

Editorial EJVT Special Issue on Competence

Competence – the essence and use of the concept in ICVT

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Introduction

The concept of competence has gained a lot of attention during the last decades. Some scholars have been wondering whether we need the concept at all, because the vocabulary to describe, plan, implement and evaluate (vocational) education and training would be sufficient, others did not see much proliferation of the concept, and still others were thinking competence development was difficult to measure. Many of these judgements depend on the context in which the sceptics are working. When one is focused on the concept of competence in education and training and its application in practice it is hard to avoid it, at least in Europe. Let me describe what happened during my travels to and from Thessaloniki when I had the opportunity to stay at Cedefop for the academic year 2004-2005. On a mountain road, the SR 48, through the Dolomites near Cortina d'Ampezzo I bumped into a road sign with the words 'tratta di competenza'. When I went on one of my missions from Thessaloniki to Wageningen with a car rented at the airport of Cologne, the first thing I saw was a car with a German plate, beneath which I read the advertorial text: 'Kompetenz für Volkswagen'. And only a bit further I overtook a lorry on which I read in huge characters: 'Kompetenz für Gemüse' (competence for vegetables).

Historical roots

Walking through the Louvre on another mission I saw the code of Hammurabi (1792-1750 BCE), with in the Epilogue the text translated into French: 'Telles sont les décisions de justice que Hammurabi, le roi compétent, a établies pour engager le pays conformément à la vérité et à l'ordre équitable.' Of course I took the opportunity to also search for roots of the concept in the ancient Greek language, since I knew already the Latin, English, French and Dutch roots. Dictionaries give the following meaning for the (English) concept of competence: 'To a sufficient extent possessing means for livelihood, and the quality or state of being competent. Possessing required or adequate abilities or qualities, being juridical qualified or adequate and having the availability of the capacity to function or develop in a certain way.' For the Latin language one can find 'competens', as being able and allowed by law/regulation, and 'competentia', as (cap)ability and permission. The use of the western European words 'competence' and 'competency' date back to the early 16th century. The first use in the Dutch language is dated back to the year 1504.

Indeed, in the ancient Greek language there is an equivalent for competence, which is *ikanotis*. It is translated as the quality of being *ikanos* (capable), to have the ability to achieve something; skill. The first use of the concept is being found in the work of Plato (*Lysis* 215A. 380 BCE).

In my travels I also went to Turkey, and when I walked through the Archaeological Museum in Istanbul, I was astounded when I saw the oldest list of occupations (that I know of) in the world, graven in a tablet of terra cotta in the form of a heptagonal prism, which comes from the old-Babylonian period in the 18th century BCE (the same period as the Code of Hammurabi).

Thus, we see here that the clear double meaning of the concept of competence, namely 'authority' en 'capability' goes back in history very far.

The concept of competence in everyday context

Many authors have struggled with this double meaning, which is no wonder, since the concept is difficult to translate, and gets its meaning in the context of text and practical use. Let me give some examples from the EU translation service (<http://europa.eu.int/eurodicautom/Controller>, retrieval date 23 February 2006) (the texts are from this site, with small modifications). When entering the Dutch equivalent of qualification, authority, power, jurisdiction ('bevoegd'), one finds examples of equivalents as listed below.

- an *appropriate* body;
- an *approved* medical officer;
- an *accredited* laboratory; a testing laboratory to which accreditation has been granted;
- *authorized* use;
- an *authorized* user of data;
- a *certificated* mechanic; the person who holds a valid mechanic's certificate
- a *certified* pilot; which is a pilot who has the licence to fly an airplane;
- a *competent* authority; this can be the Minister, Ministers or other equivalent authorities responsible for social security schemes in respect of each Member State, throughout or in any part of the territory of the State in question;
- an area of Community *competence*.
- a *competent* institution; which can be a) the institution with which the person concerned is insured at the time of the application for benefit; b) the institution from which the person concerned is entitled or would be entitled to benefits if he or a member or members of his family were resident in the territory of the Member State in which the institution is situated; c) the institution designated by the competent authority of the Member State concerned;
- a *competent* witness;
- the court entertains *jurisdiction*;
- a judge entertaining *jurisdiction*;
- a *licensed* aircraft engineer; a person licensed by the competent authority to certify that the inspection tests required by the current regulations have been made;
- a *qualified* official;
- a *qualified* person; A person who, having complied with specific requirements and met certain conditions, has been officially designated to discharge specified duties and responsibilities.

So we have here a mix of meanings for the concept of competent that are related to: accreditation, appropriateness, approval, authorization, certification, entitlement, jurisdiction, licensure, responsibility, qualification and right. The contexts in which the concept is used can be categorized by institutional, jurisdictional, organizational and personal.

All this can make the concept of competence quite confusing, and it is no surprise that therefore so many differences of opinion exist about the meaning of it. We can say that the concept only has two essential meanings, which is authority (in the sense of possessing the responsibility, licence or right to decide, produce, serve, act, perform or claim) and capability (in the sense of having the knowledge, skills and experience to perform), as mentioned above. But the more concrete meaning of the concept is strongly depending on the context of use.

Competence: professional use in recent history

In this section I will describe the development of the concept of competence as it emerged during the second half of the twentieth century (based on Mulder, 2002).

McClelland (1973) stated that the predictive validity of the classical way of testing intelligence was limited, and he stated in front of the testing community that *testing competence* would be better in predicting success. In this line, the often cited work of Boyatzis (1982) can be positioned. He developed a list with ten skills and two traits, which could differentiate more successful from less successful managers. Similar lists have been produced by Schroder (1989) and Spencer (1983). These lists are compiled according to a certain method. Shortly summarized this is a normative process with which different raters generate and evaluate lists of characteristics of excellent performers. That then leads to a list with general competencies of different categories of management jobs. That list is referred to as a competency model and can be used as a reference framework for the assessment and development of managers. Through the application of this methodology in management selection and development the method of management assessment centres is created. The method of developing competency models was also adapted for use with organisations. The development of competency profiles to select managers and top managers remained particularly popular throughout the eighties and nineties and many researchers have developed this topic. Finn (op. cit.) refers to the related work of many other researchers, such as Klemp (1980; 1981) and Cockerill et al. (1989). He also refers to the work done in this field in the United Kingdom, such as that by Dulewicz & Herbert (1992), by Kakabadse (1991) and Barham & Devine (1990).

In 1978 Gilbert's influential 'Human Competence. Engineering Worthy Performance' appeared, one of the first contributions in which the concept of competence was linked to performance. Gilbert defined competence as a function of worthy performance (W), which is a function of the ratio of valuable accomplishments (A) to costly behaviour (B). He expressed this in the formula $W = A/B$. He thereby established that the value of performance was a function of accomplishments (that which is achieved, for example, goals accomplished) and the costs of behaviour (for example, wage costs, time or energy). The value of performance rises as results achieved increase and the costs of the behaviour necessary to achieve these results decrease.

The measure for competence used by Gilbert is the Performance Improvement Potential (PIP). This states that actual behaviour is inversely proportional to the Potential for Improving Performance (the PIP). The PIP is the ratio of exemplary performance to typical performance. He adds that the ratio must be established for an identifiable result, so that no general quality of competence is created. This produces the following formula: $PIP = W_{ex}/W_t$.

Gilbert also developed a performance matrix. In the matrix there are three horizontal elements: models, measures and methods. There are six vertical elements: the philosophical

level (starting points, values and norms), the cultural level, the leadership level (institutional), the strategic level (performance as a function), the tactical level (tasks) and the logistic level. This matrix enables users to chart performance and to improve it with the aid of various methods and techniques.

In the 1970s and 1980s there was considerable interest in competency-based teacher education and corporate training. The problem was to identify on which basis teachers should be trained. Educationalists influenced by behaviouristically oriented systems theorists such as Skinner (1968), and Mager (1984), favoured the competency approach. Maslow's (1954) work was also popular at the beginning as was Rogers' (1969) later. They gathered a lot of support and there was a dispute between champions of competency-based teacher education and advocates of a humanistically-based form of teacher training. Soon afterwards the socially critical school, with protagonists such as Apple and Beyer (Beyer & Apple, 1988), emerged, accusing the two other schools of lacking interest in the social issues underlying education. Nevertheless, an approach to teacher training based on competencies did lead to the development of enhanced competency profiles for teachers (Turner, 1973; Joyce & Weil, 1980). Teachers' behaviour formed the basis of the competency approach to teacher training. Later research showed that the behaviour of teachers was more strongly influenced by their own views (concepts) and personal theories than behavioural training. Research by Argyris (1976) into the development of leadership and by Schön (1983) into the reflective practitioner is also along these lines. As for continuing vocational training, for brevity's sake I shall merely refer to the work by Zemke (1982), Burke (1989), Fletcher (1991) and Blank (1992). Romiszowski's work (1981; 1986) should also be mentioned, as well as that by Dubois (1993). He has developed a strategic systems model based on competencies for improving performance in organisations and provides a large number of directions for the steps which must be followed in order to arrive at a competency-based training offer.

In the United States much attention has been given to analysing competence to assist autonomous professional development in a number of occupational groups. McLagan's work is the most well known in this connection. In 1983, the pioneering study on training and development competency appeared. This study encompassed intensive research into the competencies of HRD professionals. The HRD competencies identified in 1983 were brought fully up to date in the equally important study "Models for HRD Practice" in 1989. The area of HRD is delineated and divided into three sub-fields: training and development, organisational development and also career development (McLagan, 1989). Some professional associations use competency profiles as a basis for professional licensing. The American Society for Training & Development (ASTD) by contrast has elected for open use of the profiles. HRD professionals can make independent use of these profiles for their own professional development. (Shim (2006) has recently provided a survey of other competency models, both in the field of continuing vocational training and in the area of extension and consultancy. Internationally, work is currently in progress on professional standards for teachers. In the Netherlands these have actually been set out in the Educational Professions Act.

Whilst the amount of interest in competency-based education eased off (temporarily) during the 1980s, thinking about competencies bounced back strongly in the 1990s, but predominantly from writings about management. This time, however, it was not concerned with the selection and development of managers, but instead with strategy forming. The increased importance of thinking about competencies in the 1990s can principally be attributed to the work of Prahalad & Hamel (1990). They argued that organisations in the

1990s should be judged on their ability to identify, cultivate and exploit core competencies to achieve growth. According to these writers, the success of an organisation depended on that organisation's core competencies. They backed up their ideas with convincing examples taken from business life and made increased turnover the result of concentrating on core competencies. Organisations had to move towards developing products that were "irresistibly functional", or where clients had requirements that they had not even imagined that they had. As the writers had given various convincing examples concentrating on core competencies, making considerable use of Japan as an inventive country with rapid innovation, new products and new markets, many organisations then based their strategies on clearer competencies. Core competencies were understood as being at the root of core products. An organisation with no core competencies would not be capable of developing and producing core products. Prahalad & Hamel also viewed core competencies as collective learning in an organisation, with special relevance to the way in which various production skills were integrated and multiple technology streams coordinated.

A direct continuation of thinking in terms of the core competencies of organisations is provided by large undertakings, which as part of large-scale reorganisations stimulate performance and competency policy (Tjepkema et al., 2002). They translated concentration on core competencies in organisations into the management of personnel competencies. Competency management was born, strongly supported in the first instance by international and other consultancies.

Organisations went on to follow different strategies. Some examples of this are: (Helleloid & Simonin, 1996): internal development, internal development with external assistance (such as consultants), commercial off-the-shelf solutions (for example by buying in specific competencies) collaborative associations (working together with other organisations to develop competencies within one's own organisation) and fusions and take-overs.

To summarize the developments of the professional use of the concept of competence, McClelland (1973) pointed at the value of testing based on competence rather than on intelligence, and his work was used in the practice of management selection and development. Gilbert (1978) put the competence concept in a wider framework of performance improvement, at societal, organizational and individual level. Various authors, amongst which Zemke (1982) and Dubois (1993), applied the concept of competence in education and training. Various professional associations developed competency profiles for professional licensure reasons, but also for self evaluation and development. Also, public authorities developed profiles, such as those for teachers, for assessment and examination purposes. Prahalad & Hamel (1990) were to a large extent responsible for the successful introduction of the concept of core competence in corporate strategy. Because they focused on core competencies, with which processes could be directed, the concept appeared to very appealing. It was translated to systems of competence management, which functioned as vocabularies in which expectations and processes could be made transparent. Parallel to these developments the concept was used intensively in the development of competency-based vocational training.

Competence and competency

It is apparent from the above that the concept of competency has undergone considerable development. This is shown not just in academic writings but also in real life.

In my study on competence development in organizations (Mulder, 2002) I compared over forty definitions of the concept of competence, and I distinguished differences on the following dimensions: job versus role focus, context free versus context specificity; knowledge versus capability, behaviour versus ability, specificity versus generality; learnability versus unchangeability, performance versus development orientation; core versus peripheral capabilities, and the person versus the system as carrier. During the project I was bothered by the question about the difference between competence and competency, but I think this question is less difficult than I thought before. In an educational context, competence is the general capability of persons (or organizations) to perform (such as an activity, a task, solve a problem) that is developing, and if a program is successfully completed, the candidate receives a licence to perform. A competency is a part of competence. So I see the relationship between competence and competency as a whole-part relationship. Some colleagues have argued that competence is the UK and competency the US approach, but I am not sure about that. From what I have read I think both terms are being used interchangeably in both language areas.

Competence in VET development

Given the wide variety in definitions, a legitimate question is whether there exists any coherence in the concept of competence. Weigel and I (Weigel & Mulder, 2006) examined this question in the context of VET development in England, France, Germany and the Netherlands, using work of, amongst others, Achtenhagen (2005), Arnold et al (2001), Colardyn (1996), Delamare Le Deist & Winterton (2005), Ellström (1997), Eraut (1994; 2003), Handley (2003), Mandon & Sulzer (1998), Mériot (2005), Mulder (2006), Mulder et al (2005), Norris (1991), Rauner & Bremer (2004), Sloane & Dilger (2005), Smithers (1999), Straka (2004), Weinert (2001), and Winterton, Delamare Le-Deist & Stringfellow (2005). The critical analyses of the concept were also reviewed. Summarizing the comparative analysis of the use of and criticisms on the concept of competence in the member states mentioned, we came to the following.

1. *England.* VET development is driven by objectives of productivity improvement. Since the way to do this best differs a lot by sector, a sector skills development strategy is followed. Initiatives are also strongly outcome-driven, which is directly connected with opportunities and procedures for assessment and accreditation. Competencies are embedded in National Occupational Standards, in which five levels of competence are being distinguished, and National Vocational Qualifications. The major *critiques* are that the emphasis on competence assessment is unbalanced, and that it frustrates learning and development more than that it supports it. The use of the competence concept is reduced to assessment and the ability to successfully demonstrate skills and abilities. Furthermore, a critical comment is that competence is formulated in terms that are too general, which means that they do not have any discriminative power in assessments. And apart from that, the link between competence and performance is not direct. Various competencies can influence certain performance, and certain competencies can influence various fields of performance.
2. *Germany.* In Germany VET is being characterized by the Dual system. This is the first observation of all studies on VET in Germany. We will not elaborate on the system, since it is described many times. We just mention here that it is a strongly regulated system of vocational training with a theoretical and practical part, in which workplace learning plays an important role. During the course of time emphasis has been put on

general competencies (key qualifications), with a higher level of abstraction and better transfer potential. At present five competence fields are being distinguished: action, subject, personal, social and methods and learning competence. Furthermore, learning fields are being introduced (Fischer & Bauer, this issue). Competence development is aimed at work activity, or work process knowledge (Rauner, this issue).

The main *critiques* are aimed at the superficial character of competence fields. They should be analyzed more thoroughly, directed towards the analysis of performance requirements. There is also a fear that the logical order of knowledge domains (traditionally known as subjects) may get lost. In Germany, there is also a question as to how to determine whether a competency is achieved or not. Another general problem is that the development of competence takes a long time, and that some competencies are only applied after graduation, which makes it difficult to assess them during the training program. There is a discrepancy between the actual testing that takes place at present and the requirements of competence assessment.

3. *France*. In France, the use of the competence concept is dominated by the 'bilan de compétences' (competence management). Based on a long standing tradition of regulating continuing VET, France has also regulated this competence management process. There is a strong emphasis on competence assessment, to have informally acquired competencies acknowledged. The purpose is to stimulate life long learning, and overcome skills shortages. The way in which competence is used in management influenced the development of VET. Competence development has a double focus: the individual who tries to master a certain occupation and structural characteristics that determine the way in which occupation develop, including professional experience (Suleman & Paul, this issue). There are methods to study occupations and to formulate competencies that are relevant for VET.

The most *critical comments* are aimed at the way in which the assessment are being conducted: contrary to the intentions of the idea of the bilan de compétences, they tend to focus more on VET diplomas than on informally acquired competencies. The use of participatory instruments with a development focus is being neglected too much. Furthermore, the bilan is also accessible for others than the persons who did the bilan, and who initially were not meant to get them. The quality of the assessors and the time for assessments is also a problem. This then leads to problems in accepting the results by candidates.

4. *Netherlands*. In the Netherlands there is a long tradition in using attainment targets in VET, but it was felt that these should be more general, have more transfer potential, and contribute to flexibility and mobility. A qualification structure in VET was introduced by law, which was implemented, and led to many complaints regarding the mismatch between skills demand at the labour market en skills supply by the VET system. Therefore, at present, VET development is aimed at introducing a competence-based qualification structure (Van der Klink, et al, this issue). This is aimed at preparing new generations of students for more effective performance in their jobs. A system for the acknowledgement of non-formally acquired competencies is installed too. Many VET institutions are now trying to implement competence-based learning and competence assessment. The experiences are mixed (Wesselink, et al, this issue).

The main *critiques* are the following. Although this was not intended, knowledge, skills and attitudes are divided again in the competence-based qualification structure. Competencies are being emphasized so strongly that the knowledge component in programs tends to get too little attention. General subjects are difficult to integrate according to the teachers of those subjects. Furthermore there are problems with the

tendency of lowering mastery of basic skills, reliability and costs of assessments (Roelofs, et al, this issue), the difficulty of using the concept is lower levels of VET, the decreasing lack of information and instruction teacher provide, adjusting the school organization, and varying learning trajectories that make educational programming more difficult.

We concluded that there has been, and still is, considerable variation in the meaning of the concept of competence. However, we do not think the concept therefore is useless, although there are many pitfalls (Biemans et al, 2004). The concept is especially relevant in the current discussion about the qualification and skills requirements for the knowledge economy, for employees as well as independent workers and employers, in and of large and small and medium sized companies (Lans et al, 2004). We contend that in this respect having knowledge is not enough. Competence (in the sense of being able to use knowledge effectively in a specific situation) is needed.

The 1994 EJVT thematic issue on competence

I am therefore very delighted that this special issue about competence-based vocational education and training appears. It gives a current overview of the developments of this important concept. It is the second thematic issue on the topic, since an earlier issue of the European Journal of Vocational Training also was about competence. Various authors Grootings (1994), Bunk (1994), Parkes (1994), Wolf (1994), Steedman (1994), Alaluf & Stroobants (1994), Méhaut (1994) and Oliviera Reis (1994) contributed to that issue. Let me address two of these contributions to show that the field has advanced in the thirteen years between the previous and present issue of the EJVT.

Grootings (1994) gave an overview of how the concept of competence entered the vocational education development process in various countries in the EU. He states that in the UK the concept entered the field especially for assessment, outputs and standards. In Germany, according to the author, the discussion about the concept of competence already started in the seventies of the 20th century, and was related to de-specialisation of vocational education, the definition of occupations, and improving learning processes. In Denmark, the same developments took place. In France, the concept of competence was introduced in the context of criticism on traditional knowledge-oriented pedagogy, and became more popular when employee training further developed. The competence approach in vocational education conflicted with the existing structures and institutions in vocational education. In the Netherlands at that time the discussion on vocational education was not yet aimed at competencies; competencies were regarded as being similar to qualifications, which were perceived of as diplomas and certificates. In Spain and Portugal the concept of competence was used in the context of developing a system for vocational education and training. There were influences from the UK regarding developing standards for vocational education, and from France, regarding employee training. The author draws the conclusion that there were basically two distinct types of using the concept of competence: 1. using a competence-based approach as to the innovation of vocational education; 2. identifying new competences that emerge from new ways of organizing work and employee selection, and to integrate these in programs for vocational education.

The use of the concept has changed a lot since then however. In the Netherlands innovation of vocational education uses a competence-based approach. The focus of that however is not very clear (Wesselink, this issue). This became clear in a large college for professional

education ('Hogeschool') in the Netherlands (41,000 students). Some students had complaints about the quality of certain programs this institution provided. The media paid attention to it, and there were several items on this issue at national TV. The defence against the complaints was: the college is implementing competence-based education, which means students have to work independently, in groups, and teachers should be coaches. It takes some time to get used to this way of working. However, there was also a complaint that too much time was drawn away from the primary process and that the number of teacher-student contact hours sharply decreased. In comments in the media it was stated that the introduction of competence-based education takes a long time, and that in general there are various unclarities around the concept. I agree with this, and I have been suggesting to concentrate expertise around the introduction of competence-based vocational education, because it is such a difficult concept to implement, and to carefully choose some experimental locations in which the concept will be operationalised, and children diseases can be studied. If the concept would be successful in these experimental locations, they could be transferred to other locations. However, this did not happen, and the concept was embraced by practically all institutions and experts, without having really good examples of good practice.

Bunk described the meaning of the concept of competence. He stated that the concept of competence originally is an organizational concept, and he distinguished the use of the concept to regulate responsibilities and decision making power in organisations or states, and the use to indicate the ability of craftsmen. He used the terms formal competence and material competence for these both uses of the concept. Formal competence is the imparted responsibility, and material competence the acquired ability. He furthermore states that only material competence is significant in discussions in vocational education (one can disagree with this since graduates receive diplomas that give them certain rights to perform certain tasks).

Bunk also distinguished occupation ability, occupational qualifications and occupational competence. For both three concepts, the occupational elements are the same. These are knowledge, skills and abilities (not attitudes). It is a bit strange to have knowledge, skills and abilities as occupational elements of occupational ability, but alas. The concepts differ as to scope of action, character of work and organizational level. Occupational ability is defined and founded on individual occupations, is relevant for fixed operative work and externally organized. Occupational qualifications are based on flexibility within occupation, are relevant in unfixed operative work, and are self-organized. Occupational competence is associated with occupational fields and work organization, is relevant within the context of free planning of work, in which individuals organises work by them selves. The distinction between these concepts is somewhat problematic. Occupational ability and competence is practically the same. It is the capability to perform an occupation. In fixed operative work, which was externally organized, for which individual occupations existed, competencies were equally important than in occupational fields that are characterised by a high level of self-management. The point is that different competencies are needed in both contexts. Defining occupational qualifications as something in between occupational ability and occupational competence is also not very productive. Indeed, there are work contexts, and ways in which work is organized, but as stated, there are different competencies needed in different work contexts. Qualifications are much more output-related acknowledgements of mastery of certain competencies, mostly represented by diplomas and certificates of educational institutions.

Bunk also gave an overview of the different categories of competencies, which was very productive. He distinguished 'specialized competence' (continuity), 'methodological competence' (flexibility), 'social competence' (sociability), and 'participatory competence'

(participation). Specialized competence consists of knowledge, skills and abilities: interdisciplinary elements, occupation-specific; extended vertical and horizontal knowledge about the occupation, enterprise-specific, and experience related. Methodological competence exists of procedures: variable working methods, situational solutions, problem-solving procedures, independent thinking and working, planning executing and assessing of work, and adaptability. Social competence consists of modes of behaviour: individual and interpersonal. Individual competencies are the willingness to achieve, flexibility and adaptability, and willingness to work. Interpersonal competencies are willingness to cooperate, fairness, and honesty, and the willingness to help, and team spirit. Participatory competence consists of structuring methods: coordination skills, organizational skills, combinatory skills, persuasion skills, decision-making skills, the ability to assume responsibility, and leadership skills. However, there are also some flaws in this overview, since adaptability is listed as a methodological and a social competency, and under participatory competence only skills are listed. This leads to the question how the concept of competence is related to skills. Can competencies be separate skill domains? If so, why would it be necessary to use a different concept for these skills then? Bunk stated that the four competencies together make up the ability to act, which in his opinion cannot be broken down. Van Merriënboer (1997) showed that tasks are learnt best if they are perceived from a holistic perspective.

About this thematic issue

In this rich issue of the EJVT you will find eight articles from different regions in the EU (albeit that the six of the eight articles come from Germany and the Netherlands) and different perspectives. They address the meaning of the concept of competence in the didactics of vocational training and curriculum development, the implementation of competence-based vocational training, the importance of socio-emotional competence in vocational training, the role of professional experience in competence development, and the key issue of competence assessment.

Reinhold Nickolaus, Bernd Knöll & Tobias Gschwendtner in their contribution describe and critically analyse the didactic change of forms of teaching and learning regarding vocational training since the mid 80s.

Renate Wesselink, Harm Biemans, Martin Mulder & Elke van den Elsen present their research on competence-based vocational training as seen by Dutch researchers. They state that there is no consensus about the model for competence-based learning and tried to help achieving that consensus by developing a matrix for competence-based vocational training with which teams of VET experts and teachers can assess to what extent an educational program is competence-oriented.

Felix Rauner, in his article 'Praktisches Wissen und berufliche Handlungskompetenz', states that that 'Gestaltung'-oriented didactics of vocational training requires an differential analysis of work process knowledge as relationship between practical and theoretical knowledge. He examines practical knowledge that gains a fundamental meaning for the development of vocational action competence. The article is an essential contribution to the theoretical development of the meaning and place of the concept of competence in vocational education, and it's implications for practice.

Marcel van der Klink, Jo Boon & Kathleen Schlusmans describe the developments of competence-based higher vocational education ('hoger beroepsonderwijs'). They present the state of affairs in this field and analyse the most important issues.

Juan Carlos Pérez-González & Elvira Repetto Talavera call attention for the importance of socio-emotional competence. Practical experience in companies or institutions indeed is a

powerful stimulus to develop these competencies which are essential for entering the labour market and career development.

Fátima Suleman & Jean-Jacques Paul also stress the importance of professional experience, in their case in the production and destruction of individual competence.

Erik Roelofs & Piet Sanders address the issue of competence assessment, and take the assessment of teacher competence as an example to set up a framework for this. They link this to current standards for assessment instruments.

Finally Martin Fischer & Waldemar Bauer present a case study on competing approaches towards work process orientation in German curriculum development. They describe the implementation of a new curricular framework for vocational education in schools, called learning fields, which was implemented in Germany. This approach indicates a work oriented make-over in curriculum development. In their article two important approaches for designing these curriculum frameworks are described and analysed.

I wish you many happy hours with reading the contributions in this issue. Perhaps the EJVT will return to the topic of competence-based vocational training after another thirteen years, so in 2020.

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