results, processing appeals and requesting FETAC to make awards to learners. At the local level where VET takes place FETAC modules offer a range of assessment techniques such as written assignment, project work, portfolio/collection of work, skills demonstration, examination and learner record (see appendix 2 for a description of the appropriateness of these techniques in terms of the level of the award and the learning outcomes assessed).

FETAC and RPL

In addition to its work in the area of assessment FETAC’s responsibilities extend to other domains. In 2005 it agreed a Policy on Recognition of Prior Learning. According to the Council ‘RPL is a significant mechanism to improve access, transfer and progression for learners and is essential for the promotion of lifelong learning’ (FETAC, 2005) where RPL is defined as ‘prior learning that is given a value, by having it affirmed, acknowledged, assessed or certified’ (*ibid*). Recognition of

prior learning has been a feature of the Irish VET system for a number of years but the recent economic and social developments in the country have accelerated the need for the development of policies such as those devised by FETAC.

Broadly speaking the principal aim of FETAC's policy in this area is concerned with ensuring access, transfer and progression of learners through the recognition of prior learning within the national framework of qualifications. This policy is implemented on the ground through FETAC's quality assured programme providers who are encouraged by FETAC to facilitate learners through the recognition of prior learning in the areas of *'entry to programmes, exemptions from programme requirements, credit towards an award and eligibility for a full award within the framework of qualifications'* (ibid). In its strategic plan for 2003 – 2006 FETAC committed itself to development and publishing of a policy on the issue of accreditation of prior learning. In keeping with its track record of attaining targets set, the board of FETAC agreed and approved a policy on the Recognition of Prior Learning in April 2005. FETAC defined the recognition of prior learning as 'prior learning that is given a value, by having it affirmed, acknowledged, assessed or certified' (See Appendix 3 for full details of the guidelines governing the implementation of the RPL policy).

The Higher Education System and AP(E)L

HETAC is the successor to the National Council for Educational Awards (NCEA) and acts as the qualifications awarding body for third-level education and training institutions outside the University sector. HETAC in Ireland describes prior experiential learning as knowledge and skills acquired through life, work experience and study, not formally attested through formal certification. In so doing however, Coughlan & Scanlon (2007) suggest that it is also very clear that experience is an input and that learning outcomes are the result of a successful learning process. Interestingly it states categorically that academic credit can be awarded only for the achievement of learning outcomes and not simply for experience. The guiding principle underpinning the guidelines is that they are an integrated part of the Council's strategy to create a ladder of learning as indicated in the third mission principle that of the provision of systematic progression pathways (HETAC, 2006). It states that the concept of AP(E)L is one which is aimed primarily at people who for reasons such as, for example, lack of finance or other support did not have the chance to commence or complete a third level programme. Having now amassed a significant level of life experience they could now qualify to have this experience assessed academically to gain access to or exemptions within the third level system. Learning outcomes are used where AP(E)L is related to specific modules or courses with the expectation in some cases that applicants will meet all the learning outcomes to a specified sufficiency.

In a recent research conducted by Murphy (2004) the findings suggested that the use of learning outcomes for AP(E)L is conceptually difficult in a higher education context where knowledge is not generally pegged to measurable occupational competence standards. It went on to say *'Curriculum design, syllabus content and assessment in higher education generally operate from a different philosophy in this regard and the University preference is for assessment of experiential*

learning in-the-round, drawing on the teaching experience of academic staff and panels of experts closest to the field of learning in each case' (p.5).

The University Sector & AP(E)L

The University system has up until recent times been the slowest to act on developing instruments and policies in the area of AP(E)L. Coughlan & Scanlon (2007) suggest that this is however due to the lack of institution-wide initiatives. However, due to the increased demands for vocationally related degrees such as Teaching and Nursing, and more so in recent years with extra resources being put into Science and Engineering, a number of recent developments are putting increased pressure on the University sector to become more involved in the area of AP(E)L. Traditionally there has been a steady influx of students from the Higher Education sector to the University sector and a very well established system of APL existed to cater for these students. This interaction has diminished in recent times due to the increased authority of the HE sector to award their own degrees and post-graduate qualifications and the greater acceptance of these awards by employers Coughlan & Scanlon (2007 p.17). In recent years the applications through the CAO (Central Admissions Office) in the areas of science and engineering have been decreasing. Because of this and pressure from the NQAI the University sector is now under increasing stress to maintain their enrolment numbers. They have recognized that it is now imperative for systems to be put in place to allow for greater flexibility in the admissions system.

Sectoral case study – Engineering

The CREDIVOC project is still in its infancy and innovations and models of good practice have yet to be established between partners. This section gives an overview of current procedures within this sector. As previously mentioned vocational education and training is not necessarily based on vocational to higher educational pathways. Learners often straddle several domains. FETAC & HETAC have both made awards in the Engineering sector through the AP(E)L process. Outside of the process for APEL through the traditional educational routes such as VET and Higher Education degrees the sectoral body for Chartered Engineers in Ireland (Engineers Ireland) has developed its own system for the recognition of competencies for individuals presenting themselves for recognition as Chartered Engineers within the profession. Within Engineers Ireland the Experiential Learning Procedure has been developed for those who do not have formal academic qualifications at the required level but who, over an extensive number of years, may have developed the competencies of a Chartered Engineer. The body recognises that the development of engineering competencies can take place in a wide range of settings. Individuals with a personal interest in and enthusiasm for engineering may study engineering and attend various training courses throughout their career. The procedure, which is administered internally, was formulated in recognition of those working in the industry that do not have at least a primary degree in an engineering discipline and want to be recognised as Chartered Engineers. The applicant initiates the process by completing an »Alternative

Routes to Assessment Form» and successful candidates will be invited to produce a portfolio describing past learning and achievements to date. The portfolio consists of three sections:

- Paper on Experiential Learning (Section 8)
- Paper on an Engineering Project (Section 9)
- Two Essays (Section 10)

The Membership and Qualifications Board determine suitability based on the candidates experience in relation to *»the competencies of a chartered engineer«* a 1419 word document available to all candidates and a mentor is allocated to each candidate. The relationship with the mentor is paramount however the role of the mentor is confined to assisting the candidate in understanding the meaning of the competencies described in *»the competencies of a chartered engineer«* and accurately identifying and describing his/her skills and knowledge insofar as these relate to the competencies. The mentor's role does not in any way extend to enhancing the quality of the candidate's skills and knowledge beyond assisting the candidate as described above. The mentor has no role or influence in the examination of the candidate and cannot be held responsible in any way for the outcome of the examination. On successful completion of the portfolio the applicant submits to an oral examination with an examination board made up of engineers at least one of whom is an expert in the candidate's discipline (Coughlan & Scanlon 2007).

Summary

This report sets the scene in an Irish context of how assessments occur primarily through the FETAC system, which is the dominant accrediting body for vocational learning in Ireland. It outlines the overlap between vocation (further) education and higher education. Reference is made to the Universities and the other Higher Education bodies such as HETAC. The report outlines the interrelationship between European developments and theoretical frameworks as well as observing the current changes occurring within this sector. The report establishes up-to-date developments connected with the assessment and APEL tools and instruments that are aligned with current legislation. In the case of Ireland, the NFQ (National Framework of Qualifications) is one of these instruments as well as the APEL policies of the NQAI (National Qualifications Authority of Ireland) which is written as Irish law in the form of learning outcomes. The report also discusses the significance of the development of the EQF as well as the implications of the ECVET process. The next stage of this research within the CREDIVOC project is to develop the empirical research through case studies and engage with a domain specific sector and examine how these instruments work in practice with a special emphasis on the R(A)PL (Recognition and Accreditation of Prior learning) and in that regard the report briefly outlined the Engineering sector in the Irish context. The project will go on to produce some recommendations that can be transferred throughout the partner countries. As Murphy (2004, p. 5) says in her paper 'the drivers of AP(E)L development in Ireland have been the professions such as nursing, social care engineering'. We look forward to investigating this sector in more detail as the project continues.

References

- Brinkley I and Lee N (2006). The knowledge economy in Europe: A paper prepared for the 2007 EU Spring Council, London, The Work Foundation
- Coughlan, D & Scanlon, G. (2007) Ireland VPL-country paper 2007 - Managing European Diversity in lifelong learning (VPL2) EU/Leonardo project NL/05/C/F/TH-81802
- Davidson, M & Nevala A-M. (2007) European inventory on validation of non-formal and informal learning IRELAND (draft) C3342 / ECOTEC Research & Consulting Ltd.
- FETAC (2007): Towards a European Credit System for Vocational Education and Training: Background Paper, January 2007, Dublin: FETAC.
- FETAC (2007): Quality Assuring Assessment: Guidelines for Providers, Dublin: FETAC.
- FETAC (2005): RPL: Policy and Guidelines (Draft), Dublin: FETAC.
- FETAC (2007) Towards a European Credit System for Vocational Education and Training: Irish Response, Dublin: FETAC.
- Finlay, I., Niven, S. & Young, S. (Eds) (1998): Changing Vocational Education and Training: an international comparative perspective. London: Routledge.
- Government of Ireland, Department of Education & Science (DES) (2000): Learning for Life: White Paper on Adult Education. Dublin: The Stationery Office.
- Heraty, N., M. Morley and A. McCarthy, (2000), Vocational Education and Training in the Republic of Ireland: Institutional Reform and Policy Developments since the 1960s, Journal of Vocational Education and Training, Vol. 51, No. 2, pp. 177-198
- http://www.fetac.ie/info/about_fetac.htm (accessed 17th May, 2008)
- McCarthy, O'Donnell & Garavan (2001): Understanding the Irish VET system: beyond neoclassicism, International Journal of Manpower Intellectual Capital Research Institute, Ballyagran, Limerick County, Ireland, Volume: 22, Number, 5, pp: 425-444
- Murphy, A (2004): AP(E)L in Irish higher education: findings from an audit of practice undertaken as an activity within the Socrates-Grundtvig research project VaLEx Valuing Learning from Experience 2003-2005, Dublin Institute of Technology, Ireland.

Appendix 1

FETAC Module descriptor: <http://www.fetac.ie/>

Appendix 2

Assessment Techniques - Summary

The following table summarises the assessment techniques identified for assessing learners, and their appropriateness to the level of the award and the learning outcomes being assessed.

Assessment technique	Level appropriateness	Assessor needs to prepare:	Learning outcomes assessed
Assignment	Level 1 – 6	Assignment brief	Knowledge, know-how and skill, competence
Project	Level 4 - 6	Project brief	Knowledge, know-how and skill, competence
Portfolio/collection of work	Particularly appropriate for levels 1 - 3	Instructions/tasks. Guidelines on compiling portfolio	Knowledge, Know-how and skill, competence
Skills demonstration	Level 1 - 6	Instructions, tasks, activities or brief	Particularly appropriate to know-how and skill and competence
Examination	Level 4 - 6	Examination paper, examination questions, instructions for learners e.g. time allowed	Theory based examination is particularly suitable for the assessment of knowledge outcomes. Practical examinations can be used to assess know-how and skill and competence
Learner record	Level 4 - 6	Brief/instructions. Guidelines for learners on format of the record.	Knowledge, know-how and skill, competence

Appendix 3

FETAC: RPL: Policy and Guidelines (Draft) 2005

Specific Requirements

FETAC has prepared the following specific Guidelines to assist providers to facilitate learners through the recognition of prior learning with regard to entry, exemption or eligibility for an award.

Entry/access to programmes

The facilitation of the recognition of prior learning process for entry to programmes is the responsibility of the programme provider to which the individual applies. The provider's procedure for entry to programmes will be approved by FETAC at the point of programme validation within the context of the agreed provider's quality assurance policy and FETAC's award arrangements.

Guidelines

Providers will be required to:

- Advise and support learners of the value of prior learning and of the steps in the process involved for making an application
- Provide appropriate information to learners on the entry criteria/requirements to successfully participate in a programme. RPL information leaflets and RP application procedures should be made available to learners.
- Specify the entry criteria which form the basis for successful participation for each programme to be validated by FETAC. These criteria will refer to the standards and level of the award and take into account the knowledge, skill and competence to be acquired by the learner. This will be required when validation of programmes commences in Spring 2006.
- Include RPL information in all programme materials i.e. programme prospectus or course profile prepared in advance of the programme. This information should be readily available to prospective learners in an appropriate medium
- Establish an application procedure to assist the learner to apply on the basis of prior learning experiences and to attach supporting evidence of prior learning experiences. The application procedure should be simple and allow the individual to document the relevant prior learning experiences. The standard application procedure with an additional section for RPL applicants is recommended.
- The application procedure should gather information on the learner's prior experience such as: personal information, previous employments, leisure and voluntary activities, education and training undertaken, and references as well as reasons for applying for the programme. The applicant should be given an opportunity to highlight the relevant prior learning in relation to the entry criteria.
- Criteria for the evaluation of the learner should include minimum acceptable criteria for successful participation such as: a minimum of 5 years relevant life experience, a clear demonstration of the capacity to succeed – standard of overall application, individual commitment of the learner and other specific requirements which may be specific to the programme.
- The assessment of the prior learning in the application should be carried out by persons with appropriate expertise in the relevant field. If required the provider may seek more information and evidence from the prospective learner.
- Ensure that their arrangements for selecting and assessing learners for entry are transparent and fair. Prospective learners can be interviewed to discuss the above to assist in the decision making process.
- On completion of the assessment of the application a recommendation will be made regarding entry to the programme.
- An appeals mechanism should be in place as for all prospective applicants in the event of a learner making an appeal.
- Monitor and record the application and its outcome to meet requirements of quality assurance elements for recognition of prior learning for entry.

- To assist providers a sample application form is attached illustrating information that is required for processing prior learning applicants. It is of course possible for providers to develop or amend this as appropriate.

Exemptions from programme requirements

A learner may be granted an exemption from some programme requirements on the basis of prior learning experiences. It is the responsibility of the provider to grant the exemption(s) in accordance with the requirements and guidelines below; As and from January 2005 and as part of FETAC Quality Assurance requirement providers will be required to grant exemptions to learners by recognising prior learning.

Guidelines

To facilitate the granting of exemptions provider will be required to:

1. Outline their criteria for exemption arrangements on the basis of prior learning for each programme submitted to FETAC for validation. A provider should identify the criteria for the granting of exemptions to a learner during consultation for and development of the programme
2. This information should be available in advance of selection of learners and available to prospective learners in all programme literature.
3. Grant an exemption on the basis of a successfully completed FETAC or other recognised award. Learners who already hold any FETAC minor award should be granted an exemption towards a major award for which this minor award is a requirement.
4. If seeking recognition for other award learners should be advised to present the **original** of the relevant certificate in order for exemption to be granted.
5. In the case of 'other recognised award' the provider will refer to FETAC for information on the status of the award. Providers will refer to FETAC's register of Recognized Awards. www.fetac.ie to ensure that learners holding awards recognised by FETAC are given appropriate recognition as part of the programme. Details of other awards can be sent to FETAC at recognition@fetac.ie for evaluation.
6. Grant an exemption on the basis of prior learning experiences, which in the opinion of the provider meet a number of learning outcomes in part of a programme or programme requirement. This type of exemption will not exempt the learner from assessment (as it is not formally recognised) and the learner will be required to be fully assessed at the award stage of the programme.
7. For uncertified learning experiences the learner will be required to present evidence to demonstrate how he or she meets the relevant programme requirements. This evidence must demonstrate clearly how, when and where the learner met the criteria. The evidence presented will be assessed in a fair and consistent manner against the assessment criteria for the specified learning outcomes. This prior learning evidence must meet the assessment standards of authenticity, currency, validity and reliability.
8. If the evidence does not meet the assessment criteria the learner will be advised to undertake the assessment.

Eligibility for an award

This applies to learners who are seeking to have their prior learning experience formally recognised for the purposes of achieving a major, minor, special purpose or supplemental award. From summer 2005 a learner³ may, on the basis of prior learning experiences apply for a FETAC award independent of programmes. Learners can achieve an award if they can demonstrate that they meet the standard for an award on the basis of prior learning experience. In the case of a direct application to FETAC the assistance of a provider will be required to confirm the standard of attainment for an award.

Guidelines

Recognition of prior learning for an award is significantly more complex than recognition within a programme for entry or exemption in that a learner is facilitated to attain a complete award. This involves a rigorous process of analysis and evidence gathering in order to ensure that the standards for the award have been attained. FETAC must ensure the integrity of the award standards is maintained and any process such as the assessment of prior learning must clearly demonstrate achievement of these standards.

To assist providers FETAC has identified a series of steps in the process to enable learners to gain recognition of prior learning for an award

These are:

- Identifying the award
- Determining eligibility
- Analysis of knowledge, skill and competence
- Gathering Evidence
- Assessment of the evidence
- Making a recommendation

The term learner is used as in the context of a 'lifelong learner' (NQAI Draft Principles)

I. Identifying the award

The first step towards the attainment of an award is to identify the relevant and appropriate award. Following an initial enquiry the award must be clearly identified by the learner. The FETAC Directory of Awards contains all the awards currently made by FETAC. The award and the Award standards must be available to the individual learner and provider. These can be requested from FETAC or downloaded from the website. FETAC recommends that the learner undertakes this in conjunction with a provider or an employer.

II. Determine the eligibility of the learner

Following the identification of an award the eligibility of the individual learner must be determined. The eligibility of the learner is critical and the breadth and depth of the prior learning experiences of the learner must be evaluated. The learner must be able to show that he or she has adequate prior learning. If not the learner cannot proceed. FETAC recommends that A 'Quick Scan' of the learning outcomes for the award be undertaken by

the provider with the learner to determine eligibility for the award. This quick scan will enable the provider to evaluate the prior learning. The learner should be requested to submit a Curriculum Vitae or Application form outlining their work history to date. It is also recommended that the learner be requested to give a number of reasons why he or she are applying for the award employability, mobility, personal development etc to assist with the determination of the motivation of the learner. FETAC recommends the following criteria for the determining of eligibility for a learner seeking an award:

- For a major award it is recommended that the learner should have a minimum of 6-8 years direct work experience for a major award
- For a minor award, special purpose and supplemental award the learner should have more than 2-3 years directly relevant prior learning experiences.
- The identified prior learning must be directly related to the targeted award.
- The learner should display a commitment to undertaking a rigorous demanding process
- The learner should display an ability to undertake the process of personal evaluation and to gather evidence in an efficient and effective manner.
- The learner should be willing to take additional assessment as deemed appropriate and/or attend an interview if required these recommendations are not fixed as each award and the life experience will vary. Learner may require top up training in order to reach the appropriate standard if they do not have sufficient prior learning.

III. Analysis/review of knowledge, skill and competence of the award

The analysis of learning outcomes involves a review of the knowledge, skill and competence for the award of the learner and matching this prior learning against the learning outcomes for the award. This process may also be referred to as an 'audit'. This process is to be undertaken by the learner with support of a mentor as appropriate. The steps include:

Listing the learning outcomes for a specified award

- For **each** learning outcome consider in terms of 'can do/cannot do/have experience of/know and have applied '. This will require discussion, reflection and self analysis on the part of the learner.
- Record the learning outcomes as 'achieved/not achieved'
- Identify for each learning outcome precisely how, where and when this learning took place: the learner will need to review **all** the learning outcomes for the identified award.

As a general rule the prior learning experience of the learner should ensure the **majority of learning outcomes are achieved** – more than 70%. If not, it is likely that the learner does not have sufficient experience to prove their competent

IV. Gathering of Evidence

For each learning outcome the learner should identify a piece of evidence to be used to demonstrate the achievement of the outcome. The evidence can be collected in a Portfolio of Evidence/collection of evidence. The same piece of evidence may be presented for more

than one outcome if appropriate to those outcomes as a group relating to a particular field of learning. Evidence which applies to more than one learning outcome must be clearly labelled and cross – referenced. This Portfolio/collection of Evidence will be assessed by an assessor who will make a recommendation on the outcome to be achieved. The Portfolio/collection of evidence should contain the following:

- Personal details and contact information
- Table of contents listing the various sections in the portfolio
- Full Curriculum Vitae expanded to include detailed work history (European CV recommended)
- Reference information on award identified
- List of learning outcomes/standards for the award and details of analysis recorded as achieved/not achieved with identified evidence reference
- Referenced/indexed listing of evidence - referenced to learning outcomes
- Copies of correspondence/applications forms etc
- Details of meetings with mentor

A Range of supporting evidence including the following:

Direct evidence

- Project or work based assignments
- Evidence of work based assessment – on the job assessment for work skills
- Job Specification(s)
- Company organisation charts
- Personnel records of in house training and development
- Accounts of personal experiences
- Employer endorsement and /testimonials
- Prior qualifications, Certificates of Education and Training – FETAC, in house etc
- Training, Assessment and test results
- Curricula/course descriptions/outcomes
- Staff training records/personal records
- Products of work, samples of documentation/work undertaken, photographs

Indirect evidence

- Membership of related organisations and societies
- General references
- Newspaper cuttings
- Other evidence – accounts of overseas experience, voluntary work etc.

All relevant evidence and documentation relating to the prior learning of the learner must be identified by the learner. Some evidence will be readily available. Further research will be required to gather other evidence through contact with present and former employers, personnel departments, trainers, personal contacts as well as other sources. As part of learner support the mentor will assist the learner to identify the range and types of evidence to be presented.

Ensuring quality of evidence

Direct Evidence will provide **direct proof** of knowledge, skills and competence of the learner and will relate specifically to the identified learning outcome/standard of the award. It will fully support a claim.

Other **indirect** evidence can be used to support the application but may not clearly demonstrate competence. It may support an application but will need to be linked to the standards as clearly as possible. It is likely that this indirect evidence on its own will not be sufficient to prove full achievement of the standards for the award.

Guidelines for Gathering Evidence/Portfolio Development

The evidence must be clearly linked to the learning outcomes/standards which have been declared to have been achieved. The evidence must be directly relevant to the learning outcomes identified.

It is recommended that a minimum of two pieces of evidence be presented for each learning outcome/set of learning outcomes. This for example would consist of a CV with relevant detail of directly relevant work experience and some supporting evidence of informal training undertaken. Another alternative would be direct work experience and evidence of assessment on the job. These items of evidence would be required to be authenticated appropriately.

The assessor will judge the evidence against the assessment criteria for the award and will consider the evidence for: Authenticity, Currency, Sufficiency and Validity. The assessor must also be satisfied that the knowledge, skill and competence elements for the award are met in full through the evidence as presented. When the evidence/Portfolio is completed it will be checked by the mentor and submitted for assessment.

V. Assessment of evidence

Assessment of prior learning is a core element of the Recognition of Prior Learning process. Providers, as part of their quality assurance procedures will require assessors to accurately assess the evidence of candidates against the standards of FETAC awards. RPL is a mode of assessment and like all assessment modes needs to be fairly and consistently applied.

Assessment of evidence is a formal process of assessment which has to prove the learner meets the standards. A learner must be able to provide **documentary evidence** of prior learning experiences which prove the achievement of the standards. This evidence will be assessed against the relevant standards of the award and its assessment criteria. Following assessment a recommendation will be made to the learner. The assessor will **review the portfolio against the standards for the award** identified and must be satisfied that all assessment criteria for the award are met. Assessors will be required to:

- Assess i.e. judge the learner's evidence against the national standards as outlined in the award standards ensuring authenticity, currency, reliability and sufficiency.
- Ensure the evidence has met more than 70% of all of the declared learning outcomes.
- Ensure the evidence presented has met the knowledge, skill and competence elements of the award.

- Judge and allocate a score to the evidence as presented in terms of achieving the standard on a scale of 0 -100% full achievement.
- Undertake further assessment of the learner as appropriate to ensure the learner meets the standard.
- Arrange the verification of the achievement of the standard by a ‘person competent’ to ensure the achieve of the standard
- Make recommendations to FETAC regarding the learner attaining the award

The assessor will **score and grade the evidence** in accordance with the scoring and grading mechanisms established for the award.

The assessor will use the following criteria when undertaking the assessment of prior learning evidence:

Sufficiency – is there enough evidence to demonstrate achievement of the standard.

The assessor needs to be satisfied that the evidence presented shows the necessary breadth and depth as required in the standards for the award. The assessor will take into account the level of the award on the framework of qualifications and the descriptors of knowledge, skill and competence required.

Currency – the assessor needs to be sure that the evidence is recent enough to be up to date in relation to the standards for the award. While not all evidence needs to be current there are some types of evidence which may be outdated by new technological procedures and developments. The experienced assessor who is a subject matter expert will take this into account in the evaluation of the evidence.

Authenticity – the application will need to be clearly established as the property of the individual. Where appropriate the evidence should be endorsed and dated by the candidate. Endorsement of evidence by the supervisor/employer will also demonstrate authenticity. Letters of authentication of evidence will provide good supporting evidence.

Validity – relevance to the training standard is critical. The assessor needs to judge if the evidence presented is appropriate to the standards as indicated.

The assessor will record the results throughout and may seek clarification and meet/interview the candidate if required. In order to facilitate RPL assessors will need to be trained and experienced in their specific field and in the assessment requirements for the award

External verification

The process of assessment of a candidate’s evidence will need to include external verification to ensure consistency and compliance with national standards.

Assessment of prior learning is a mode of assessment. External verification will ensure the standard for the award is met and the overall creditability of FETAC awards is maintained.

Providers will ensure that this requirement will be met in their quality assurance policy and procedures on assessment.

VI. Recommendation for an award

Once the assessment is complete a recommendation is made by the assessor regarding the attainment of the award. In the case of recognition of prior learning the award is processed in the standard manner and results returned for result approval in the normal way. The returning of results will be quality assured by providers in accordance with FETAC QA requirements. The grading of the award will be made in accordance with the assessment criteria for the award in question. At present the grading will be in accordance with the existing criteria of the awards as constituted by the former awarding bodies. When new FETAC awards are introduced the grading criteria will obviously evolve.

7. Synthesis Report: Perspectives for a European Transfer

Roland Tutschner & Wolfgang Wittig

Conceptual framework

In this final section of the report the results of the previous national chapters will be compared and presented in a more integrated way. As outlined in the introduction there is a variety of criteria that can be used to classify the various approaches to the accreditation of vocational learning outcomes. In what follows we will briefly explain and justify this conceptual framework.

First there is a set of general criteria that describe the *systemic context* and the *regulatory framework* in which the accreditation of prior learning takes place. The descriptors used to characterise the education and training systems are the ones commonly used for this purpose, i.e. we distinguish mainly between dual or alternating and school-based VET systems. To describe the structure and content of education programmes we refer to the question as to whether a modularisation similar to the one foreseen by the Bologna process is in place. The regulatory framework is described at the national, intermediate and institutional levels. For the purpose of this study, the intermediate level is considered to encompass regional, local and sectoral bodies. The description of the regulatory framework refers to the responsibilities for the enactment and the implementation of the legal regulation. An important distinction to be drawn here is the one between a centralised and a decentralised approach to regulation.

The next category of descriptors, which is more specific than the first one, refers to the *procedure of accreditation* and includes several criteria related to the formal structure and the content of the procedures. One formal descriptor is the competent body, i.e. the institution that is responsible for the implementation of the procedure or practice. The other formal descriptor is the type of procedure. Here a distinction between formal and informal procedures can be drawn. A procedure is considered formal when it is recognised within the legal framework and governed by specific regulations. An informal procedure is any established practice of recognising prior learning that is implemented e.g. at the institutional level without an explicit legal mandate. As regards the content of the procedures we apply the distinction between blanket recognition and individual recognition, which has already been discussed in the chapter on Germany. As stated above, individual recognition is based on the individual case-by-case assessment of learning outcomes, e.g. by means of a learning portfolio. This type of recognition can be carried out for formal, non-formal and informal learning outcomes alike. Blanket recognition, by contrast, is not concerned with the assessment of individuals but the comparison of education and training programmes. The equivalence of such programmes is evaluated on a one-off basis so that once the equivalence has been established, recognition of prior learning is granted to all persons who have completed the programme in question. By definition, blanket recognition is possible only for formal learning outcomes.

At a still more concrete level the *instrument or practice of accreditation* and the *methodology* are used as descriptors for the comparison of the national cases. Different types of instruments or

practices for blanket recognition and for individual recognition are presented here. Among these are, for instance, portfolios, written tests and interviews, but also the Module Level Indicator. The methodology is assessed according to the questions as to whether informal learning is taken into account, whether a methodology exists for the description of learning outcomes, whether there is a reference to the EQF and whether there are criteria for credit points that are compatible with the ECVET approach.

Finally, supplementary criteria to compare the national cases are the *barriers* to the accreditation of vocational learning outcomes and the *support* that is provided to overcome the barriers. In the following sections the key results of the national chapters are discussed according to this common conceptual framework. The comprehensive results of the comparison according to these descriptors are presented in a matrix that is annexed to this report.

Key findings

The reports compiled in this volume show that there are quite different approaches to the recognition and accreditation of vocational learning outcomes for higher education in the countries covered by the CREDIVOC project.

When the accreditation systems are viewed in a transnational comparative perspective it turns out that Austria does not have an established system for the recognition and accreditation of learning outcomes from initial and continuing training programmes for higher education (see the comparative table in the annex). Instead there are informal recognition procedures between vocational colleges (*Höhere Technische Lehranstalten, HTL*) and universities of applied sciences. These procedures are based on many years of experience and cooperation between the institutions concerned. Accordingly there are no standards for blanket recognition procedures and instruments as far as the target sector of electrical engineering is concerned. The universities of applied sciences, being the institutions that implement the practice of recognition and accreditation, do not yet use instruments for level assessment and equivalence checks related to the European Qualifications Framework. Finally there is no standardised procedure for the individual recognition and accreditation of learning outcomes, e.g. on the basis of learning portfolios.

In Germany, by contrast, there are already some instances of accreditation procedures on the basis of equivalence checks between advanced vocational training programmes and higher education programmes. These procedures are an outcome of the ANKOM initiative. One example is the accreditation of learning outcomes from the advanced vocational degrees of *Meister*, *Technischer Fachwirt* or *Technischer Betriebswirt* for the part-time study programme in business administration at the University of Oldenburg. Apart from that informal recognition procedures similar to the ones in Austria are implemented between single technical colleges and universities of applied sciences, e.g. between the Technikakademie Weilburg and the University of Applied Sciences Wiesbaden. However, it must be observed that only the formal procedure of equivalence checks by means of the »Module Level Indicator«, which is applied in the comparison of vocational learning outcomes with modules of the business administration programme in Oldenburg, complies with the descriptors of

the EQF. Like in Austria, there is no standard procedure for the individual recognition of vocational learning outcomes in Germany. The assessment of learning outcomes on the basis of portfolios takes place only between higher education institutions, but not between vocational and higher education. A novelty is the general admission of state-certified technicians and master craftsmen to higher education, which was introduced in spring 2009.

A different route concerning the accreditation of vocational learning outcomes is taken by Finland. Here vocational qualifications involving at least three years of training give general eligibility for higher education. Vocational qualifications with less than three years give access to studies in the same field at polytechnics. This means that vocational learning outcomes are generally recognised as an admission requirement for higher education, but no credits are awarded for these learning outcomes. The permeability between the different sectors and levels of the education system is secured predominantly by means of coordination between the curricula. Only universities of applied sciences offer the opportunity for individual recognition of vocational learning outcomes. Decisions about admission and accreditation are made by the universities and universities of applied sciences themselves. Currently two working groups are developing a concept for recognition and accreditation at universities and universities of applied sciences.

A totally different approach is implemented by France and Ireland. In France a complex national system for the validation and recognition of formal and informal learning outcomes was established over the past decades. It is a national system with a decentralised implementation through assessment boards. These boards, which decide upon the recognition and accreditation of learning outcomes, are composed of representatives of the different stakeholder groups. In France three types of validation systems can be distinguished. These are the VAE (Validation of Acquired Experiential Learning, 2002), which validates and certifies non-formal and informal learning outcomes, the VAPP (Validation of Acquired Professional and Personal Learning, 1985) for the recognition and accreditation of formal, non-formal and informal learning outcomes for access to higher education, and the VES (Validation of Educational Studies in higher education), which assesses the equivalence of formal learning outcomes with higher education programmes.

The procedures of VAE (partial or full accreditation of non-formal and informal learning outcomes for the awarding of recognised national qualifications or certificates), VAPP (recognition of formal, non-formal and informal learning outcomes for access to higher education) and VES (full or partial equivalence of prior learning to study units) are primarily based on the model of individual recognition, i.e. they work with individual assessment procedures by means of learning portfolios. However, there is also the opportunity for generalised (blanket) recognition of vocational learning outcomes on the basis of equivalence checks in the VAPP and VES schemes. Especially under the VES system formalised equivalence checks are implemented, which are based on the comparison and level assessment of formal qualifications with a view to access to higher education. The steps, rules and procedures of recognition and validation as well as the composition of the validation boards are documented in detail, only little is known about the criteria according to which decisions on recognition and validation are made.

The Irish system of recognition and accreditation of informal and formal learning outcomes from vocational education and training is coordinated by three institutions, namely the National Qualification Authority of Ireland (NQAI), the Further Education and Training Awards Council (FETAC) and the Higher Education and Training Awards Council (HETAC). FETAC is providing the module descriptors and the assessment grid for training providers in vocational education and training, and is also responsible for the accreditation of these providers. HETAC is responsible for higher education programmes and for the recognition and accreditation of prior learning with regard to the transition to higher education. Some business sectors and professional groups like engineers have their own institutions for the recognition of learning outcomes. The responsibility for the implementation of accreditation procedures is with the educational institution to which the learner applies. FETAC and HETAC provide formal regulations for the procedures.

Similar to France, the accreditation of formal and informal learning outcomes in Ireland takes place on the basis of individual portfolios. The descriptors of the National Framework of Qualifications (NFQ) with its ten levels are the basis for the assessment and accreditation of the learning outcomes. For the recognition and accreditation of »prior learning« FETAC and HETAC have developed the AP(E)L (Accreditation of Prior Experience Learning) process. The R(A)PL (Recognition and Accreditation of Prior Learning) is used in the engineering sector and allows for the recognition of informal learning outcomes and work experience in the transition to higher education. There is no blanket recognition of learning outcomes from vocational education for higher education, at least as far as the engineering sector is concerned, and no instrument for equivalence checks between vocational training programmes and higher education programmes.

Concluding remarks

What is shown by the description of the concepts and approaches concerning the recognition and accreditation of vocational learning outcomes for higher education is that despite a great variety of strategies all countries lack a developed and established concept in one particular field, namely, the equivalence assessment of learning outcomes from vocational and higher education programmes. In none of the countries there is a widely recognised and fully developed instrument or procedure for the blanket recognition of learning outcomes via a one-off comparison of vocational training programmes and higher education programmes in accordance with the principles of the European Qualifications Framework. In Germany there is the promising approach of the Module Level Indicator developed at the University of Oldenburg, which has as yet been tested only in business training but not in the domain of engineering and technology. Therefore the most important objective of the CREDIVOC project in Germany is to pilot this concept of equivalence checks for an accreditation procedure between the advanced training of state-certified technicians and a relevant undergraduate programme at a university of applied sciences. In Austria there will be a debate as to whether this concept is also suitable for equivalence checks and accreditation schemes between technical colleges (HTL) and universities of applied sciences. In addition it remains to be investigated whether there are opportunities in

Finland, France and Ireland to implement parts of this methodology in these countries or to use them to supplement existing concepts.

Annex: Comparison of the national accreditation systems

Regulatory framework (of the entire VET system)					
Criteria / Countries	Germany	Austria	France	Finland	Ireland
National	Decentralised system: VET is regulated by the federal government, school-based and higher education is regulated by the states (Länder) Coordination between the two: holders of advanced VET certificates (technicians, master craftsmen) are in principle eligible for higher education (implementation depends on regulations at the regional and institutional levels)	Federal regulation of VET and higher education: Universities of Applied Sciences Act (FHSiG) allows for the admission of applicants with relevant professional experience.	Nationally regulated with decentralised implementation, (in cooperation with involved stakeholders). 3 national validation instruments: 1-VAE (2002) of informal and non-formal learning outcomes leading to certification; 2-VAPP (Validation of Acquired Professional & Personal learning since 1985) of formal, informal and non-formal learning outcomes, for access to higher education; 3-VES (Validation of Educational Studies in higher education): equivalence of prior formal certification for access to different studies within the university.	Centralised system. Vocational qualification (at least 3 years) gives a general eligibility for higher education; vocational qualification (less than 3 years) completed to a 3-year qualification gives also general eligibility; shorter vocational qualification and further vocational qualification both give eligibility to the studies in the same field in polytechnics.	In 2008 HETAC (Higher Education and Training Awards Council) who are responsible for accreditation programmes up to level 8-9 on the NFQ and FETAC (Further Education & Training Awards Council) who are responsible for accrediting programmes up to level 6 on the NFQ merged into one organisations. Universities (accrediting at level 8-10 NFQ) are responsible for their own accreditation.
Regional/local/ Sectoral	School acts and higher education acts of the federal states.	No specific regulation at this level (there is no regulation on regional, local or sectoral level).	National System with a decentralised implementation via 3 categories of delivery bodies: 1-State ministries (for national certificates); 2-Sectors under the responsibility of social partners; 3-Chambers, public or private institution under their own names. All types of vocational certification have to be accredited by the national commission CNCP.	National guidelines by Finnish Ministry of Education and Finnish National Board of Education. Each institute have also their own curricular framework.	No regional, no local and sectoral regulation.

<i>Regulatory framework (of the entire VET system)</i>					
Criteria / Countries	Germany	Austria	France	Finland	Ireland
Institutional	<p>The responsibility for the recognition of prior learning is with the institution where the applicant wishes to study. In the selected case this is the University of Applied Sciences Wiesbaden.</p> <p>The universities carry out individual recognition and accreditation procedures. Normally only those learning outcomes are recognised that were achieved in higher education. The recognition of vocational learning outcomes is an exception.</p>	<p>Accreditation agreements within existing cooperation schemes between universities or universities of applied sciences and vocational colleges</p>	<p>Responsibility of the validation implementation is within 3 categories of qualification and certifications delivery bodies according to types of validation: 1- For VAE: public and private schools, colleges, training and apprenticeship centres, and universities. 2- For VAPP and VES: equivalence for access to different levels of higher education is implemented at the university level. (in VES bilateral agreement might exist between the university and the original institution).</p>	<p>Recognition and accreditation of degree holder of IVET and CVET for higher education and polytechnics but no awards of credits. Polytechnics have individual recognition and accreditation procedures.</p>	<p>Chartered Engineers have their own system. Institutions of higher education have their own individual systems.</p>
<i>Procedure of recognition and accreditation</i>					
Criteria / Countries	Germany	Austria	France	Finland	Ireland
Competent body/ awarding body	<p>Examination boards at technical colleges and universities/universities of applied sciences.</p>	<p>University/university of applied sciences. Relevant institutes in university and university of applied sciences.</p>	<p>1- Universities, public schools, colleges and apprenticeship centres (for national vocational certifications) in VAE. 2- Public and private providers connected with sectors (under the responsibility of social partners) or with the chambers or others under their own names in VAE. 3- Universities for access to further higher education through VAPP and VES. All delivering bodies have to have their certificates accredited within the French NQF (via accreditation by the CNCP and registration in the RNCP)</p>	<p>Finnish Ministry of Education and Finnish National Board of Education in the IVET system. For application at polytechnics/universities, Polytechnic/ university is the competent body.</p>	<p>FETAC develops standards. Provider should use these standards. Some sectors have their own accreditation system (Chartered Engineers). Responsible for recognition of prior learning is the programme provider to which the individual applies.</p>

<i>Procedure of recognition and accreditation</i>					
Criteria / Countries	Germany	Austria	France	Finland	Ireland
Formal procedure	Each institution has its own admission procedure to implement the state regulations	Formal admission procedure (no accreditation of learning outcomes)	Nationally formalised procedure with a decentralised implementation.	Under construction the work on a concept for recognition and validation at polytechnics and universities.	Yes, a formal procedure for admission (related on learning outcomes)
Informal procedure	No data available (individual recognition and accreditation of applicants from other universities – but not from vocational programmes – by the department of study programmes is in use but we have no data)	Informal practice of accreditation within the cooperation between universities and vocational colleges (is an informal practice but there are not data available)	There are informal procedures on individual basis based on formal European agreements in conformity with European mobility agreements like Erasmus	Individual recognition and accreditation of studies in higher education. Also studies abroad can be recognised through European mobility agreements	There are informal procedures on individual basis based on formal agreements between institutions.
Individual recognition	Learning outcomes from other universities are recognised by individual assessment through portfolios and tests. Accreditation of vocational learning outcomes takes place only at some universities and universities of applied sciences (e.g. in Oldenburg by means of the portfolio in combination with an assessment, e.g. test)	Target groups: applicants without university entrance qualification. For these is about entrance to university of applied sciences. For the graduates of vocational colleges it is about exemption. Certificates of the graduates of vocational colleges are assessed by the "programme director" of the target study programme. Includes a quality assurance process.	An individualised recognition procedure: 1- In VAE: partial or full validation (in terms of exempt study units) of prior informal and non-formal learning outcomes for the award of a nationally recognised qualifications /certifications.2-In VAPP: accreditation of prior formal, informal and non-formal learning outcomes via granted equivalence for accessing higher education. 3- In VES: partial or full equivalence (in term of study units) of prior formal qualification/certification for access to further higher education.	Vocational upper secondary qualification counts 120 credits. Prior learning can be counted towards the qualification. Prior studies of matriculated students are equivalent to approximately 30 credits. Qualifications also can be demonstrated and recognised in officially approved practical skills demonstrations.	FETAC and HETAC make awards in the Engineering sector through the AP(E)L process. R(A)PL (Recognition and Accreditation of Prior Learning) is used in the engineering sector. The sectoral body for Chartered Engineers has developed its own system for individual recognition of prior learning on the basis of a portfolio.

<i>Procedure of recognition and accreditation</i>					
Criteria / Countries	Germany	Austria	France	Finland	Ireland
Blanket recognition	Modules of specific advanced vocational qualifications (e.g. master craftsman, business specialist) are recognised and accredited in the Bachelor's programme „business administration“ at the University of Oldenburg without individual assessment. The blanket recognition takes place on the basis of an equivalence check by means of the MLI	Vocational qualifications awarded by particular vocational colleges (HTL) are recognised and accredited on the basis of an informal equivalence check of curricula. Recognition is granted without individual assessment of applicants	There is a generalised recognition of learning outcomes from VET study programmes on the basis of equivalence checks through VAPP (since 1985) and especially through VES since 2002.	No blanket recognition of learning outcomes from VET on study programmes but general eligibility for higher education.	No blanket recognition of learning outcomes from VET on study programmes in engineering.
<i>Instrument</i>					
Criteria / Countries	Germany	Austria	France	Finland	Ireland
Instrument or practice for blanket recognition	Formalised equivalence check (MLI; University of Oldenburg): Item based comparison and level assessment of learning outcomes, awarding of ECTS points.	Informal equivalence check of curricula (discussions/workshops between representatives of the college and the university of applied sciences, modification of the school curriculum within the college's autonomy if necessary) Supplemented by the teaching staff's experience gained in the cooperation with the vocational college.	Formalised equivalence (in terms of study units) based on comparison and level assessment of prior formal qualifications and learning outcomes for access to further higher education through VES instrument.	None	None in the case

<i>Instrument</i>					
Criteria / Countries	Germany	Austria	France	Finland	Ireland
Practice (includes instruments etc.) for individual recognition	Where the recognition of vocational qualifications is possible, a portfolio and a written test are required (University of Oldenburg and other Universities)	A level assessment ("interview") is carried out for applicants from vocational colleges that are not covered by the informal equivalence check The level assessment is carried out by a lecturer and needs to be confirmed by the programme director	<i>In VAE</i> : 4 basic stages 1) individualised reception, information and guidance; 2) Pre-application admissibility; 3) Accompanied VAE portfolio preparation for assessment by a Jury; 4) Assessment, interview and (partial or full) validation decision. <i>-In VAPP</i> : the same procedure as in VAE, except the fact the decision in the 4 th stage is an equivalence decision for access to higher education within the university chosen by the candidate. - <i>In VES</i> instrument: only 2 basic steps: 1) Constitution of the application file for equivalence; 2) Assessment, interview and decision of (partial or full) equivalence.	Vocational study units defined by the Finnish National Board of Education can be used for recognition of learning outcomes. Studies abroad, studies in upper secondary education, work-related learning, parts of the further and specialist qualifications, and experience gained through activities can be recognised.	Institutions have their own systems off recognition and accreditation of prior learning. This should be based on the guidelines of the NQAI (National Qualification Authority of Ireland) but often it is unique to individual institutions.

<i>Methodology</i>					
Criteria / Countries	Germany	Austria	France	Finland	Ireland
Recognition (and accreditation) of informal (informal) learning	Informal learning is taken into account only in individual recognition procedures.	Informal learning recognised and taken into account of a specific level in individual recognition procedure.	<p>- VAE allows for the accreditation of prior informal and non-formal learning outcomes, leading to the award of (nationally accepted) formal certifications;</p> <p>- VAPP is based on validation (of prior formal, informal and non-formal learning outcomes) via equivalence for access to higher education;</p> <p>- VES validates prior formal qualifications and certification through partial or full equivalence allowing for access to further higher education.</p>	Prior learning can be counted towards the vocational qualification. By skills demonstrations informal learning can be recognised.	RP(E)L allows the recognition of informal learning and work experiences on higher education programmes. It does not accredit informal learning unless learning outcomes are achieved.
Description of "learning outcomes"	Occurs in some VET sectors (i.g. maintenance sector) and in university study programmes	School-based VET is to be reorganised according to the "description of learning outcomes".	<p>-VAE & VAPP allow for Describing learning outcomes in terms of study units by confronting 2 types of referential indicators: "targeted diploma referential" and "prior occupation referential".</p> <p>-VES gives equivalence (partial or full) in terms study units) by confronting two diploma referential: "prior diploma referential" (such BTS or DUT) and "targeted diploma referential" (such as a Professional Master in electro-mechanical engineering).</p>	During the FINECVET project a form of assessment was developed as an example. In the form the learning outcomes of vocational study units are described in terms of knowledge, skills and competences.	At University level all recognition and accreditation of prior learning and experience must be based on satisfying specific learning Outcomes.
Reference to EQF	Description of learning outcomes on the basis of EQF not yet implemented and is under development	NQF is under development	With reference to the five-level- NQF since 1969. The targeted diploma by the candidate is already registered within the RNCP (National Repertory for Qualifications and Certifications.	Under development	There is a full alignment between the NQF and the EQF.

<i>Methodology</i>					
Criteria / Countries	Germany	Austria	France	Finland	Ireland
Criteria for credit points	Exist in university study programmes (criteria is only workload /ECTS) – for VET they will be developed (ECVET credit points).	Exist in university study programmes (criteria is only workload/ECTS) – for VET they will be developed (ECVET credit points).	Modular study units and ECTS are already in general use in higher education since 2005/2006	"Study points" are equal to study weeks in vocational programmes. In higher education programmes the criteria for credit points is the workload (ECTS).	Exists in university study programmes (criteria is only workload /ECTS) – for VET they will be developed (ECVET credit points).
Barriers	Lack of consistency or effective coordination between VET and higher education In general there is no accreditation of vocational learning outcomes for study programmes at universities; less information about opportunities of accreditation.	Fees for preparatory courses; lack of transparency and consistency in the VET system (e.g. necessity to obtain a university entrance qualification even when one is in possession of a master craftsman's certificate); inadequate information about opportunities for accreditation	VAE validation leads to certification when all the units of the targeted diploma are validated. VAPP concerns only equivalence for access to higher education. VES equivalence (based on prior formal qualifications/certifications) gives the candidate access to further higher education.	Quite new system within initial VET qualification. Not yet information about the barriers of the pilot project.	A barrier would be the autonomous nature of universities and no compliance to a national approach.
Support	Attendance of university courses "on probation" Preparatory courses	Preparatory courses	Information, guidance and accompaniment through highly decentralised guidance centres (called PRC: Points relais Conseil)	Guidelines by Finnish National Board of Education	Guidelines by FETAC and HETAC and the NQAI. Some Universities have preparatory courses.

Basic statistical sources for the French VET system:

For IVET:

- "Le système éducatif", Repères et références statistiques, Edition 2008, p. 19.
- « Les élèves de seconde degré », Repères et références statistiques, Edition 2008, p. 111.

For CVET:

- "L'offre de formation continue en 2006 : De plus en plus de stagiaires pour des formations de plus en plus courtes", Premières Informations Synthèses, DARES, Novembre 2008 - N° 47.2..
- "Projet de loi de finances pour 2008: Annexe: Formation professionnelle", Ministère du budget, des comptes publics et de la fonction publique, 2008

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