# European Vocational Education and Training

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## Introduction

This chapter starts with explaining the relationship between Human Resource Development (HRD) and Vocational Education and Training (VET). In this part the argument is that if HRD is taken broadly, and encompasses corporate HRD, it includes education and training, and thus vocational education and training. The next section builds on this argument and goes into the fading boundaries between initial and continuing vocational education and training, human resource development and life-long learning in Europe. Next, the chapter contends that there is a wide diversity in European VET and national systems of education. National VET systems are caught in their national contexts of legislation, culture and regulation. In some EU member states there is even variation within the state, such as in Germany (with its sixteen Bundesländer), the United Kingdom (with England, Wales, Scotland and Northern-Ireland), and Belgium (with its three language communities). As an example some aspects of vocational education in the Netherlands will be presented, mainly to show a VET system which is characterised by massive participation and reasonably high recognition. The next section of the chapter describes the VET development process in the European Union and goes into the institutional context, which, as will be seen, is very complicated. Next an overview is given of the EU vocational education and training policy instruments which are the result of and give focus to the VET development process. Next, some impressions will be given about VET Theory and Research in Europe. This field is quite scattered, so giving a full overview is hardly possible. The chapter will be finalized by a conclusions section in which suggestions for further theory development and research are given.

## HRD and VET

As stated by one of the founding fathers of Human Resource Development (HRD) Leonard Nadler (1980), HRD includes education which, in turn, comprises vocational education. Although Nadler was speaking about corporate HRD, the scope of HRD can be widened to

national HRD or even international HRD. From that perspective HRD is the total process of development of the people of a certain nation or region. This can easily been seen in developing countries where a comprehensive policy is being followed to increase the qualification levels of the entire population. In many cases this includes not only universal primary and secondary education, but also Technical-Vocational Education and Training (TVET), higher education, and in countries with a large proportion of the population having a livelihood in agriculture, agricultural extension (see for instance Yamada & Matsuda, 2007). So there is a legitimate reason as to why vocational education is included in this book on HRD. But also from the perspective of corporate HRD it is good to include the theme of Vocational Education and Training (VET) in this book, as there are many ties between VET and the world of work, not only because VET takes care of 'delivering' qualified graduates for the labour market, but also because many advanced VET institutions function as regional knowledge centres which deliver consultancy and applied research services to support innovation in small and medium sized enterprises.

## VET in Europe – CVT – HRD – LLL: fading boundaries

When we speak about VET in Europe, not only do we need to specify what is meant by VET, we also have to define what is meant by Europe. Of course, geographically speaking, it is quite clear what Europe as a continent entails. But when related to VET, most experts refer to the policy developments within VET in the European Union, which excludes a number of countries, but to make things directly complicated some non-EU-countries (such as Norway and Iceland) serve as observers in the VET policy development processes in the European Union. There are also special arrangements with pre-accession countries (such as some of the Western-Balkan states, Armenia and Belarus), for which the European Training Foundation provides help in the development of education, training and labour market systems (see chapter @@@).

Regarding VET, within the EU it is quite common to speak about initial VET (or IVT) and continuing vocational education and training (CVT). CVT is part of Life-Long-Learning and corporate HRD (often referred to as training and development in organisations) is part of that. CVT also embraces further post-compulsory training of individuals who are interested in taking a certain course or in following a program of higher education (e.g. from an Open University), or getting a higher qualification for career development purposes.

Boundaries between VET, CVT, HRD and LLL are fading away. Parts of VET are taking place in workplaces (in apprenticeships, learning-working contracts, projects, internships, field attachments); staff from companies are contracted to teach in VET; staff from educational institutions are being stimulated to refresh their experience by doing internships in companies; private training providers get accreditation to teach parts of or complete VET programs; and through APL (Colardyn & Bjornavold, 2004) employees get assessments followed by tailor-made training programs offered by VET institutions. In terms of governance, representatives of local or regional industry frequently hold positions on boards

or committees of VET institutions. In various countries it is also common that employers' and employee organisations are co-governing educational institutions, and are (sometimes regulated by law) expected to articulate needs for educational programs.

**European VET and national systems of education: wide diversity**

VET has a place in the national systems of education, although its' place varies considerably. Lane (1990) described the origins of the labour market traditions in the UK, France and Germany, and stated that the VET-system in the United Kingdom is union-driven by origin; she contended that the French VET system is state driven and that the German VET-system is industry-driven. The German VET-system is known as the Dual System, which means that there is a part which is taken care of by vocational schools and a part which is under the control of companies. The regions (Länder) are responsible for the theoretical/school part of the Dual system, the State is responsible for the in-company part, which is governed by the social partners.

The place of VET in the cultures of the EU Member States is also very different. In Northern-European countries like Germany and Finland VET has a high reputation, whereas in Southern-European countries general education is regarded as more valuable, which is understandable with youth unemployment figures which exceed 25%. When the economy is down flexibility is needed, and taking a VET-track may be perceived as a dead-end if there are no jobs available. A general tendency in Europe, however, is to get admission to university education. This opens most opportunities for a future career, and fits with the growth of high skill jobs (Cedefop, 2010b).

Participation and trends in participation in VET in different EU member states, observing and accession countries vary too. During the early 2000s, overall participation in VET at the upper secondary education level exceeded 60%, but since then this participation decreased to about 50% (Cedefop, 2010a). The developments in participation in VET are mixed. Countries in which participation is augmenting both in absolute and relative terms (compared to all students in secondary education) are Belgium, Finland, Iceland, Ireland, Liechtenstein, Malta, Portugal, Romania, Spain and Sweden. Countries in which the absolute participation is increasing, but the relative participation is decreasing are Austria, the Czech Republic, Denmark, Estonia, Italy, Luxembourg, the Netherlands, Norway, Slovakia and Turkey. Countries in which absolute and relative participation are decreasing are Bulgaria, Croatia, Cyprus, Germany, Greece, Hungary, Latvia, Lithuania, Poland, Slovenia, and the former Yugoslav Republic of Macedonia (Cedefop, 2010a: 38). There are no clear reasons as to why this is happening. One of the explanations can be that the statistics are gradually better, as it is extremely difficult to arrive at reliable comparable data regarding VET-participation in the EU and the candidate countries. But varying economic circumstances can also have varying effects on participation in VET. When the economy is high students can study whatever they like and still get a job. When the economy is down, students are selected more intensively on the specific match between their field of study and the specific job requirements.

Furthermore, as stated, with high youth unemployment students are less interested in following vocational education programs, as they may expect fewer prospects after following these programs. Such differences in economic situations can exist not only at national levels but even at regional level. A third reason can be related to the up-skilling of jobs. Since job growth predominantly is taking place in the high skills segment of the labour market, students may be attracted more and more to higher education, and consequently to the general side of upper secondary education.

**An example - vocational education in the Netherlands**

As stated, there is wide variation regarding vocational education in Europe, and there are countries with elaborate systems for this educational sector. An example may help to understand how different the situation is compared to countries like the USA, in which comprehensive generic education is the predominant model and where vocational education in the high school exists for taking certain courses in vocational domains.

As an example the vocational education system in the Netherlands will be presented (see 'Further Information Sources' at the end of the chapter for details of other European countries). In the Netherlands there is an elaborate system of vocational education and participation in this educational sector is relatively high. To put the system of and participation in vocational education and training in perspective, it can be noted that the Netherlands has a small population of around 17 million inhabitants, and a labour market of around 7,5 million working persons. Elementary education consists of grade 1 to 8 (for pupils of 4 to 12 years of age). After that pupils go to a bridge period in secondary education were they are streamed according their abilities in senior (havo-vwo) and junior secondary (vmbo) education (see Figure 1). Junior secondary vocational education has tracks, one of which is vocationally oriented. It resembles the American high school in the sense that students can take vocational courses within a rather general curriculum. After junior secondary education students can move on to vocational education (mbo), which consists of different programs in terms of duration, difficulty and organisation (e.g. the so-called vocational training trajectory, bol, and the vocational guidance trajectory, bbl, which are school-based versus dual trajectories respectively). After students have completed (the highest level of) vocational education or after they have finished senior secondary education they can go to professional education, which is part of higher education and used to be called higher vocational education (hbo). Vocational (mbo) and professional (hbo) education comprise, respectively, of 42% and 26% of the total student population within the given age group, which is two thirds of all students (roughly between 16 and 21 years of age). This massive participation in vocational and (non-academic) professional education is quite different from countries around the world which do not have elaborate systems of vocational education.

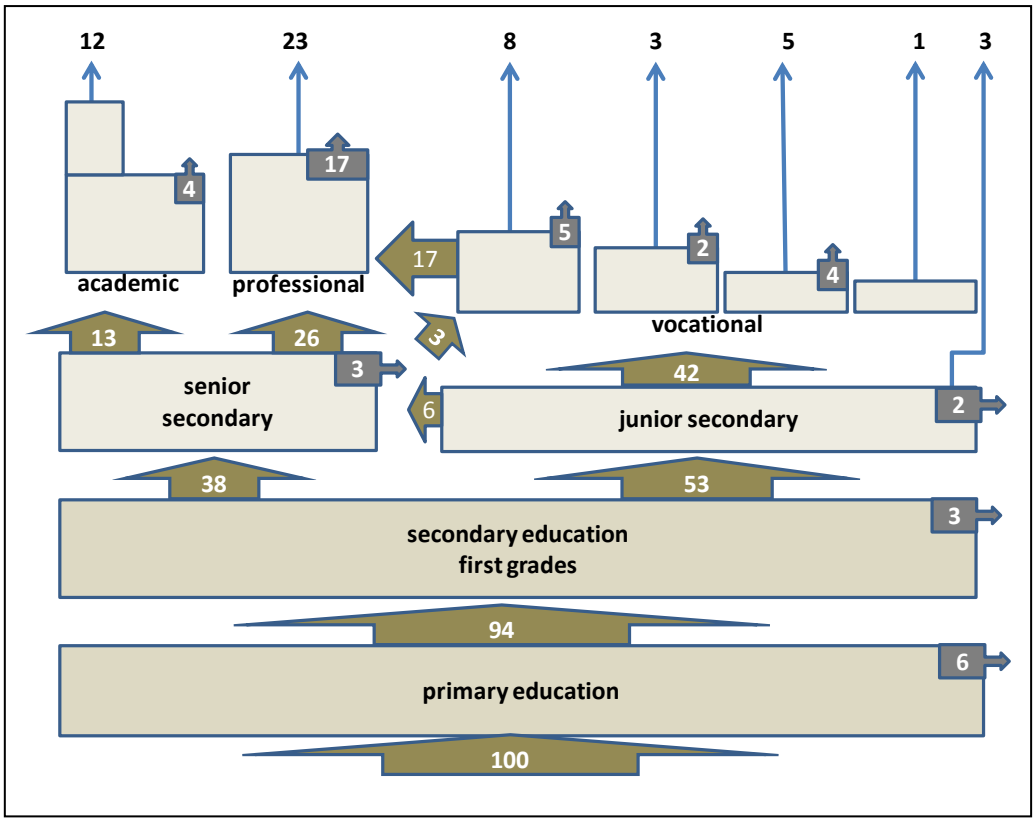


*Figure 1. The educational system in the Netherlands (student flow percentages in numbers) Source: Kupper et at (submitted, 2011).*

In Dutch vocational education special attention is given to the so-called vocational column. This is the ladder of preparatory vocational education (vmbo), upper secondary vocational education (mbo), professional education (hbo, which is the practical side of higher education) and academic (or: scientific) education (wo). The vertical stratification of the VET-system causes barriers in the student flows which are considered to be inefficient. Special programs are being developed to give opportunities to talented students who can do more than the regular programs and 'stream up' more easily. An example of this is the associate degree program (a 2-year program at hbo-level for mbo-graduates who do not want to follow a complete 4-year hbo-program).

Another special issue of vocational education in the Netherlands is the binary system of higher education, which is gradually fading away. This system implies that universities are responsible for academic education, and higher vocational education institutes for professional education. Universities are offering academic bachelor, master and doctorate programs, whereas the higher vocational education institutes are offering professional bachelor programs and some professional master programs. Institutes of higher vocational education have appointed lectors, who are responsible for the innovation of higher vocational education programs and doing applied research in so-called knowledge circles, which are groups of teachers who are working together in a given specialisation. The applied research is

aimed at needs of regional organisations or small and medium sized companies which are not involved in more general or pure academic research of universities.

## VET development in the European Union: institutional context

There is a lot of attention for the development of vocational education in the European Union. The institutional context of this is quite complex. In essence there are member states of the European Union, and because of the enlargement process there are accession countries and pre-accession countries. The European Union is formed based on a large amount of voluntary agreements and regulation, referred to as the acquis Européenne, which is basically all legislation of the EU. The so-called European competences (areas of legal responsibility) are distributed over various institutions, such as the European Parliament (which is democratically elected by the EU citizens, and whose competence is to approve Union regulations, for instance, regarding lifelong learning and the European Qualifications Framework), the European Commission (which acts as a series of large ministries with appointed experts, with the competence of preparing Union regulations and agreements), the European Council (which is the standing meeting of heads of governments, added with standing meetings of heads of ministries in the different fields of government such as the education ministers and the ministers of social affairs), the Committee of the Regions, which represents regions within and between countries and cities. This Committee has the right of advice on proposals that are being submitted to the Parliament. The importance of this Committee can be understood by realizing that certain regions have specific interests which cannot always be brought to the fore by country representatives who have to take the different interests within their countries into account. Also, based on size, certain regions want to have a certain influence in EU policy making; for instance, the German region of Bavaria alone ranks number ten on the list of EU countries by number of inhabitants. This region has its own permanent representation in Brussels, in fact next to the Parliament buildings; it is also working on vocational education issues).

To fully understand the essence of the decision making process of the European Union, also regarding vocational education, it is necessary to know that the EU is built on a social model of governance. National bodies of employer and employee organisations are represented at the EU level. There are European confederations of employers organisations and associations of unions as well as European umbrella associations of national professional associations. The European employer and employee organisations are regularly meeting with Union institutions, thus constituting the European social dialogue, which is organized by sector (Winterton, 2000). This system of mutual deliberation is referred to as the sectoral social dialogue, which is supported by the European Commission. The respective parties also contribute to the development of the agendas and dossiers regarding vocational education. Sectors have also created their own negotiation and cooperation forms. This typically happens in sectors with a strong international scope, such as languages, sports or logistics. An example of this is the fisheries sector. The social partners created Refope, the European Network for Fisheries Training and Employment, which is a difficult field in which to reach

consensus, as the fisheries sector has major challenges in itself because of the highly conflicting nature of fishing territories, quotas, overfishing, unsustainability and the pressure of downsizing the industry. Nevertheless, the sector works on the development of a common fisheries education and employment policy and practice.

Vocational education at the level of the EU has already been given attention for a long time, but got more important after the Lisbon and Copenhagen declarations. The Lisbon declaration entailed the collective intentions of the European Union to become a leading sustainable knowledge economy which could withstand international competition and would create one labour and education space. Different from regulations regarding the Eurozone and agriculture, there is no binding European legislation in the field of education. Policy development is based on voluntary actions such as comparisons, study visits, exchanges, case studies, benchmarks and reference models.

The 2002 Copenhagen declaration sparked enhanced cooperation in the field of vocational education and training in the EU member states. This declaration stated that the role of vocational education and training was pivotal in reaching the Lisbon goals. A reference knowledge economy could not be realised without a strong education sector, and a competitive economy and a common labour space could not function without a well-trained labour force. Periodical reviews have been made on the progress of participating countries regarding vocational education and training and are published as the Maastricht, Helsinki, Bordeaux and Bruges communiqués. Again, open methods of coordination are being used to make progress on themes like vocational education and training quality, the Europass, the European qualification framework, the European credit transfer system for vocational education and training, career guidance, European student and teacher mobility, and teacher education for vocational education. In addition to these, various programs were developed and continued which also enable cooperation, such as the Leonardo da Vinci program (vocational education and training), the Grundvig program (adult education), the Erasmus program (European university student mobility), and the Tempus program (modernisation of higher education and cooperation with countries surrounding the EU).

The European cooperation takes different forms, such as in the many Leonardo da Vinci projects. The projects typically consist of projects of partner institutions in several EU member states in specific fields, such as technology, health care, and sustainable agriculture. From a political point of view, agenda development regarding vocational education at the Union level moves with the presidencies of the EU. Different presidencies have brought different themes to the fore which were aligned with the agenda of the Directorate Vocational Education and Training of the Directorate-General Education and Culture of the European Commission. Programs of activities, reviews and proposals were generated by responsible vocational education and training staff of member state Ministries, supported by agencies like Cedefop (the European Agency for the Development of Vocational Training, based in Thessaloniki, Greece), which has prepared various reports on the state of vocational education and training within the EU. Cedefop maintains a network of experts in the EU members states who are reporting details regarding vocational education and training in their

countries based on a common format. The work of this network, called Refernet, is online accessible via the general website of Cedefop (see Further Information Sources)

## EU vocational education and training policy instruments

Cedefop has listed the common European instruments, principles and guidelines for the development of vocational education and training at the EU level. These instruments are summarized in a slightly reworked version below (after Cedefop, 2010a). Elaborate dossiers on each component are available and accessible via the website of Cedefop.

*The European qualifications framework (EQF)*
(as agreed by the Council of the EU, 2008a)
A European reference framework consisting of 8 levels of qualifications, specifying knowledge, skills and competence (see Figure 2). Competence is seen as the ability to apply knowledge and skills. The emphasis regarding competence is on professional autonomy, self-management and ability to handle unpredictable situations, ranging from no independent application (such as carrying out specific tasks under direct supervision of a superior) to full autonomy and authority (while contributing to the advancement of a body of knowledge through research and development). The EQF is meant to support lifelong learning (e.g. by advancing educational levels) and student and labour mobility (as educational institutions and employers in other countries than the candidates who want to make a move have a better understanding of qualification level of the candidates). This implies that receiving educational institutions and prospective employers trust the EQF and referred levels. This trust may not be unconditional.

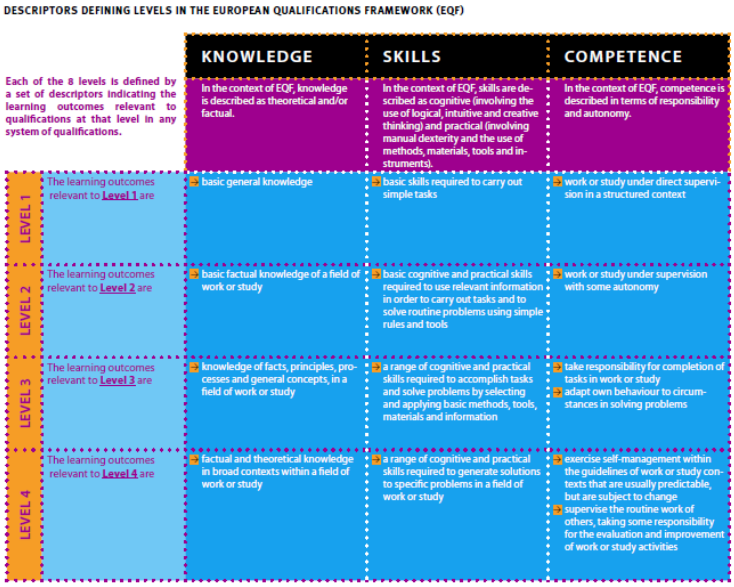


Figure 2 The European Qualification Framework; Source: European Commission (http://ec.europa.eu/education/pub/pdf/general/eqf/leaflet_en.pdf; 19-08-2011)

*The European credit system for VET (ECVET)*
(as agreed by the Council of the EU, 2009a)
The European credit system for vocational education and training is developed analogous to the Bologna process which proposed a credit system for higher education, specifying credits as study load packages of 28 hours and minimum numbers of credits for bachelor, master and PhD studies. As the credit system in higher education, ECVET helps to make vocational education and training programs comparable. ECVET can also be used to validate courses which are taken in exchange programs, and get these courses counted to fulfil the requirements for receiving a vocational qualification.

*European quality assurance framework for VET (EQAVET)*
(as agreed by the Council of the EU 2009b)
The European quality assurance framework for vocational education and training is meant for continuous quality development of vocational education and training systems of EU member states, and supports the implementation of quality management practices regarding all aspects of education.

*Europass*
(As agreed by the Council of the EU, 2004a)
The Europass is a series of documents: the Europass CV, the language passport, Europass mobility, diploma supplement and certificate supplement. These documents are meant to facilitate labour and geographical mobility. The assumption is that employers will find the standard format of the documents more easy to understand.

*Guidance and counselling*
(As agreed by the Council of the EU 2004b and 2008b)
Guidance and counselling are meant for life long career development. They comprise: career development skills, access to career and counselling services, quality of guidance and counselling and cooperation of policy bodies.

*Identification and validation of non-formal and informal learning*
(As agreed by the Council of the EU 2004c)
Persons acquire knowledge and skills (or competence in general) in various settings, not exclusively in formal educational programs, but for instance in voluntary work or just while working in a paid job. In many cases this non-formal or informal way of learning leads to competence levels that are equivalent to or exceed certain qualifications. Principles and methods for identification and validation of these competences are developed to determine their equivalence with formal qualifications. If certain competences are equivalent to certain qualification levels, persons holding these competences can be granted a formal qualification, which is certain cases may go along with the agreement to enrol in a part of an educational program to take away existing deficiencies. Assessments are popular methods to determine competence levels.

There are more EU policy development dossiers that have not been mentioned yet, such as teacher training for vocational training (Volmari, Helakorpi & Frimodt, 2009); and new apprenticeship systems and skills forecasting (European Commission, 2010). There are advancements in examination, testing and competence measurement methodology (such as reported in a 2011 conference on modelling and measurement of competencies in higher education, organised by the Humboldt University in Berlin), which may become interesting for international comparative research in vocational education and training. However, compared to IEA- and PISA-studies for certain subject matter fields, comparative vocational education and training research is difficult because of the wide variation within this educational sector. Comparative studies can be done in specific fields in vocational education and training, such as engineering, accountancy, or nursing (as done by Achtenhagen, Baetghe and Arends, 2006), but it will be extremely difficult to compare the general quality of VET-systems in different countries.

## European VET Theory and Research

The history of vocational education and training theory and research is a rather short compared to those in physics, medicine or agriculture. In general, it is not regarded as a basic discipline in itself but as an interdisciplinary field of science. Questions within vocational education and training are being studied from the perspective of a large series of disciplines, such as economy, psychology, and sociology. There is a very wide set of theories or theoretical notions which are applied in or applicable to VET. In the EU VET in general is not regarded as an academic field of study in which students can specialise. It is more like students study a certain program, and from this they take courses which are relevant for VET, and they can do a project in the context of VET, but most in the framework of programs in fields mentioned above, or from education and learning sciences or pedagogical sciences.

Internationally there is no overarching term which covers the body of knowledge that is relevant for VET. ‘Laboragogy’ could serve that purpose, which is a neologism composed of the elements ‘labor’ (Latin: work) and ‘agogy’ (Greek: leading, guiding, stimulating), like in pedagogy (the science of supporting learning of children and adolescents; teaching methods) and andragogy (as in the science of supporting learning of adults; Knowles, 1984).

Laboragogy would be the interdisciplinary science to optimise vocational education and training and consists of various contributions from different fields of knowledge.

Examples of relevant fields are occupational theories (with job analysis and synthesis as important elements); learning psychology, with transfer theories, activity theory, expansion theory; theories about authentic learning, self-directed learning, situated cognition, experiential learning, powerful learning arrangements and cognitive load; as well as competence theories; flexibility and mobility theories; instructional design theories; organisational theories, such as theories about the organisation of work and theories about roles; professional development theories; theories about communities of practice; theories about cognitive apprenticeships and knowledge management; theories about implicit knowledge and cooperative knowledge construction; theories about knowledge transaction, negiotiated meaning and regional learning; personal professional theories; reflection theories; and theories about organisational learning.

Although the VET research field is young, a lot of research is conducted and published. Germany is one of the countries within the European Union in which vocational education research has a prominent position. This is related to the field of vocational education pedagogy, which is being taught at bachelor and master level at various universities in the Federal Republic of Germany. The field is divided into two complementary parts: vocational pedagogy (Berufspädagogik) and pedagogy of economics (Wirtschaftspädagogik). Also in other countries there are groups of VET researchers. Much of their work is brought together in handbooks and journals and presented at European conferences.

*Handbooks*

From Germany two interesting handbooks have been produced, the 'Handbuch Berufsbildungsforschung', largely written by German authors (Rauner, 2005), and the 'Handbook of Technical and Vocational Education and Training Research (Rauner & Maclean, 2008) with a wider international authorship.

The first handbook goes into 1. the genesis of vocational education research, 2. the relationship between vocational education politics, planning and practice, 3. fields of vocational education research, such as job, sector and forecasting research, research into vocational areas (such as metal technology, electrical technology, construction, chemistry, economy and administration, food and nutrition, health care and education), the vocational education system, vocational planning and development, vocational labour and competence development, pedagogical content knowledge of vocational education, evaluation and quality assurance, and labour and technology, 4. case studies in vocational education research, and 5. research methods, such as methodological issues and methods. These themes show that the content of this handbook is quite broad. The instructional development perspective (or the perspective from the learning sciences) and the competence measurement perspective however are not very intensively represented in this handbook, which is understandable, since research in these fields became quite popular during recent years, but also because the

research in these fields is being conducted in other research traditions and published in journals which are not necessarily popular amongst vocational education researchers.

The handbook on technical and vocational education and training (TVET) research (Rauner & Maclean, 2008) starts with 1. the genesis of TVET research and goes on with 2. TVET research in relation to TVET policy development, planning and practice, 3. Areas of TVET research such as the development of jobs, research into vocational fields, research regarding TVET systems (such as comparative TVET research, research on the history of TVET research, cases studies on national and international reporting on TVET, development and evaluation of courses in TVET, research on pre-vocational education, research on vocational colleges), research on the planning and development of TVET, cost-benefit and financing research, work-related competence development, research on the shaping of teaching and learning in TVET and on shaping work and technology, 4. case studies in TVET research, and 5. research methodological issues.

The similarity of both handbooks is striking. The structure of the books is basically identical and consists of five broad parts: 1. the history of VET research; 2. the tensions between research, policy, planning and practice; 3. areas of research, 4. case studies of research, and 5. research methods. Part 3 is a bit strange in this series of themes: it is as if Parts 1, 2, 4 and 5 do not address areas of research, but of course they do. The history of VET research, the tensions between research, policy, planning and practice, the cases studies and research methods all address areas or themes of vocational education research.

In the international handbook there are remarkable placements of subparts, such as the subsection on historical research on technical and vocational education. Of course it differs from the descriptions of the genesis of TVET research, but on the other hand, the research on the history of TVET research is related to the research on the history on TVET itself. TVET development and TVET research even influence one another. It is also surprising that the part on evaluation, quality development and quality assurance is placed in the methodology section, whereas in the German handbook these topics are placed under the areas of vocational education research.

The big difference between the books obviously is that the German book is placed in the German tradition of vocational education, whereas the international book addresses many issues from various national traditions. This leads to problems already mentioned by Lauterbach (2005) regarding international comparative vocational education research. The major issue here is the comparability of vocational education systems and practices. For example: is vocational education the right phrase in the Anglo-American education tradition to represent the German ‘berufliche Bildung’? On a global scale, many different systems and practices are being represented by the term vocational education. Furthermore, vocational education and vocational training can be understood as the education process in vocational school or colleges (education) and practice (training), such as in internships or even during employment. This has been discussed in the beginning of the chapter already. It makes international comparative vocational education research extremely difficult. This is also shown by the use of technical vocational education and training (TVET) in the title of the

international handbook. TVET is the term used by UNESCO-UNEVOC, the International Centre for Technical and Vocational Education and Training, of which the German government is a major funder. TVET is a well-accepted term for vocational education and training in many countries outside Europe.

Despite these small comments it can be stated that both handbooks have contributed a lot to the understanding of the field of vocational education research.

Apart from this another handbook is published in the field of workplace learning (Malloch, Cairns, Evans & O'Connor, 2011) which also bears significance for vocational education and training. The structure of this handbook is simple: the first part goes into theory, the second part into research and practice, and the third one into issues and futures. So this handbook is not purely a research handbook, although it is heavily based on research. It also contains a series of chapters on workplace learning theories. In his interesting contribution Hager (2011) distinguishes three groups of theories in the field of workplace learning: 1. theories which emerged from psychology; 2. socio-cultural theories; and 3. postmodern theories. Other contributions are for instance from Illeris (2011) who describes his insights in learning in society and learning in working life, and learning as competence development, Fuller & Unwin (2011), who go into the organizational context of workplace learning, Billett (2011), on his notions of subjectivity, the self and personal agency, and Engeström (2011) on his activity theory in the context of learning at work. Since an essential part of practically all vocational education is workplace learning, the theoretical notions of these authors are important for understanding, developing and supporting learning processes in workplaces. How to relate this with the theoretical part of vocational education programs is another issue, and not the topic of this handbook.

The contributions in the section on research and practice are quite diverse. Eraut (2011) for instance describes the relationship between learning research and enhancing learning, which is quite fundamental but at the same time very practical. Based on his research he distinguished a series of learning modalities which can be used to support learning in organizations. Next to this Marsick, Watkins & O'Connor (2011) give a review of the workplace learning research in the United States; Solomon & Boud (2011) do the same for Australia, and Gruber & Harteis (2011) for Europe. Space does not allow us to elaborate on this, but other contributions for instance go into age management, competency-based learning, the knowledge economy and virtual workplace learning, to name a few.

The last section of the handbook also presents a series of various chapters, touching upon the development of vocational practice, workplace learning and higher education, corporate universities, partnership between education and public and private organisations, technology, location and job structures and ethics. A synthesis of these contributions would further strengthen the message of the importance of workplace learning theory and research for workplace learning practice, both in organisations and in schools. For vocational education the value added by the contributions is evident: vocational education has to prepare young people for a labour market of the (near) future and for life-long learning. Labour market entrants will have to deal with changes in the workplace, organisation, knowledge,

technology, etc. They have to work and live in a society that is characterized by complexity, uncertainty and violence of integrity. So issues of ethics, knowledge management, learning in the knowledge economy, and technology are all essential to take into account in developing quality vocational education trajectories.

*Thematic books*

Apart from these handbooks, there are quite many thematic books, for instance on new apprenticeships; Rauner & Smith (2010) edited a volume which goes into workplace learning, vertical mobility from vocational to higher education, the administration of dual systems of vocational education, the social foundation of apprenticeships systems, professional development of trainers, the facilitation of motivation and competence development, coaching and collaborative work-based learning, cost-benefit analysis and quality of apprenticeships, and case studies from various countries. The book is a result of the International Network on Innovative Apprenticeship (INA) and speaks about the rediscovery of the apprenticeship. The apprenticeship has indeed seen a revival in many countries, although the problems related to it are manifold. If there are no legal obligations, employers go along with the economy as far as their commitment to VET is concerned. When the economy is high the tendency is that they are very interested in investing in and in recruiting graduates from VET, but when the economy is down and organizations are starting to reorganize or to downsize, there is little attention left for other than core business issues, leaving little space for interns, apprentices and VET graduates. Nevertheless research in the field of apprenticeships is important as it can shed light on the (potential) effectiveness of the system and facilitating and impeding factors.

There is also a growing interest in comparing VET in European countries with those in other countries. The OECD has a strong reputation in comparing general education systems. But only recently has research started to compare VET in China with that in other countries, which is understandable given the size of the population of China, its rapid economic development and global demand for natural resources and consumer goods. Guo and Lamb (2010) published a book in which China's TVET-systems is compared with that of other countries. It goes into the education and training system in China so that readers can understand the background of TVET in this country. Next they go into the issue of international comparisons of education, and treat the problems of comparison models and indicators. They review indicator research in China and select the indicators with which they perform their comparison. Then they present comparisons on socio-economic level, resources and initial and continuing participation in TVET, and describe the work-based education and training situation in Yunnan (with over 40 million inhabitants). But with this book we clearly go beyond the literature which originates in Europe. Nevertheless, it is very interesting from a EU-Asia comparative perspective.

*Research networks, journals and conferences on VET*

The VET research community has become quite active during the last decades. In the seventies and eighties VET researchers still operated on national and regional level, but since the (further) development of institutions and networks this has dramatically changed.

At national level there are different institutions and networks, such as the German Section Berufs- und Wirtschaftspädagogik (BWP) of the Deutsche Gesellschaft für Erziehungswissenschaften (DGfE). In the British Educational Research Association there is the Special Interest Group post-compulsory education and lifelong learning, The Netherlands Educational Research Association (VOR) has a division on Vocational Education, Corporate Training and Adult Education (BBV). Other educational research associations in Europe may have comparable units in their educational research associations.

At the EU level there is the Vocational Education and Training Network (VETNET) of the European Educational Research Association (EERA) and the Special Interest Group Learning and Professional Development of the European Association for Research on Learning and Instruction (EARLI). The WIFO Gateway to research on education in Europe maintains a Directory of Professional Contacts in the field of vocational education research.

Regarding journals on VET research, there are the Journal of Vocational Education and Training (JVET published by Routlegde) which has a quite long history, the new journals Vocations and Learning (published by Springer), which is the only VET research journal with an impact factor, and Empirical Research in Vocational Education and Training (published by Sense). Other journals which do not have the words vocational education and training in the titles, but which publish research this field are the Journal of European Industrial Training (JEIT, published by Emerald), the Journal of Workplace Learning (published by Routledge) and the International Journal of Training and Development (published by Wiley-Blackwell). The Journal of Vocational Education and Training, which was a thriving multi-lingual journal on VET research and policy making and published by Cedefop has been discontinued because of budget cuts and reprioritization of Cedefop. This was perceived as a big loss for the vocational education and training policy and research community and Cedefop itself.

The journals mentioned vary regarding European scope. In fact all journals accept and publish research from and about VET in non-EU countries and research from other countries which is relevant for the EU context. Furthermore, apart from the general journals which address VET issues, there are specialized journals which address certain content domains, such as the Journal of Agricultural Education and Extension and many others.

Regarding conferences, there are the conferences of the JVET, which is especially related to the journal, VETNET, which has its strong strand within the EERA, and EARLI.

Many VET researchers (and practitioners) also meet in European VET projects, funded by the European Union, such as the Leonardo da Vinci program which alone consists of over 1,300 running projects (http://www.adam-europe.eu/adam/project/extendedsearch.htm; contacted 19-09-2011). On top of that there are the national projects funded by the EU member states themselves carried out by the smaller and larger centres of vocational education research in universities and institutes.

## Conclusions

Looking at Vocational Education and Training in Europe one can draw the following conclusions.

VET can rejoice itself in much policy and research attention. The VET-development agenda clearly has gained priority at EU-level during the last 10 years. Together with the development and enlargement of the EU, and the policy to establish a reference knowledge economy, VET has been put in the position to actively support the achievement of this goal. The consecutive presidencies of the EU have put several essential issues on the VET policy agenda, and the various policy reports show that a lot has been achieved during the last decade.

VET research has also grown and the research projects, conferences and journals are vibrant communities in which practices, approaches and findings are exchanged. Like in the European VET policy development arena, colleagues in the VET research are in a collective learning process.

Despite attempts to thematically structure VET research, it is still to a large extent fragmented. There is little convergence of theories and mini-theories; there is little consensus about definitions; there is little operationalization of concepts in the direction of practice; research results are not binding for practice; and there is a huge split between the objectivity and relevance of VET research.

Until now there is no literature that addresses the main components of VET in a comprehensive way, amongst which the VET system, VET administration, VET policy, management and organization of VET schools and training sites, VET curriculum development, learning and instruction in VET contexts, VET media and testing, and VET teacher education and professional development.

Given the information which is available on vocational teacher education, this field needs much more attention. Careers are much more elaborate than older work suggests, employment in education can also be an intermediary step in the life time career (instead of a life time commitment), external orientation of teachers becomes more important (thinking outside-in) and student populations and their career ambitions are getting more diverse. The way in which demotivated youth can be reached, and drop-out can be prevented is another issue. Research should also be conducted into the attractiveness and competitiveness of the job environments and other labour conditions of VET teachers and trainers.

Also there is much need of more competence assessment research (although the first attempts to address this are promising), research into the relationship between entrepreneurship and education (with also promising starts), innovation education (not to be confused with the innovation of education), and the relationships between the corporate, national and individual perspective on VET. Also more research is needed into VET teacher education and

development which could benefit a lot from the vast amount of research into general teacher education and development.

**Further Information Sources**

For education systems descriptions in EU member states Eurydice can be consulted at http://eacea.ec.europa.eu/education/eurydice/eurybase_en.php

For elaborate vocational education and training systems the country reports of Cedefop can be consulted (http://www.cedefop.europa.eu/EN/Information-services/vet-in-europe-country-reports.aspx).

Apprenticeship – workplace learning in the framework of vocational education – http://www.eu-employment-observatory.net/ersep/imi45_uk/00030039.asp

Bordeaux Communiqué (on enhanced European cooperation in vocational education and training - Communiqué of the European Ministers for vocational education and training, the European social partners and the European Commission, meeting in Bordeaux on 26 November 2008 to review the priorities and strategies of the Copenhagen process) - http://ec.europa.eu/education/lifelong-learning-policy/doc/bordeaux_en.pdf

Bruges Communiqué (on enhanced European Cooperation in Vocational Education and Training for the period 2011-2020 - Communiqué of the European Ministers for Vocational Education and Training, the European Social Partners and the European Commission, meeting in Bruges on 7 December 2010 to review the strategic approach and priorities of the Copenhagen process for 2011-2020) - http://ec.europa.eu/education/lifelong-learning-policy/doc/vocational/bruges_en.pdf

Copenhagen Declaration - 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) - http://ec.europa.eu/education/pdf/doc125_en.pdf

Erasmus-Mundus – a program to enhance quality in higher education and mobility – http://ec.europa.eu/education/external-relation-programmes/doc72_en.htm

Europass – there are national centers in the EU fort his, e.g. http://www.uknec.org.uk/default.aspx

Grundtvig – programme practical learning for adults - http://ec.europa.eu/education/lifelong-learning-programme/doc86_en.htm

Guidance and counselling - http://www.cedefop.europa.eu/EN/Information-services/guidance-and-counselling-for-learning-career-and-employment.aspx

Helsinki Communiqué (on Enhanced European Cooperation in Vocational Education and Training - Communiqué of the European Ministers of Vocational Education and Training, the European Social partners and the European Commission, convened in Helsinki on 5 December 20063 to review the priorities and strategies of the Copenhagen Process) - http://www.cedefop.europa.eu/EN/Files/helsinkicom_en.pdf

Identification and validation of non-formal and informal learning - http://ec.europa.eu/education/lifelong-learning-policy/doc52_en.htm

Maastricht Communiqué (on the Future Priorities of Enhanced European Cooperation in Vocational Education and Training (VET) (Review of the Copenhagen Declaration of 30 November 2002) - 14 December 2004) - http://ec.europa.eu/education/news/ip/docs/maastricht_com_en.pdf

Skills needs - http://www.cedefop.europa.eu/EN/about-cedefop/projects/forecasting-skill-demand-and-supply/index.aspx

Teacher training network - http://www.cedefop.europa.eu/EN/about-cedefop/networks/training-of-trainers-network-ttnet/index.aspx

Tempus – programme on modernising higher education in EU neighbour- countries - http://ec.europa.eu/education/external-relation-programmes/doc70_en.htm

*Research associations*

British Educational Research Association (BERA), Special Interest Group post-compulsory education and lifelong learning - http://www.bera.ac.uk/post-compulsory-and-lifelong-learning/

Deutsche Gesellschaft für Erziehungswissenschaften (DGfE), Sektion Berufs- und Wirtschaftspädagogik (BWP) - http://www.bwp-dgfe.de/

Netherlands Educational Research Association (VOR) division Vocational Education, Corporate Training and Adult Education (BBV) - http://www.vorsite.nl/nl/divisies-en-themagroepen/bbv.html

European Educational Research Association (EERA), Vocational Education and Training Network (VETNET) - http://www.eera.de/networks/network2/

European Association for Research on Learning and Instruction (EARLI), Special Interest Group Learning and Professional Development - http://www.earli.org/special_interest_groups/learning_professional

*Database of VET professionals*

WIFO Gateway, Directory of Professional Contacts - http://www.b.shuttle.de/wifo/vet&hrd/=contacts.htm

*Journals*

Journal of Vocational Education and Training - http://www.tandf.co.uk/journals/titles/13636820.asp

Vocations and Learning – http://www.springer.com/education+%26+language/journal/12186

Empirical Research in Vocational Education and Training – https://www.sensepublishers.com/articles.php?tPath=3&osCsid=1a7

Journal of European Industrial Training – http://www.emeraldinsight.com/journals.htm?issn=0309-0590

Journal of Workplace Learning – http://www.emeraldinsight.com/products/journals/journals.htm?id=jwl

International Journal of Training and Development – http://www.wiley.com/bw/journal.asp?ref=1360-3736

**Glossary of acronyms**

CEDEFOP (Centre Européen pour le Développement de la Formation Professionnelle) – European Centre for the Development of Vocational Training., (http://www.cedefop.europa.eu/EN/aboutcedefop/networks/refernet/index.aspx).
APL – Accreditation of Prior Learning

CVT – Continuing Vocational Training - http://www.cedefop.europa.eu/EN/events/6123.aspx

ECVET - European credit system for VET- http://ec.europa.eu/education/lifelong-learning-policy/doc50_en.htm

EQAVET - European quality assurance framework for VET - http://ec.europa.eu/education/lifelong-learning-policy/doc1134_en.htm

EQF - European Qualification Framework – http://ec.europa.eu/education/lifelong-learning-policy/doc44_en.htm

IVT – Initial Vocational Education and Training

Leonardo da Vinci programme - http://ec.europa.eu/education/lifelong-learning-programme/doc82_en.htm

LLL – Lifelong learning - http://ec.europa.eu/education/lifelong-learning-programme/doc78_en.htm

TVET – Technical-Vocational Education and Training

VET - Vocational Education and Training

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