BROAD OCCUPATIONAL COMPETENCE AND REFORMS IN VOCATIONAL EDUCATION IN THE NETHERLANDS

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Abstract

The Netherlands has, just like Australia, a school-based system of vocational education, and also an apprenticeship system, which are under pressure to respond to a changing economy. Firstly, the reforms in Dutch vocational education during the last ten years are discussed. In recent years the vocational educational system has had to adapt to fundamental changes in job demands as well as to a strongly growing number of vocational students. The qualification system has been thoroughly restructured and various vocational learning paths and school types (apprenticeship system and school-based vocational education; initial and adult vocational education) are now integrated into one VET system. New content for vocational education has been proposed to better respond to the needs of a changing economy and labour market. New vocational curricula have been developed. It is, however, questionable if the objective of delivering broad vocational competence has been reached. So further reforms are considered necessary.

Secondly, Dutch and European deliberations on innovative concepts of vocational competence are discussed, resulting in a proposal for a concept of broad occupational competence, drawing on activity theory and social constructivist competence theories. Core problems and core competences are proposed as promising conceptual tools to steer and inspire new developments. These concepts are inspiring new reforms in Dutch vocational education.

Introduction

Jobs are changing rapidly, because of new technology, changing markets and the rise of new organisational paradigms. Information and communication technology in the workplace leads to a shift from an emphasis on action-centred skills to intellective skills (Zuboff 1988). Companies have to respond to changing market demands with regard to variety, flexibility and quality. In order to cope with both developments, new production and organisational concepts are
introduced which enlarge the autonomy and responsibility of workers by enriching jobs, integrating problem-solving and quality care in production jobs, and diminishing the layers of management (Onstenk 1997b). As a result many firms require a workforce with more and different competences. There is a need for an increase in general abilities like numeracy and literacy skills in order to deal with the growing amount of information, and also for an increase in organisational and communicative key qualifications as well as in technical skills. Changing job requirements are a challenge for vocational education and training, which have to respond both to increasing demands with regard to the amount of learning and training needed, as well as to the content of training. Vocational education is increasingly regarded as the beginning of a vocational learning career, rather than as the summit of skill acquisition. During working life workers will have to attend further training and change jobs on a number of occasions. This means that vocational education must offer a broad basis, including technical, organisational, and communicative as well as learning skills. To cater for a growing demand for vocational training, as well as to deliver an education which offers an adequate preparation for lifelong vocational learning both on and off the job, is the challenge that developments in the Dutch VET system are responding to.

In this article I will discuss recent developments in the Dutch vocational qualification system, culminating in the law on adult and vocational education of 1996, and evaluate if and how the system is responding to the challenges posed by new demands for occupational competences as well as a strongly growing attendance rate. I will analyse some critical issues in the new system. Secondly, I will introduce the concept of broad occupational competence and core problems as promising concepts for dealing with these issues more successfully. These concepts inspire the most recent reform proposals, which will shortly be presented. The last section provides some conclusions.

Reforms in Dutch vocational education

Traditionally, The Netherlands has had a complex system for obtaining qualifications, in which three main streams of initial vocational
education (an apprenticeship system as well as short and long courses in school-based vocational education) are supplemented by a differentiated system of industrially oriented training provided by schools, the apprenticeship system, firms, branches of industry and private providers. The number of students attending some form of vocational education at secondary level has risen steeply and tripled during the last 15 years. Participation in school-based vocational education for administrative, caring and service occupations in particular, has risen, showing a keen awareness by students of the development of The Netherlands as a ‘service economy’. Vocational education is becoming the ‘finishing touch’ of many school careers (De Bruijn 1995; Onstenk & Voncken 1996). Also, the number of participants in company-offered training has risen sharply.

In order, on the one hand to answer the challenges posed by the need for delivering adequate occupational competences to students, and on the other hand, to take care of the growing number of vocational students, the system of vocational education has recently been restructured. This change process included the restructuring and unification of the system of vocational education, establishing closer matches between occupational practice and vocational education and the elaboration of new pedagogical and didactical designs and approaches in vocational education (Onstenk 1998).

Restructuring and unification of the vocational educational system

A first important theme in recent Dutch vocational educational policies is the restructuring and unification of the vocational educational system. Dutch policy-makers have made an explicit choice for vertical extension and development of the system of vocational education and training by placing emphasis on the development of an integrated system of vocational and adult education, rather than tearing down system boundaries between general and vocational education at secondary level, as was done elsewhere in Europe, for example, in France or Norway (Onstenk & Moerkamp 1997).

This process has included the development of an integrated qualification structure, combining in one system—for the first time in
the history of Dutch vocational education—both apprenticeship-based and school-based education. The proposed structure is closely adapted to the new European classification system of qualifications. The whole of vocational education is restructured in one qualification structure, consisting of four levels and two learning trajectories. As of the first of August 1997 all courses in secondary vocational education have been formatted according to this qualification structure. Vocational education has four levels: assistant, basic, standard vocational training and middle management and specialist training. Levels are differentiated in terms of broadness (with respect to content and occupational area), difficulty and autonomy/responsibility; that is, trainees at level 4 are expected to have hierarchical responsibility in their later jobs. This implies formal, organisational responsibility. Also the invention of new methods and procedures is part of the task package, whereas the lower levels are expected to deal with more standardised tasks.

All qualifications, in principle, can be acquired in two different vocational learning trajectories, namely as a (mainly) school-based (beroepsopleidende) and as a work-based (beroepsbegeleidende) learning trajectory. Both trajectories include learning in school and in practice, ranging from 20–40% on-site learning in school-based courses to 60–80% in work-based learning. In fact, at the moment only a limited number of qualifications is actually available in both learning trajectories. Most level 2 courses, especially in the technical sectors, are still only available as a work-based, dual course. Most level 4 courses are still school-based. Old status differences between school-based and work-based (dual) courses have not disappeared yet, although this is slowly changing.

Matching vocational education and occupational practice

A second major theme with regard to vocational education, which was heavily emphasised during the 1980s and 1990s, was an attempt to more directly match vocational qualifications and courses to employers’ requirements by aiming for a greater specificity of course goals, with greater influence accorded to industry in defining these goals. This has been reached by developing vocational profiles as a guideline for
vocational education and by the establishment of a steering structure in which social partners are represented. The qualification structure in The Netherlands defines the format of vocational educational profiles that have to be developed by social partners. Profiles and contents of VET courses have to reflect (changes in) occupations (new tasks), needed skills, occupational boundaries, and development of new skills (Moerkamp & Onstenk 1991; Brandsma 1993; Nijhof & Streumer 1998).

The development of vocational educational profiles is determined by the structure and content of communication between parties involved (education and industry), by the procedures used in justification of profiles, by institutional relationships between education and the labour market and by methods used in the analysis of functions, jobs and occupations. The actual relationship between education and the labour (market) is an important issue in justification and recognition of profiles by education, the labour market and students. The process of developing vocational curricula contains a series of translating steps, by which an analysis of vocational profiles is translated into an identification of necessary skills, in vocational educational profiles and finally into a development and implementation of curricula and courses (Onstenk & Moerkamp 1999).

The analysis of occupations

In the process of restructuring and renewal of the qualification system, several critical topics can be discerned. A first problem is the actual analysis of occupations itself. The methods employed for the development of occupational profiles seem precisely to result in an increase in narrow and badly structured descriptions of occupations. Many of the methods are making extensive task inventories. The most used form for developing occupational profiles is a task-centred strategy followed by methods for task description and job analysis. These methods follow a similar pattern: a list of possible tasks and job-elements is drawn up, the occurrence and importance of specific tasks in practice is established, and differences between groups and possible specialisations are determined. After the content, structure and order of job structures are established, skill requirements are translated, mostly by using a taxonomy. Romiszowski's (1981) taxonomy is widely used. It distinguishes between four types of knowledge (factual, conceptual,
procedural, principles) and eight types of skills: reproductive and productive kinds of cognitive, psycho-motor, reactive and interactive skills.

These kind of approaches, however, tend to limit job analysis to isolated and objectified tasks and qualifications, while variables such as process characteristics, social dimensions and 'subjective' performance competences receive less attention (Moerkamp & Onstenk 1991). These methods are especially unsatisfactory when occupations change, as is currently the case. Old demarcations are dwindling and different types of tasks are increasingly being integrated. The traditional definition of an occupation itself leans on strict definitions of tasks and product outcomes. This is more straightforward in technical occupations compared with service occupations, as a consequence of the taylorisation of technical jobs. Traditionally job analysis for technical occupations is more detailed and differentiated than for administrative or service occupations. In new production concepts, however, more emphasis is put on broad and open task structures, flexibility, uncertainty, problem-solving in technical occupations (Laur-Ernst 1989). Thus new ways of determining practical competences are needed (Dehnhostel, Holz & Novak 1992). In this respect it is interesting to remember that profiles for secondary school-based vocational education (level 4 courses) are traditionally explicitly geared to broad occupational areas rather than to a specific occupation. This could be an asset of Dutch vocational education.

Some fear has been raised, however, that the qualification structure, which came into force in 1997, threatens these strong points, exactly by enforcing a stronger orientation towards occupational demands, which are currently narrowly and analytically defined. This is amplified also by the analytic listing approach that is used to design attainment norms for qualifications, as is currently practised. More recent methods, however, try to develop more structured and dense ways to describe occupational contents (see below).

From occupational profiles to the curriculum

A second problem is the fact that policy-makers paid relatively little attention to the next translation step; that is, the development of
Curricula and actual educational content (Onstenk 1998). This is regarded as the responsibility of the schools, but these find it difficult to translate the new attainment norms into courses and lessons that are attractive and prepare students well for occupational life. Against these structural backgrounds, and growing demands made by business on vocational education, schools are busy innovating their courses, both in relation to content, to respond to the new qualification structure, and to methods, to respond to the need for broad occupational competence and learning skills and to prepare students for an accelerating rate of change and a lifetime of learning.

In the 1990s, The Netherlands also demonstrated a relatively independent tendency at the level of educational practices, whereby new didactic forms were developed to answer the need for broad occupational competence. Stronger learning environments were introduced to reach this objective (Onstenk 2000). This includes the establishment of open learning centres in many schools, an emphasis on learning how to learn and the development of problem-based learning. This emphasis reflects both the importance attached to vocational education as a learning environment and the recognition of the need to teach students how to learn and how to acquire broad occupational competence which is usable in a broad range of jobs and gives a strong foundation for further competence development.

Curricula have been innovated to adapt to the new attainment norms. However, this proves not to be easy, both because of the way attainment norms are formulated and because satisfying conceptualisations of occupational competences are still lacking. In the next section I will propose a new conceptualisation of competences as a step towards clarification of educational objectives as well as an inspiration to new didactic practices.

**Towards a broad concept of vocational competence**

Vocational education should pay more attention to the development of competences, rather than to transmitting knowledge and skills (Ellström 1998). Competence can be defined as the dynamic and
developing ability to adequately handle demands, expectations and problems which (can) occur in labour practices (Engeström 1987, 1994). The activity theoretical concept of competence development defines competence in terms of its extension (which tasks); reflection (how complicated) and intention (which meaning) (Frei, Duell & Baitsch 1984). In order to determine what competences are needed, an elaborate insight into the whole field of relevant occupational problems is needed. In an elaboration of the activity-model of Engeström (1987), Onstenk (1997b) located the relevant problems in occupational practice within the different systems that influence the work situation: the production system, the steering and power system and the social-cultural system, as well as the interrelationships between these basic systems. He distinguished six categories of occupational problems: production problems, regulation problems, co-operation problems, organisational problems, social-cultural problems and membership problems (figure 1).

Figure 1: Core problems and broad professional competence

Source: Onstenk 1997b
Production problems stem from the object of work activity (material and product) or from dealing with production tools and equipment. Organisational problems stem from the fact that the work has to be done within the organisational and power frameworks of the organisation. Social-cultural problems stem from the fact that the work is done within a specific community of practice at group, company and/or professional level, which is characterised by specific and sometimes competing cultural norms, practices and espoused theories.

These fields of problems overlap and are connected. Membership problems (as member of the organisation) refer to both organisational structures and rules, like labour relations and conditions, as well as to the specific culture of the organisational community of practice. Regulation problems (planning, solving routine and non-routine problems) depend both on the production problems and on the steering and power structures in the organisation. The change from a Taylorist model to a socio-technical model of responsible autonomy (De Sitter 1994) and continuous improvement contributes to enlarging the number of regulation problems a worker has to solve. Co-operation problems are determined both by the production system and by the social-cultural system.

Figure 1 gives a synchronic and static image. In reality, all systems are developing, so problems are changing in time, as is the level of competence required for dealing with them. As employees nowadays are expected to contribute to their own competence development, as well as to the development of the organisation they are working in, a last type of occupational problems has to be added to the picture: learning problems and shaping problems. Learning problems refer to acceleration of competence development and to facilitating adaptation to new circumstances and learning needs. Shaping problems ask for competences, which contribute to the redesign and improvement of work and organisation in the German sense of 'Gestaltung' (Heidegger & Rauner 1997).
From core skills and key qualifications to broad occupational competence

This broadening of occupational requirements (the occupational problems to be solved by the practitioner) should lead to a multidimensional analysis of skills and competences needed in the workplace (Onstenk 1992, 1997b). These requirements are not restricted to the level of 'technical' job-specific skills. A number of approaches and definitions can be distinguished in Europe with regard to the need for a broader concept of skill, including more complex information skills, organisational skills and social-communicative skills. In this discussion 'core skills' and 'key qualifications' could be distinguished as two main strands (Kämäräinen & Streumer 1998, Onstenk forthcoming). I will shortly discuss both strands, before proposing broad occupational competence as a more promising concept.

Core skills and key competences

The first approach deals with basic, generic or core skills (Carnevale, Gainer & Meltzer 1990; Levy 1987; Stasz 1998). The basic idea is that changing conditions ask for more general work-related skills, as distinguished from more narrow, specific and occupation-related skills. At first, the growing awareness of the importance of these new, broad or core skills was matched by an even faster growing confusion concerning their precise content and conceptualisation. In the Anglo-Saxon world at the beginning of the 1990s some common ground was found—in terms of emphasising core skills like communication, mathematics, reading, writing, co-operation and planning. In the UK these are discussed as core or key skills, which were considered necessary for employment (Brown 1998). In the USA, the Secretary of Labour's Commission on Achieving Necessary Skills (SCANS), along the same lines, identified in 1991 a list of three foundation skills (basic skills, thinking skills and personal qualities) as well as five generic 'work competences' (resources, interpersonal skills, information, systems and technology) (Stasz 1998). In Australia the Mayer Committee identified seven strands of key competences, with three performance levels defined by complexity and situational familiarity (Stevenson 1994): 'collecting, analysing and organising ideas and information', 'expressing ideas and information', 'planning and
organising activities', 'working with others and in teams', 'using mathematical ideas and techniques', 'solving problems' and 'using technology'.

Skills listed like this do not refer to specific tasks or clusters of tasks employees should be able to perform, but emphasise general skills that employees are supposed to need to be able to work in a whole series of jobs or even any job at all. This includes both elementary skills like arithmetic, reading or writing skills, general cognitive skills (such as problem-solving skills) and social-communicative or interpersonal skills. These skills are supposed to be fundamental for many tasks in a whole range of occupations and to underpin more specific, occupational skills.

There is, however, also a great deal of criticism of this concept, especially with regard to the context-free definition of core skills (Stevenson 1994; Beven 1997; Brown 1998). As these concepts are mostly developed in countries without an established system of vocational education, Australia being the exception, proponents of this approach in The Netherlands have had to reformulate them. Mostly a kind of occupational-plus-generic skills formula is chosen. Nijhof and Streumer (1998) distinguished eight dimensions that should be part of broad vocational education: occupational specific skills; methodical-procedural knowledge; social-normative qualifications (like discipline or tidiness); personal, social and interactive skills; learning skills; societal and cultural qualifications (which in The Netherlands are required by law as an objective of vocational education); transfer ability; formal and informal workplace experience.

Key qualifications

The second main strand starts from the German discussion on key qualifications (Mertens 1974; Reetz 1989; De Jong, Moerkamp, Onstenk & Babeliowsky 1990; Hövels 1998; Van Zolingen 1995). This discussion refers to more contextual cognitive, organisational-strategic and social-communicative skills, in relationship with changes in organisation and demands of work. The concept builds on a sociological distinction originally made by Dahrendorf (1956) between functional and extra-functional qualifications, later elaborated by Kern and Schumann (1970)
in a distinction between process-dependent and process-independent qualifications. Mertens (1974) introduced the concept of key qualifications, building on this tradition, as a number of broad qualification dimensions that are needed by workers in the modern labour market, next to their—very narrowly defined—vocation. In the aftermath the concept has been elaborated in two directions. On the one hand, it is integrated in new descriptions of vocations in the German dual system and in that sense led to much broader definitions of vocational content (Reetz 1989). From this perspective emphasis is placed on the embeddedness of specific tasks and jobs in the labour process as a whole and on situated social, organisational and strategic dimensions of occupational practices. Job demands are analysed as an integrated whole-of-task competence, methodical competence and social competence (Laur-Ernst 1989; Heidegger & Rauner 1997). On the other hand, however, there are many attempts to draw up lists of key qualifications as qualifications next to specific occupational content (Wilsdorf 1991). In The Netherlands Van Zolingen (1995) summarised the German discussion by defining key qualifications as the broad, common core of occupations. She distinguished six dimensions of key qualifications: general–instrumental; cognitive; strategic; social–communicative; social–normative; personality. But she typically omitted references to occupationally specific aspects.

**Broad occupational competence**

The concept of broadly applicable qualifications (De Jong et al. 1990; Onstenk 1992; Onstenk & Moerkamp 1999) combines both traditions. It emphasises strategic effectiveness and social and communicative performance skills. Strategic effectiveness involves problem-solving skills, organisational skills, versatility (multi-skills, procedural knowledge) and leadership skills. Social and communicative performance refers to the social character of the workplace, both as a working environment and a social context. It implies co-operative skills, social–communicative skills and cultural skills. De Jong et al. (1990) proposed a list of situational skills that distinguished strategic, social–communicative and motivational dimensions, related to job management and work environment. Strategic effectiveness involves demands for problem-solving skills, organisational skills, versatility (multi-skills, procedural knowledge), leadership skills and methodical
skills. The social dimension involves demands for co-operative skills, social-communicative skills and cultural skills. As motives of activity, Onstenk (1992) made a distinction between professional attitudes, motivation and commitment, flexibility, responsibility, the ability to handle emotions, fear and uncertainty.

In a further elaboration of this approach Onstenk (1997b) shifted emphasis to the need for integration of so-called general skills in a coherent ability to perform. Based on the analysis of occupational problems elaborated above, he developed the concept of broad professional competence (brede vakbekwaamheid), in which seven dimensions are distinguished, parallel to the kind of problems a practitioner has to deal with in work (see above). ‘Broad professional competence’ is defined as a multi-dimensional, structured and internally connected set of technical, methodical, organisational, strategic, co-operative and socio-communicative competences, geared to an adequate approach to the core problems of the occupation. In order to respond to the need to change, to participate in and contribute to innovation, and to acquire new competences, ‘learning and shaping competences’ are added as a necessary element in broad professional competence.

Occupational core problems

As figure 1 already suggests, problems in work practice do not occur one by one separately, but in specific combinations. It is not only expected that a competent worker can do a set of tasks and solve the routine problems that occur, but he/she must also be able to manage and plan different tasks and handle unexpected problems and change (contingency management). And that must be accomplished not only in the context of the organisation as a whole; that is, the production process, but also in the organisational and social-communicative environment (Mansfield & Mitchell 1996). In a specific occupation, problems occur in various combinations.

If we look, for example, to nursing and caring occupations (Onstenk 1997a), production demands stem directly from the caring and nursing tasks in relation to the patient. These can already be quite complex, as
they can require technological, medical, social as well as emotional skills (Benner 1984). Organisational problems result from specific task divisions, but also from changing business policies. Dutch experiences show a growing tension between the demand for a more efficient businesslike approach and a client-centred approach, which both depart from the traditional institutionally centred approach. Social–cultural demands relate to formal and informal rules within the occupational group, within the specific team someone is working in, but also with others, for example, doctors.

It is important to realise that these are not nicely tuned demands, but that concrete situations can show contradictory demands, which ask for a situated adequate choice. This complex whole of problems can for specific occupations be condensed into central, specific, characteristic combinations of production problems, organisational forms and social–cultural environments and problems. These sets could be described as the core problems (Onstenk 1997a,b).

Core problems, then, are problems and dilemmas which are of central importance for occupational performance. Core problems occur regularly as part of occupational practice—they are characteristic of the profession. Professionals are expected to find an efficient and effective approach and solution. In this respect core problems are essential characteristics of the professional task, in which decisions and choices must be made, in which deliberate application of knowledge and skills and the appropriate set of action alternatives in the right speed determine the degree of expertise. Core problems are important on two different levels for the learning of professional competence. On a direct level the learner acquires competence and expertise regarding central elements of the occupation. But at the same time more general learning, problem-solving and meta-cognitive skills are developed in solving specific and concrete core problems by learning to handle complexities, contradictions, and uncertainties. Thus learning through core problems contributes to the development of transfer skills. Core problems can be distinguished in breadth, depth and complexity. They are not approached in the same way by a beginner or an expert (Dreyfus & Dreyfus 1986; Benner 1984). Different levels of the learning process imply different levels of complexity for core problems as a didactic strategy.
Three dimensions of core problems

Core problems refer to occupational situations in which complex problems are solved and the specific characteristics of the situation and the social context are of central importance. This implies uncertainty and the need to balance different, sometimes contradictory considerations and interests against each other. A distinction must be made between the level of complexity and the situational dimension of core problems. Complexity refers to complexity of required activities, handling different kinds of information at the same time, recognising different dimensions of a problem, possible contradictions, differences in importance, the need for deliberate reasoning and choices as part of the job or task itself.

Actual occupational practice in real working situations is characterised by a strategic and social dimension (Buck 1989). Strategic action relates to task management and structure of regulation, inasmuch as these are characterised by a certain amount of internal and/or external regulation, autonomy or freedom of action (Frei, Duell & Baitsch 1984). Each task and work environment is characterised by a degree, however small it may be, of uncertainty, uniqueness or conflict (Buck 1989).

Social action (oriented on people) is also characterised by a large amount of uncertainty and informality. This is so in jobs in which social action is a part of occupational practice itself, because it involves ‘working with people’, as in the caring and servicing professions or as a salesperson in a shop. It is with curricula in this field that a lot of attention is given to the acquisition of situational skills in dealing with patients, handling feelings and emotions or crisis management. But it must be stressed that all occupational activities include an important social dimension. Tasks have to be fulfilled in (close) co-operation with and often related to others. With the development of network systems and information technology this dimension becomes even more important. Communicative and co-operative relationships can be viewed as a form of situational action. You have to evaluate your relationship to fellow workers, to supervisors and managers, not only in general, but also in specific situations. You have to adapt to company, shop floor and professional cultural demands. Handling different expectations in this field is an integral part of functioning as a

Broad occupational competence and reforms in vocational education in The Netherlands
professional. In situational (social and strategic) performance it is not enough just to use standard sets of rules. Decisions and choices must be made and balances be drawn, tailor-made for specific situations. Learning to handle (almost) unpredictable and indefinable aspects that characterise the labour process entails learning broadly applicable core skills. This is or should be an important learning objective of vocational training.

Core problems in vocational education

The concept of core problems could offer vocational education an integrated approach (Brown 1998). Core problems connect the determination of the central issues of the profession with the importance of making decisions and choices in both occupational expertise and educational practices/learning processes. Competence can develop by solving problems, meeting challenges, taking decisions, considering different action possibilities, weighing up alternatives (Frei et al. 1984; Onstenk 1992, 1997b; Dreyfus & Dreyfus 1986). Situated learning theory (Brown et al. 1989; Raizen 1989; Scribner 1984, 1986; Lave & Wenger 1991) and, with some reservations, activity theory (Laur-Ernst 1989; Engeström 1994) also suggest that learning in and through the work process itself can be a very effective way to acquire this kind of work-related knowledge and key qualifications. Recently, there has been ample discussion of the possibility of reaching comparable objectives by simulating complex vocational practice problems in schools, by elaborating problem-centred education, and by making use of the improved possibilities offered by multi-media and new technology (Onstenk 1997a; Onstenk 2000)

A turn to core competences

The conceptual analysis as presented above is not only a theoretical exercise, but has inspired recent reform proposals in Dutch vocational education. In 1998 and 1999 a series of policy papers stressed the need for further improving the quality of the qualification structure with regard to the new demands. A major white paper by the Advisory Committee for the Qualification Structure (Adviescommissie Onderwijs Arbeid [ACOA]) (ACOA 1999) accepted and elaborated the approach of
Onstenk (1997b). ACOA proposes to make core competences the central element in both occupational and qualification profiles, aiming at improvement of vocational education as a preparation for the demands of actual occupational practice. It comes to the conclusion that in The Netherlands a consensus has been reached on the need and usefulness of a clear qualification structure, based on occupational profiles that are legitimised by social partners. There is also consensus on the need for the development of broad vocational education, both with regard to the range of occupations and with regard to a threefold qualification: for an occupation, for further (vocational) education and for citizenship. But there is a need for more coherence and comparability by developing more elaborated formats. ACOA emphasises core competences as a learning objective for vocational education. Four fields of competence, needed for any job, are distinguished (Onstenk 1997b; ACOA 1999):

- Vocational (vakmatige) and methodical competences refer to the vocational content and specific activities, assignments, problems and contingencies and to the development of adequate approaches to these problems.
- Organisational and strategic competences refer to the ability to organise and plan tasks (task management) and to work in specific work and organisational environments (that is, different organisational concepts).
- Social, communicative, normative and cultural competences refer to problems connected to working in groups and the participation in the community of practice at the level of a team, a company or a profession.
- Learning and shaping competences refer to the contribution to one's own learning and development and the development and innovation of an organisation or profession.

The ACOA white paper has been accepted by government, vocational colleges and national bodies of vocational training as a reference point for further innovation. In a number of experimental projects new vocational competence profiles as well as qualification profiles will be developed.

This elaboration could also be of relevance to other countries, as it includes in a structured and broad occupationally centred way the
aspects distinguished in most concepts of key qualifications or core skills. It focusses on a much broader concept of competence than is found in many English NVQs (Brown 1998) or in Australian competency-based training (Billett 1998). At the same time it is compatible with the definition of job competence proposed by Mansfield and Mitchell (1996), who make a distinction between work activities, managing different work activities, managing contingencies and managing the interfaces with the work environment. It also matches the main dimensions of action competence, as discussed in Germany (Dehnbostel & Walter-Lazius 1995; Heidegger & Rauner 1997).

Concluding remarks

Recent developments in Dutch vocational education show progress on the way to an integrated well-designed qualification system as a shared responsibility of public authorities and business (both employers and unions). A new qualification structure has been developed and new contents of vocational education are proposed which better respond to the needs of a changing economy and labour market. New vocational curricula are being developed. It is, however, questionable whether the objective of delivering vocational competences adequate for changing demands on the job and in the labour market, has yet been reached. So further restructuring and innovation of the qualification structure as well as of the delivery of vocational education lies ahead, inspired by constructivist and activity theory insights and new conceptualisations of broad professional competence.

To conclude I want to give some thoughts on the way broad occupational competences can be acquired in vocational education. Knowledge and skills should not be learned out of context. It must be made possible to expand and generalise specific knowledge or to decontextualise experiences. To achieve this in school, techniques and methods (for example, problem-oriented teaching and learning; cooperative and self-directed learning) can be very important, as can stimulating reflection on other experiences. Vocational education should not be satisfied with teaching knowledge and ‘technical’ skills, but should concentrate on preparing pupils and apprentices for competent and critical action in occupational practice.
To this end changes in content and didactics of vocational education are necessary. Content should be structured according to core problems of occupational practice. Core problems can be handled better if the professional has broad competences. Pupils and apprentices (and starting professionals) learn these competences better by dealing with complex and realistic occupational problems. Didactic changes in vocational education should be aiming at stimulating self-directed learning, problem-solving, problem-formulating, and learning to learn. Actual developments in The Netherlands show that teachers and program developers are responding to this need and are looking for new ways to teach and to develop vocational education as a strong learning environment.

Most forms of vocational education and training have a larger or smaller component of the course that does not take place in the classroom, but in a practical setting or a practice-replacing setting. Empirical research into learning processes in practical learning stages in secondary vocational education (Onstenk 1997b) shows a rich bundle of learning effects that can be reached in practical training and learning. Practical learning periods can contribute to learning how to deal with the core problems of the occupation and the acquisition of (elements of) broad professional skills, such as planning, co-operating and working in a team. Alongside the characteristics of the job in terms of content and work environment, the role of coaches and mentors both in the company and the school are very important.

Transfer can be stimulated through close connection between occupational practice and training in and out of school, and by concentrating on instruction and training for developing transfer skills, reflectivity etc. Development of concepts and procedural knowledge should be given a strong emphasis in the vocational curriculum. At the same time this curriculum should be structured according to occupational practice. This does not mean, however, a blind adaptation to actual existing practices. Students should be made aware of contradictions, alternative developments and possible choices. They must learn to handle them, act in uncertain situations and in this way be able to contribute to the further development of their own competences, their profession as well as their organisation.
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