

# **The competency debate in German VET research: implications for learning processes based on vocationalism**

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## **Abstract**

Vocationalism and competency-based training are mostly seen as opposing principles underlying different VET systems. However, despite the fact that the German VET system is influenced by the vocational principle, which is regarded as maintaining a stable system generating high quality vocational qualifications, the competency debate has entered current VET research in Germany. The reason is that learning and work processes change due to increasing globalisation and technological progress, and therefore more flexible and adjustable qualification processes are demanded.

Different research activities approach the concept of competency focusing mainly on the question of what constitutes competency in vocational and didactic theory. A widely used and broadly discussed concept is the so called “professional action competency”, which includes technical, methodical, social and personal competency. Although this concept has been the focus of several research projects, the question of its impact on learning processes based on vocationalism has not been answered yet. The paper will discuss this impact by establishing a comparative perspective between competency-based learning processes and processes based on the vocational principle. Their differences and similarities and the question of whether a competency-based approach can be integrated into a vocationally based approach, will be discussed against the background of the current competency debate in Germany. Furthermore, the issue of whether a competency-based approach has potential to improve the flexibility and self-directedness of existing qualification processes will be illustrated by the example of the information and communication technology (ICT) sector where new approaches to vocational learning are evident.

## **Introduction**

This paper delivers insight into the competency debate that has entered German VET research and its implications for learning processes based on vocationalism as it is stated in the vocational principle. After a brief description of the research method the context and objectives of this research paper are presented. The vocational principle and the concept of competency in the German context constitute the two main aspects of the discussion in this paper. The structure, functions and aims of the vocational principle and the implications for the German VET system are explained referring to Greinert (1993) and Deissinger (1998). Furthermore current changes to the vocational principle are discussed and problems the German VET system is recently facing are addressed. As opposed to the vocational principle the concept of competency against the background of German VET research will be introduced by elucidating the problem of defining the term competency, the inconsistent use of the term and the problem of differentiating between competency and qualification. Additionally the concept of key competencies and the so called “professional action competency” will be discussed referring to the work of Mertens (1974), Schuler/Barthelme (1995),

Erpenbeck/Heyse (1996) and Belz/Siegrist (2000). To illustrate how competency-based approaches to learning are discernable in German VET examples from the ICT sector, where new forms of vocational training courses and qualifications have been introduced, will be provided. This will be based on the work of Borch/Schwarz (1999), Müller/Häussler/Sonnek (2000) and Petersen/Wehmeyer (2001).

### **The study**

This paper is part of a comparative study concerning the German and the Anglo-Saxon VET systems. The study is carried out on three levels, the macro, meso and micro level. On the macro level the political and organisational frameworks of the German and Australian VET systems are compared, whereas on the meso level didactical and curricular guidelines are depicted. On the micro level the comparison focuses on the realisation of political, organisational, didactical and curricular guidelines as regards learning processes. Comparative criteria are developed on all three levels to provide the basis for a systematic comparison of the different systems. The research objective is to discover the differences and similarities of VET systems that are often considered as being opposites due to different underlying philosophies namely the vocational principle and competency-based training. Both concepts have been discussed and criticised separately in various research projects, however the question of what can be learned from the other system is often disregarded. Thus the systematic comparison does not only contribute to a better understanding of VET systems. It rather depicts the question of revealing chances and limits to enhance one's own system and of finding solutions to current problems by applying a comparative perspective.

### **Findings and discussion**

#### *The vocational principle*

According to Deissinger (1998, pp. 248) the vocational principle functions as a mechanism for the integration and socialisation of learners that can be defined by three aspects. First, the vocational principle structures the labour market by establishing a link between vocational qualifications and their usability on the labour market. Thus employers recruit according to respective vocations that imply information about underlying skills and knowledge of the employee. Vocations therefore function as a mechanism for the selection and allocation of workers on the labour market. Second, vocations are aligned to professional standards, which provide transparency of the vocations' comprehensive professionalism. This means that on the one hand employers can rely on employees being able to conduct work tasks professionally since they gained their qualification according to the required standards. On the other hand employees can rely on a working environment across companies that is based on their vocation and provides work requirements and conditions according to the respective standards (ibid, p. 249). Third, although vocations correspond to the requirements of a certain workplace the employability in different workplaces within one and between different companies should be provided. This is secured by the binding professional standards that are required in all learning environments where vocational qualifications are offered and acquired.

Regarding these three aspects of the vocational principle its significance for the organisation of qualification processes, work and employability is evident. Thus the

vocational principle has an organisational function by defining a stable organisational and political framework on the macro level of the German VET system. On the meso level the vocational principle aims at contributing to a stable system by providing didactical and curricular guidelines for vocational learning processes (ibid, pp. 251). Thus curricula for all vocational qualifications gained in a formally regulated and accredited training course are determined and accreditation and certification processes are standardised. On the micro level the vocational principle intends to lead to standardised learning processes and qualifications aiming at vocational completeness, homogeneity and systematic procedures (ibid, p. 183). It can be concluded that the vocational principle characterises VET on all three levels and therefore increases its complexity. This is additionally enforced by the strong interdependencies between the levels of the VET system. Thus it is essential for the stability of VET to comply with the objectives of the vocational principle on all three levels. The German VET system with a strong focus on the vocational principle is broadly considered as being a stable system generating highly skilled workers with nationally and supranationally recognised qualifications. However, several economic and social factors have recently led to changes and the number of articulated problems referring to the vocational principle has increased.

#### *Current changes to the vocational principle*

Economic and social changes such as a sharp increase of the service sector challenge the vocational principle and demand new or modified qualifications. Due to changes in the organisation of work, which can be seen in a change from a vocationally based organisation towards an organisation based on work processes, new requirements emerge (Baethge, 2001, p. 51). This results in a demand of workers holding dynamic professional profiles and being able to tackle whole work processes rather than isolated tasks. Furthermore, departments defined by functions and authorities according to the “specialist department principle” (*Fachabteilungsprinzip*) are gradually replaced by multifunctional units with different centres of excellence and with a high degree of accountability (ibid, p. 52). The tasks of these units are no longer specialised in terms of vocations, but are based on customer needs and work processes (Müller/Häussler/Sonnek, 2000, pp. 11). Vocational learning processes aiming at a flexible and multi-qualified workforce are therefore no longer restricted to one vocation but rather open to cross-functional activities, tasks and work processes. The advantages of process oriented qualifications and learning are seen in an increase of innovations, in a higher degree of adaptability to market changes, in a better use of existing knowledge and more organisational flexibility (Baethge, 2001, p. 54).

#### *Problems referring to the vocational principle*

Problems of learning processes based on the vocational principle are articulated in various contexts (Deissinger, 1996; Miller Idriss, 2002; Pätzold/Wahle, 2003; Greinert, 1998 and 2004). The rigidity of learning processes based on the vocational principle is one of the main issues. Focussing on vocations rather than work processes generates a restrictive perspective, which is not appropriate for a global society and economy. Furthermore the lacking flexibility of the highly bureaucratic regulation system that is enforced by many actors and authorities on the state and federal level is exposed to fierce criticism. Thus modernisation attempts require a complex and time-consuming procedure, which prevents the system from radical changes and defers marginal alterations. Lacking flexibility is also an issue concerning the demand for lifelong learning since the vocational principle focuses on profound initial

qualifications that predetermine the future career pathway. The notion of a “dead end” is often associated with the German VET system due to deficits in continuing training (Baethge, 2001, p. 60). Another articulated problem of vocationally based learning processes is the constraint put on individual developments. Learning processes are formalised and standardised and thus not able to comprise individual potentials and interests. Curricula cannot be modularised and aligned individually due to formal regulations, which confine specialisation to certain vocational fields.

Looking at the various problems of vocational training four major challenges can be identified for a competitive VET system (ibid, p. 62). First, a sufficient supply of training opportunities for modern vocations must be provided. Second, training resources must be up to date with technological, structural and organisational changes. Third, the attractiveness of VET must be increased through a better transition between the vocational and academic sector. Fourth, the exclusion of young people with no or little formal education must be reduced.

In order to address these problems and challenges different reforms have been accomplished. For example an approach to modularise the rigid structures of skilled vocations has been realised by introducing a model of sequences (*Stufenmodell*) for vocational learning processes in the metal and electronic sector (Greinert, 1998, pp. 99). According to this model VET commences with a broad basis of skills and knowledge relevant across vocations and continues with skills and knowledge that are gradually narrowed and specified. Thus more differentiation and specification within existing vocations is provided. Another modernisation issue considers the introduction of key competencies that are regarded as basic elements of competitive and innovative learning processes (Belz/Siegrist, 2000, pp. 7). The first concept of key competencies can be traced back to Mertens (1974) who defines four categories of key competencies. The first category includes basic competencies, i.e. basic mental operations as a prerequisite for cognitive problem solving in different situations and contexts. Mertens (1974, pp. 41) accounts logical, critical and systematic thinking as examples of basic competencies. The second category refers to horizontal competencies that address the ability to gather, understand and work with information broadening one’s horizon. The third category implies broad elements that require basic knowledge of techniques and vocationally related knowledge about measurement techniques, safety issues and maintenance of equipment. The last category includes so-called “vintage factors”, i.e. the ability to gain new knowledge and to reduce knowledge deficits of former generations. Although the Mertens concept has been criticised (see for example Zabeck, 1989) it provides the basis for many other concepts of defining and categorising key competencies.

#### *The concept of competency in the German context*

The competency debate came up in the German context in the early 1990s and primarily focused on attempts to define and differentiate the terms competency and qualification. Erpenbeck/Heyse (1996) for example categorise qualification as object-based, since qualification is an objective description of external educational standards representing the requirements of society. Thus, qualifications are formally accredited and recognised certificates, which should secure the employability of qualification holders. Competency on the other hand is subject-based according to Erpenbeck/Heyse (1996), since the internal potential of an individual is primarily defined by experience, which cannot be measured by external standards. This means

that qualifications since they are externally stated in terms of required skills and knowledge can be taught, measured and certificated during vocational learning processes. Competency per se can only be measured if underpinning knowledge and skills are applied in a specific situation, i.e. an observable performance is provided. Concluding from that it can be stated that a) the performance of certain competencies in a certain working or learning context is necessary for a formal accreditation of competencies in terms of recognised qualifications and b) that the performance bridges the gap between competency and qualification.

Although this differentiation is broadly accepted the terms competency and qualification are used inconsistently and mostly not in accordance with the described criteria. Especially the term competency is increasingly being used to describe workplace and learning requirements although the term qualification might be more appropriate. Thus there is no common understanding of competency and it seems that it gradually adopts the meaning of qualification. This is enforced by several approaches, which aim at defining a complex understanding of competency. The most discussed and agreed upon approach is the concept of “professional action competency” that is regarded as a target for vocational learning processes. “Professional action competency” is determined by four components: technical competencies, methodical competencies, social and personal competencies (Erpenbeck/Heyse, 1996, p. 19). Technical competencies include practical skills and knowledge for mastering occupationally specific tasks in the workplace. Methodical competencies describe procedural skills and knowledge as well as the ability to apply relevant working methods and techniques in different contexts. Belz/Siegrist (2000) specify methodical competencies by defining them as problem-solving skills, as an analytical and systematic approach to work tasks, as the ability of structuring and classifying new information and as the ability of developing and realising work and thought processes. Social competencies are defined as skills that are required for communication and cooperation within social interactions. Schuler/Barthelme (1995) specify social competencies by distinguishing between direct and indirect social competencies. Direct social competencies include the ability to coordinate, to solve conflicts and to work in teams, whereas indirect social competencies address empathy, sensibility and interpersonal flexibility. The last components in the concept of “professional action competency” are personal competencies, which describe attitudes, value judgements and motivation as well as self-organisation, self-reflection and self-respect.

In order to make the concept of “professional action competency” feasible criteria for each component must be defined. From stated criteria (see for example Erpenbeck/Heyse 1996) it can be concluded that the more specified the criteria are the more parallels between the components can be identified. For example one criterion as regards technical competencies is the organisation and structuring of practical knowledge and skills. This requires methodical competencies for the selection and evaluation of the appropriate technique as well as social competencies since decisions require the consent of team workers and other experienced workers. Personal competencies are also necessary for the decision-making process and for the successful application. Regarding all other criteria for the four components that define “professional action competency” two conclusions can be drawn. First, the more precisely the criteria are determined the more complex becomes the concept per se. That means the lines between the four components gradually vanish and

interdependencies become obvious. Thus for a successful performance in terms of “professional action competency” the interdependent development and application of all components is required. Second, due to its complexity the concept of “professional action competency” can only be regarded as an ideal type of competency, which can be used as a target for professional actions. Thus it can function as a means of measurement for the individual progress in vocational learning processes gradually approaching “professional action competency”.

#### *Competency-based training in the German ICT sector*

In order to approach “professional action competency” learning processes must be modified, since vocationally based processes seem to disregard the integration of different competency components by concentrating on technical skills and knowledge associated with a vocation. Attempts to modernise existing vocational learning processes have been undertaken especially in the ICT sector, where a new type of vocational profile was implemented in the late 1990s (Borch/Schwarz, 1999, p. 16). The background of the implementation has been a rapid rise of new information and communication technologies putting forth new requirements for respective qualifications and vocational learning processes (Deissinger, 2004, p. 89). However not only the quality of VET has to increase in order to meet the new requirements of the ICT sector but also the quantity of skilled workers. According to Petersen/Wehmeyer (2001, pp. 2) there is a loss of approximately 150,000 skilled workers, which is likely to reach 300,000 unless initiatives are undertaken to improve the situation. Thus companies demand a broadly based reform approach to vocational learning processes assuring that processes are up to date with new technologies and flexible when it comes to economic and social changes. Furthermore companies demand training courses that are designed more individually so that training can be conducted more efficiently and focused on the needs of both companies and learners. The demands of the companies are included in the design of the new training profiles (Müller/Häussler/Sonnek, 2000, p. 8) due to the fact that the ICT sector needs new qualifications and processes, which are not bound to traditional structures, as it is the case in traditionally rooted economic sectors. Thus it is unsurprising that it is the ICT sector that makes the first attempts to modify the vocational principle in terms of new professional profiles.

The main objective behind the new profiles is to integrate dynamic and flexible features. This is realised by defining two parts of the vocational learning process, namely a core part with compulsory training modules and a flexible part with optional modules that allow the individual to specialise in vocational subjects within a certain area (Baethge, 2001, p. 63). Both compulsory and optional units are derived from the respective work processes and thus are no longer restricted to one vocation or one functional department of the company. In addition to the focus on work processes rather than vocations a so called “customer-oriented service qualification” is requested for the ICT sector (Müller/Häussler/Sonnek, 1997, pp. 13). The learner must be able to approach customers and deal with customer’s needs individually by providing a customer-oriented solution. Thus supplementary to the relevant technical skills personal, social and methodical competencies are addressed. The advantage of such a flexible and open structure as it is aimed at in the ICT sector is the adaptability to technological and economic changes and the reduction of bureaucratic complexity when it comes to changes of curricula. Furthermore the transition between and transparency of vocational areas are enhanced through the opportunity of combining

for example technical and trading skills in the flexible part of the learning process. The new structure also enables the individual to specialise in fields of personal interest and to follow an individual career path. Besides the curricular and organisational structure of the ICT qualifications assessment procedures are modified. As in other vocational training courses final assessment contains written and oral examinations, in which the ability to exert a vocation must be demonstrated. However, the new ICT qualifications require an additional piece of work (*Projektarbeit*), which is a full or partial project within a greater context and deals with a current problem that is important and usable for the company (ibid, pp. 20). Thus the practical relevance of this project work is stressed and reveals the increasing influence of companies on vocational learning processes. However, although the new structure is successfully implemented in the ICT sector (Petersen/Wehmeyer, 2001, p. 208), a broad implementation in other more traditional occupations would require major changes especially on the organisational and institutional level.

#### *Competency-based training and the vocational principle*

Owing to the space constraints of this paper a complex comparison of competency-based training and the vocational principle on all three levels of the VET system cannot be provided. However, important differences and similarities of the two concepts on the level of the learning processes can be summarised as follows:

- The vocational principle aims at complex, homogeneous and systematic learning processes that result in a recognised and formally accredited qualification as it is determined in the training regulation (*Ausbildungsordnung*) and in the 1969 Vocational Training Act (*Berufsbildungsgesetz*).
- Competency-based training is modularised, outcome-based and client-focused (Misko, 1999, p. 23). This leads to heterogeneous learning processes bringing forth formally and non-formally accredited qualifications, as it is determined in a national qualifications framework.
- According to the vocational principle curricula, learning targets and assessment are standardised for each vocation, which means that all learners seeking a certain vocation have to fulfil the same requirements and undergo the same learning process in terms of time and content.
- According to the philosophy of competency-based training curricula, learning targets and assessment are standardised in terms of workplace relevant competencies, which means that all learners seeking a national vocational qualification have to fulfil the requirements of the specific unit of competency. The content of the units are determined, whereas the duration and sequence of the units might differ.
- The vocational principle requires binding professional standards that are determined for each vocation (Deissinger, 1998, p. 249).
- Competency-based training requires competency standards that are determined for and across national vocational qualifications (Misko, 1999, p. 9).

- Although the vocational principle stresses on skills “around the workplace” (Harney, 1985; Deissinger, 1998) underpinning theoretical knowledge is also required to carry out a profession. The duality of theory and practice is realised in the duality of learning sites, i.e. the learning process is conducted both on the job and off the job (vocational schools).
- Competency-based training focuses on “knowledge, skills, values and attitudes required to provide further evidence of the attainment of competence” (Misko, 1999, p. 4). Thus theoretical knowledge and practical skills are incorporated in competency-based training, however both components can either be acquired entirely and partially on-the-job or off-the-job.
- The vocational principle does not explicitly imply generic skills and although different concepts of key qualifications/competencies are discussed (Mertens, 1974; Erpenbeck/Heyse, 1996; Belz/Siegrist, 2000) the compatibility of the concepts with the vocational principle is not sufficiently achieved yet.
- Competency-based training integrates key competencies e.g. language, literacy and numeracy in a system of nationally recognised vocational qualifications (Misko, 1999, pp. 4).

The presented differences reflect some basic discrepancies between the vocational principle and the philosophy of competency-based training, however there are certain similarities between the two concepts. First, the high degree of regulation and standardisation resulting from the vocational principle and its “organising function” (Deissinger, 1998) is gradually being reduced by allowing companies latitude in the design of vocational learning processes (Borch/Schwarz, 1999; Müller/Häussler/Sonnek, 1997). Second, the introduction of compulsory and optional modules in the ICT qualifications shows how the complex and rigid structure of the vocational principle is being changed in order to have a rudimentarily modularised, open and flexible way of achieving vocational qualifications. The opportunity to specialise in certain subjects is provided, which results in a way to individualise training courses. Consequently the degree of standardisation and regulation is reduced. Third, the vocational principle is gradually focusing more on work processes rather than vocations as it is the case in competency-based training, which is also a sign for more flexibility and adaptability to respond to economic and technological changes.

## **Conclusion**

The vocational principle is accounted as the underlying philosophy of the German VET system, however the increasing criticism indicates that the principle as such is subject to change. Critics argue that the learning processes based on the vocational principle are “no longer feasible in a rapidly-changing economy” (Miller Idriss, 2002, p. 473). Vocational learning processes should rather be significantly modified by a modular approach that cuts across various vocations and is therefore less restrictive and more flexible. In this context the competency debate entered German VET research by introducing the concept of “professional action competency” as a target for new flexible and individualised learning processes. The concept addresses not

only the didactical level by demanding more generic or key competencies but also the organisational level by demanding more flexibility concerning curricula and assessment. Thus the vocational principle that is so deeply rooted in the German VET system on the macro and meso level and has traditionally shaped vocational learning processes seems to be challenged by modular and competency-based approaches. This is enforced by the increasing deficits of the German VET system such as a lack of training places<sup>1</sup> (Deissinger/Hellwig, 2004), the decreasing commitment of companies to VET and the inability to keep up with the need for skilled workers in many emerging sectors (Miller Idriss, 2002, p. 477). Nevertheless a complete shift from the vocational principle to competency-based training is neither anticipated nor feasible. However including aspects of a competency-based approach such as flexibility and partial modularisation in accordance with the main ideas of the vocational principle is a realistic target and necessary for the German VET system to maintain a high quality and competitive workforce.

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<sup>1</sup> At the beginning of the training year 2004/2005 about 31,200 young people could not find a training place despite initiatives by the government and employers. For further information see <http://www.bibb.de/de/15600.htm>.

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