

Introduction to the 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 over the past decades. Some scholars believe we do not need the concept at all, because the vocabulary to describe, plan, implement and evaluate (vocational) education and training is sufficient, others do not see much proliferation of the concept, and still others believe competence development is 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 while I was working at Cedefop during the academic year 2004-05. On a mountain road, the SR 48, through the Dolomites near Cortina d'Ampezzo I came across a road sign with the words 'tratta di competenzaza'. When on mission from Thessaloniki to Wageningen with a car rented at Cologne airport, the first thing I saw was a car with a German number plate, beneath which I read the advertisement: '*Kompetenz für Volkswagen*'. And a little further on I overtook a lorry bearing the huge characters: '*Kompetenz für Gemüse*' (competence for vegetables).

Historical roots

Walking through the Louvre I saw the code of Hammurabi (1792-1750 BC), with the epilogue translated into French: '*Telles sont les décisions de justice que Hammurabi, le roi compétent, a établie pour engager le pays*

(1) Available from Internet: <http://www.papert.org/articles/freire/freirePart1.html> [cited 2.6.2006].

conformément à la vérité et à l'ordre équitable.' Of course I also took the opportunity to search for roots of the concept in the ancient Greek language, since I was already aware of 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 judicially qualified or adequate and having the availability of the capacity to function or develop in a certain way'. In Latin 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 dates back to 1504.

Indeed, in ancient Greek there is an equivalent for competence, which is *ikanotis* (ικανότης). It is translated as the quality of being *ikanos* (capable), to have the ability to achieve something; skill. *Epangelmatikes ikanotita* (επαγγελματικής ικανότητα) stands for professional/vocational capability or competence. This should not be confused with *dexiotis* (δεξιότης) which is more related to cleverness, as in the expression 'αμαθία μετά σωφροσύνης ωφελιμώτερον ή δεξιότης μετά ακολασίας' (*amathía metá sofrosounis ofelímóteron í dexiótis metá akolasías*) (Lit: ignorance together with wisdom (is) more useful than cleverness together with immorality). The first use of the concept is found in the work of Plato (Lysis 215A. 380 BC). The root of the word is *ikano* (ικανό) of *iknoumai* (ικνούμαι), which is to arrive.

In Turkey, while walking through the archaeological museum in Istanbul, I was astounded to see the oldest list of occupations (that I know of) in the world, sculpted in a tablet of terracotta in the form of a heptagonal prism, which comes from the old-Babylonian period in the 18th century BC (the same period as the Code of Hammurabi).

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

The concept of competence in an 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> [cited 23.2.2006]) (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;

- authorised use;
- an authorised user of data;
- a certificated mechanic; a person who holds a valid mechanic's certificate
- a certified pilot; a pilot who has a 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 done;
- 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 there is a mix of meanings for the concept of competent that are related to: accreditation, appropriateness, approval, authorisation, certification, entitlement, jurisdiction, licence, responsibility, qualification and right. The contexts in which the concept is used can be categorised as institutional, jurisdictional, organisational and personal.

All this can make the concept of competence quite confusing, and it is no surprise that so many differences of opinion exist about the meaning of it. We can say that the concept has only 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 depends strongly on the context.

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 20th 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 posited. He developed a list with 10 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. In short, this is a normative process with which different assessors generate and evaluate lists of characteristics of excellent performers. This leads to a list with general competencies of different categories of management jobs. The list is referred to as a competency model and can be used as a reference framework for assessing and developing managers. By applying 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 in organisations.

Developing competency profiles to select managers and top managers remained particularly popular throughout the 1980s and 1990s and many researchers were involved. Finn (1993) refers to the related work of many other researchers, such as Klemp (1980; 1981) and Cockerill et al. (1989). He also refers to related work in the United Kingdom, such as that by Dulewicz and Herbert (1992), by Kakabadse (1991) and Barham and 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. 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: $PIP = Wex/Wt$.

Gilbert also developed a performance matrix in which 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 much 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 Beyer and 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 developing improved competency profiles for teachers (Turner, 1973; Joyce and 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 of Dubois (1993). He developed a strategic systems model based on competencies for improving performance in organisations and provides many directions for the steps which must be followed to arrive at a competency-based training offer.

In the United States much attention has been paid to analysing competence to assist autonomous professional development in several occupational groups. McLagan's work is the most well known. 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 subfields: training and development, organisational development and career development (McLagan, 1989). Some professional associations use competency profiles as a

basis for professional licensing. The American Society for Training and Development (ASTD), by contrast, 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 continuing vocational training and in extension and consultancy. Internationally, work is currently in progress on professional standards for teachers. In the Netherlands these are set out in the Educational Professions Act.

While 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 with strategy forming instead. The increased importance of thinking about competencies in the 1990s can principally be attributed to the work of Prahalad and 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 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 they had not even imagined 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 and 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 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: 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 (Helleloid and Simonin, 1996).

To summarise 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, organisational and individual levels. Various authors, including Zemke (1982) and Dubois (1993), applied the concept of competence in education and training. Various professional associations developed competency profiles for professional licence reasons, as well as for self-evaluation and development. Public authorities also developed profiles, such as those for teachers, for assessment and examination purposes. Prahalad and 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 was 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 developing competency-based vocational training.

Competence and competency

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 organisations (Mulder, 2002) I compared over 40 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 concerned about the difference between competence and competency, but I think this question is less difficult than I previously thought. In an educational context, competence is the general capability of persons (or organisations) to perform (such as an activity, a task, solve a problem) that is developing, and if a programme is successfully completed, the candidate receives a licence. 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 and Mulder, 2006) examined this question in the context of VET development in England, France, Germany and the Netherlands, using work of, among others, Achtenhagen (2005), Arnold et al., (2001), Colardyn (1996), Delamare-Le Deist and Winterton (2005), Ellström (1997), Eraut (1994; 2003), Handley (2003), Mandon and Sulzer (1998), Mériot (2005), Mulder (2006), Mulder et al., (2005), Norris (1991), Rauner and Bremer (2004), Sloane and Dilger (2005), Smithers (1999), Straka (2004), Weinert (2001), and Winterton, Delamare Le-Deist and Stringfellow (2005). The critical analyses of the concept were also reviewed. Summarising the comparative analysis of use and criticisms of the concept of competence in the Member States mentioned, we came to the following conclusions.

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 distinguished, and national vocational qualifications. The major criticisms are that the emphasis on competence assessment is unbalanced, and that it frustrates learning and development more than it supports it. Use of the competence concept is reduced to assessment and the ability successfully to demonstrate skills and abilities. Further, a critical comment is that competence is formulated in terms that are too general, which means they do not have any discriminative power in assessments. The link between competence and performance is also not direct. Various competencies can influence certain performance, and certain competencies can influence various fields of performance.
2. **Germany.** In Germany VET is characterised 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 has been described many times, but 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. Over 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 distinguished: action, subject, personal, social and methods and learning competence. Further, learning fields are being introduced (Fischer and Bauer, this issue). Competence development is aimed at work activity, or work process knowledge (Rauner, this issue). The main criticisms are aimed at the superficial character of competence fields. They should be analysed more thoroughly, directed to-

wards analysis of performance requirements. There is also a fear that the logical order of knowledge domains (traditionally known as subjects) may be lost. In Germany, there is also a question how to determine whether a competency is achieved or not. Another general problem is that developing competence takes a long time, and that some competencies are only applied after graduation, which makes it difficult to assess them during the training programme. There is a discrepancy between the actual testing that takes place at present and the requirements of competence assessment.

3. **France.** 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 strong emphasis on competence assessment, to have informally acquired competencies acknowledged. The purpose is to stimulate lifelong 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 an occupation develops, including professional experience (Suleman and Paul, this issue). There are methods to study occupations and to formulate competencies relevant to VET.

The most critical comments are aimed at the way in which assessments are conducted: contrary to the intentions of the *bilan de compétences*, they tend to focus more on VET diplomas than on informally acquired competencies. Use of participatory instruments with a development focus is being neglected. Further, the *bilan* is also accessible to 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 allowed for assessments is also a problem. This leads to problems in accepting the results of candidates.

4. **Netherlands.** There is a long tradition in using attainment targets in VET, but it was felt 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, when implemented, led to many complaints about the mismatch between skills demand in the labour market and 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), to prepare new generations of students for more effective performance in their jobs. A system for acknowledging non-formally acquired competencies has also been set up. 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 criticisms are the following. Although not intended, knowledge, skills and attitudes are divided in the competence-based quali-

fication structure. Competencies are being emphasised so strongly that the knowledge component in programmes tends to get too little attention. General subjects are difficult to integrate according to the teachers of those subjects. There are problems with a tendency to lower mastery of basic skills, reliability and costs of assessments (Roelofs et al., this issue), difficulty in using the concept in lower levels of VET, less information and instruction teachers provide, reorganising schools, and varying learning trajectories that make educational programming more difficult.

We concluded there has been, and still is, considerable variation in the meaning of the concept of competence. However, we do not think the concept is useless, although there are many pitfalls (Biemans et al., 2004). The concept is especially relevant in the current discussion on qualifications and skills requirements for the knowledge economy, for employees as well as independent workers and employers in large and small or medium-sized enterprises (Lans et al., 2004). We argue the knowledge world is not enough. Competence is needed.

The 1994 European journal of vocational training (EJVT) issue on competence

I am therefore delighted that this special issue on competence-based vocational education and training appears. It gives a current review of developments of this important concept. It is the second issue on the topic. Various authors (Grootings (1994), Bunk (1994), Parkes (1994), Wolf (1994), Steedman (1994), Alaluf and Stroobants (1994), Méhaut (1994) and Oliviera Reis (1994)) contributed to the previous issue. Let me address two contributions to show that the field has advanced over the 13 years between issues.

Grootings (1994) gave a review of how the concept of competence entered the vocational education development process in various countries in the EU. He stated that in the UK the concept entered the field especially for assessment, output and standards. In Germany, according to the author, discussion on the concept of competence already started in the 1970s, and was related to despecialisation 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 as criticism of traditional knowledge-oriented pedagogy, and became more popular when employee training further developed. The competence approach in vocational education conflicted with existing structures and institutions in vocational education. In the Netherlands at that time, discussion on vocational education was not yet aimed at competencies; competencies were regarded as being similar to qualifications, which were perceived as diplomas and certificates. In Spain and Portugal the

concept of competence was used to develop a system for vocational education and training. There were influences from the UK on developing standards for vocational education, and from France, on employee training. The author draws the conclusion that there were basically two distinct uses of the concept of competence: (a) using a competence-based approach for innovating vocational education; (b) identifying new competences emerging from new ways of organising work and employee selection, and to integrate these in programmes for vocational education.

Use of the concept has changed markedly since then. In the Netherlands, innovating vocational education uses a competence-based approach. The focus of that, however, is not clear (Wesselink, this issue). This became evident in a large college for professional education (Hogeschool) in the Netherlands (41 000 students). Some students complained about the quality of certain programmes this institution provided. The media paid attention to it, and there were several reports on 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 taken away from the primary process and that the number of teacher-student contact hours sharply decreased. Comments in the media stated that the introduction of competence-based education takes a long time, and that in general the concept is not always clear. I agree. I suggested carefully selecting experimental locations in which the concept could be studied, such as children's diseases. If successful, the concept could then be transferred to other locations. However, this did not happen, and the concept was embraced by practically all institutions and experts, without having good examples of good practice.

Bunk (1994) described the concept of competence. He stated that it was originally an organisational concept, and he distinguished between use of the concept to regulate responsibilities and decision-making power in organisations or States, and use to indicate the ability of craftsmen. He used the terms formal competence and material competence. Formal competence is the imparted responsibility and material competence the acquired ability. He further stated that only material competence is significant for discussions on vocational education (one can disagree since graduates receive diplomas allowing them to perform certain tasks).

Bunk also distinguished occupation ability, occupational qualifications and occupational competence. For all three concepts, the occupational elements are the same. These are knowledge, skills and abilities (not attitudes). It is strange to have knowledge, skills and abilities as occupational elements of occupational ability, as the concepts differ in scope of action, character of work and organisational level. Occupational ability is defined and founded on individual occupations, is relevant for fixed operative work and externally organised. Occupational qualifications are based on flexibility within occupation, are relevant in unfixed operative work, and are

self-organised. Occupational competence is associated with occupational fields and work organisation, is relevant to free planning of work, in which individuals organise work by themselves. 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, externally organised, for which individual occupations existed, competencies were equally important rather than in occupational fields 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 productive. Indeed, there are work contexts, and ways in which work is organised, 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 from educational institutions.

Bunk also gave a productive review of the different categories of competencies. He distinguished between 'specialised competence' (continuity), 'methodological competence' (flexibility), 'social competence' (sociability), and 'participatory competence' (participation). Specialised 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 consists 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, organisational skills, combinatory skills, persuasion skills, decision-making skills, the ability to assume responsibility, and leadership skills. However, there are also some flaws in this argument, since adaptability is listed as a methodological and a social competency, and under participatory competence only skills are listed. This leads to 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? 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 issue

There are eight articles from different regions of the EU (albeit 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, 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 and Tobias Gschwendtner in their contribution describe and critically analyse the didactic change of forms of teaching and learning of vocational training since the mid-1980s.

Renate Wesselink, Harm Biemans, Martin Mulder and Elke van den Elsen present their research on competence-based vocational training as seen by Dutch researchers. They state there is no consensus on a model for competence-based learning and try to achieve 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 programme is competence-oriented.

Felix Rauner, in his article *Practical knowledge and occupational competence*, states '*Gestaltung*'-oriented didactics of vocational training requires a differential analysis of work process knowledge as a relationship between practical and theoretical knowledge. He examines practical knowledge that gains a fundamental meaning for developing 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 its implications for practice.

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

Juan Carlos Pérez-González and Elvira Repetto Talavera focus on the importance of socio-emotional competence. Practical experience in companies or institutions is a powerful stimulus to develop these essential competencies for entering the labour market and career development.

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

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

Finally, Martin Fischer and Waldemar Bauer present a case study on competing approaches towards work process orientation in German cur-

riculum development. They describe the implementation of a new curricular framework for vocational education in schools, called learning fields, which has been 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 reading the contributions in this issue. Perhaps the European Journal will return to competence-based vocational training in another 13 years, i.e. in 2020.

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