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Organising Assessment and Instruction around Competencies in Vocational Education

A Framework and a Case from the Netherlands

1. The Changing Landscape of Vocational Education and Training in the Netherlands

The last ten years have witnessed a profound change in vocational education in the Netherlands. The central focus was to modernize education and to enhance its attractiveness. In the establishment of large regional institutions of vocational education called ROC's the main objectives were the use of the benefits of information technology, better links between educational programmes and work performance and a readiness to incorporate developments in the market place. From the outset, it was recognized that professional workers constitute the main working force and are the prime engine for national economic productivity. Therefore, it was felt necessary to revitalize vocational education by issuing several initiatives, specifically through partnerships that were to be built with organisations and corporate enterprises in order to establish:

- a new qualifications structure for vocational education,
- work place environments as places of life-long learning,
- actual involvement of corporate entreprises and industries in education,
- better transitions from school to work by decompartmentalising education,
- development of a personal labour identity and promotion of job mobility.

Concomitant to these changes, vocational education and training in the Netherlands became more and more characterized by:

- focusing programmes and curricula on the competencies needed for successful job performance,
- linking practice learning with work and the design of powerful learning arrangements with the aid of new information and communication technology or ICT,
- establishment of dual learning programmes, and opening schools and programmes to outside expertise,
- enlarging and redefining the organisational scale of educational institutions,
- more opportunities for exchange, cooperation and further learning.

These developments, by no means, are completed yet nor without debate. At the level of educational institutions, fine-tuning and matching of needs to demands are present at all levels of the innovations. The most central task probably is the rearrangement of curriculum and assessment to comply with the required competencies in the labour market.

The transition from a subject matter-based curriculum to a competency-based curriculum

The changes in the system for vocational education are based on the idea that the curriculum should focus more on competencies like learning to learn, interactive skills, communication skills, information processing, problem solving and reflective skills. These are prerequisites to participate in a society where physical labour and routine tasks are gradually being replaced by information and knowledge as the most important value adding processes. This shift in the importance of the content of a curriculum is based on a fundamental redefinition of knowledge at school. The classical aim of the school to convey knowledge from one generation to another as a precious, objective product has been abandoned (ONSTENK, 1997). In the knowledge society there is a need for a type of knowledge that takes the form of personal competencies; i.e., the ability to identify and solve new problems tomorrow that we do not know today. The assumption that knowledge is a subjective skill, that one can not convey, but that has to be acquired by every individual anew, underpins the search for a competency-based curriculum. In a competency-based curriculum, the content is not the central issue, but the assessment of the acquired skills: How can the student prove that he or she has developed the competencies that are needed to perform and to survive in a rapid changing labour market?

The discussions about what are relevant competencies in a knowledge society are very lively and often polemic. It is evident that skills related to the use of information technology belong to the core curriculum, as well as key qualifications such as reading, writing and arithmetic. Competencies that favour communication and co-operation will also play a major role. However, questions on the balance between grammar and spelling and the ability to express oneself in one or more languages will lead to infinite discussions. The content of the traditional cultural and historic 'study' subjects will even become more problematic in a competency-based curriculum. In the Netherlands, the debate on the poorly developed historical conscience of the students and their lack of ready knowledge of dates, caused a strong opposition to a more competency-based curriculum. In fact, it showed that the described transformation in the education system is still in an initial phase of discovering what are the competencies that really matter, and who is going to decide so.

It will be extremely difficult to define the competencies that contribute to the employability of young people and that help to reduce the insecurity in an unstable risk society (BECK, 1986). However, a fruitful participation in this analysis means that there is some consensus about the assumption that a knowledge society does not ask for the reproduction of culturally and

historically determined facts, but searches for applicable, and value adding competencies.

Research by WARMERDAM and VAN DEN BERG (1992) confirms the increasing importance of knowledge-based work. Simple, routine and low-level functions are diminishing, while complex high-level functions are increasing. ONSTENK (1997) introduces the concept of broad professional skills to describe the competence that is needed to participate in organizations in a flexible way. Seven types of competencies are distinguished: technical-occupational, methodological, organizational, social-co-operative, cultural-normative, strategic and learning competencies. Developing broad professional skills must be regarded as the ultimate aim of vocational and company training as well as learning on the job.

2. A Framework to Link Labour Market Information and Programs for Vocational Education

Adoption of a competency-oriented approach to learning and work, no doubt, leads to a situation in which schools for vocational education and training are increasingly being positioned to tune their 'primary process' to work-related competencies, and the educational and training needs that arise from them (BERRYMAN, 1993; BECKER & STEELE, 1995). They can no longer offer a fixed, standardised body of knowledge, but have to develop 'tailor made' courses in co-operation with external organisations and outside employers, i.e., the market (ENGESTRÖM, 1996). To be able to do so, schools have to reorient themselves and find ways of collecting relevant information in order to rearrange their curricula and assessment of outcomes. In our view, this means they have to meet at least five requirements in order to become competency-oriented. In the first place, they have to be student-directed which entails a flexibilisation (i.e. modularisation) of the courses. In the second place, work- or competency-oriented programmes have to be developed and offered. In the third place, schools have to differentiate their courses towards specific target (i.e., work-domain) groups. In the fourth place, coherence has to be organised between the various learning routes in the system of vocational education and training. And last (but not least), a differentiated instructional and evaluation or assessment approach has to be developed.

Competencies and curricula

The core of a qualification structure in education consists of the so-called competencies. These competencies specify at a certain level of abstraction what is expected from the students on different qualification levels. Every branch of industry and service has to develop its own qualifying standards or attainment levels. In the Netherlands these competencies and their description have to meet 7 requirements:

1. They must be based on broad, future-oriented occupational profiles which are acknowledged by the organisations of employers and the trade unions in that branch of industry or service.

2. They must be coherent and systematic.
3. They must acknowledge the increasing internationalisation of the economy.
4. They must be specified to one of the four qualification levels.
5. They must be met by qualifying in a threefold way: a student must be able, after completing the education/training, not only to work in a concrete job, but also to function in a broad sense in society (civic competence) and to transfer to further education/training.
6. Their 'weight' must be specified in terms of credit hours.
7. They must specify partial qualifications. It must be possible to combine partial qualifications irrespective of the branch of industry or service in which they were acquired.

The construction of a competence model for education is based on co-operation on four levels: (a) between the educational system and the social partners; (b) between central authorities and schools; (c) between regional/local employers and schools, and (d) between central and regional/local authorities. In order to make these four forms of co-operation possible, different kinds of research become essential.

- *Co-operation between the educational system and the social partners*

In order to make possible an effective co-operation between the educational system and the social partners on a national level, information is needed about:

1. the effects technological and organisational processes in the different branches of industry and service have on the occupational or job-specific (the process dependent) and the problem-solving (the process independent) qualifications employees need.

This information can be gathered by installing for every branch of industry and service a committee in which employers, trade unions, and education co-operate. The main task of these committees is to describe the relevant technological and organisational changes that will occur in the near future and to translate these changes in concrete qualifications (i.e. attainment targets or criteria for assessment and evaluation).

2. the possibilities of developing dual learning routes (including placements) in co-operation with employers.

This information can be produced by investigating the financial and organisational barriers in implementing competency based curricula and by developing pilot projects. The main problem here is, that time and again dual learning routes prove to be very dependent on economic processes that cannot be predicted very well. Information is needed about middle range and long range economical growth in every branch of industry and service, in order to develop a fiscal policy that balances 'push and pull factors'.

- *Co-operation between central authorities and schools*

As a result of decentralisation and deregulation, schools are responsible for the quality of the educational process in the first place. This does not relieve the central government from the obligation to control the quality of the entire qualification process. The key word in the relation between the central

government and the schools is quality control. In order to be able to fulfil this function, information is needed about:

1. the way schools organise qualification processes

Information is needed about the way schools communicate with the social partners on a regional/local level;

2. the way schools evaluate these processes

How do the schools handle the qualification structure and develop evaluation procedures by which flexibility can be related to effects or how do they rank the results of education and training according to the various professional levels;

3. the way schools correct these processes

Information is needed about the way schools use information from the local/regional labour market to adjust the learning routes they offer.

- *Co-operation between regional/local employers and schools*

In order to be able to offer learning routes which meet the local/regional demand for qualified labour, information is needed at the level of the schools for vocational education and training about:

1. the regional developments in the different branches of industry and service and the effects these developments have on the demand of qualified labour.

This information can be produced by installing local/regional committees in which local/regional employers and representatives of trade unions and schools deliberate and negogiate regularly. These independent bodies control the grade of reality of the attainment targets formulated by the committees in which every branch of industry and service-employers, trade unions, and education co-operate, and harmonise or align agreed upon attainment levels.

2. the number of placements that can be realised in the regional trade and industry.

This information can be gathered by visiting local/regional employers. It seems appropriate to install a regional or local body that gathers this information for all schools.

- *Co-operation between the central authorities and regional/local authorities*

In order to be able to provide the means necessary to address local/regional problems, the central authorities have to know some regional 'key figures':

1. the number of students who remain in the educational system;

This information needs to be collected and updated regularly to be able to gauge the in- and outflow of students on different levels of the educational system.

2. the number of students who will enter in the different institutions of the educational system in the near future.

This information can be produced by creating a system in which the regional/local flow of pupils/students from primary to different forms of secondary education is registered.

The framework outlined here provides key elements in the establishment of a competency-oriented curriculum for vocational education and training, and offers the ingredients needed for selecting and defining competencies that will guide its programme construction and can focus the necessary assessment

and evaluation procedures. Its aim is to provide a coherent framework to be able to utilize and (re)direct research efforts or information collection that is presently underway in the area of VET.

3. Research Programmes Related to Vocational Education and Training (VET) in the Netherlands

Recognition of the importance of VET for the labour market and employability, and indeed for economic growth certainly improved the infrastructure for research funding in the Netherlands. Interest from policy and economic sides in the qualification structure and transition problems that exist between school to work (BERRYMAN, 1993), paved the way for new research and increasing research efforts. Not only university-oriented funding (i.e., by the National Science Foundation -NWO) has increased, but also focused funding for programmes paying attention to, in particular VET-related problems, has been issued. Projects in the innovation of VET have been sponsored by the Ministry of Education under the label BVE 2000 and the national educational support agencies in VET increased their R&D programmes to cover new demands and tune their research to local innovations that are being pursued in the educational institutions. Each of these lines will be elaborated on briefly here.

The National Science Foundation

In the educational domain, the national science foundation started only very recently funding research in such a 'practical' area as VET. Its relevance for policy related issues (such as life long learning, employability and economic growth) has been a major incentive to start funding in this area. Given the major changes going on in the VET infrastructure (concentration into large regional centres for VET -the ROC's) as a consequence of the tuning to labour market demands, it was deemed necessary to invest in the educational improvement of VET with respect to curriculum and evaluation. A special branch of the National Science Foundation focused on education (PROO) covers this type of funding. Following the early research of the seventies on qualification structure, job mobility and life long learning, and learning within the workplace, several related focal issues for research were identified.

- research into the strengthening of the primary process in education: The 'building' of strong, powerful learning environments and the improvement of conditions under which learning takes place (including more attention for information technology).
- research into the impact of the qualification structure (national vocational qualifications) on the attained educational objectives and curriculum structure. Special attention is paid to the (match between) the 'action theories' of central actors in the field education and the labour market.
- research on the significance and usefulness of primary start qualifications for employability and life-long learning. Special attention is required for

assessment and evaluation in relation to specific target groups as they enter the labour market.

- research into adequate ways of assessing the impact of VET, especially in relation to the evaluation of the learning progress and attained outcomes and the measurement of educational effectiveness.

Attention for the position of the teacher in VET has been demanded, since due to the far-reaching educational changes, the role and competencies of the teacher have been changed as well. In special review studies new demands on the further professional development of teachers need to be clarified.

The National Science Foundation also started a special priority programme in co-operation with the ministries of Economic Affairs and Education under the name of Scholar (an acronym for schooling and labour market). Its objective is to study major issues such as the transition school - labour market; the educational monitoring of learning progress, (non)participation and job mobility from different perspectives; these being: the establishment of optimal learning programmes, better co-ordination education and labour market and the societal impact of education.

The programme attracts researchers from different universities co-operating with institutions in the market who are interested in joining research.

The Ministry of Education BVE 2000 Programme

The Ministry of Education launched a special funding programme for innovation in Vocational Education under the label of BVE 2000. Its strategy is to enhance the innovative capacity of VET institutions by linking them with university groups and initiate co-operative studies. The main focus of initiated research is on:

- the support of implementations of innovations in VET: its mission is to deliver tailored/custom-made approaches for innovations in schools and supply institutions with the necessary instruments for it;
- improvement of the instructional tasks of teachers in becoming counsellors and mentors of student learning: the changing role of teachers needs to be supported by helping to develop materials and suitable instructional strategies that can cope with the new learning demands being put forward by the innovation programmes.
- the innovation and renewal of teaching materials, handbooks and instructional technology: effective communication between teachers together with linking instruction to practice, as well as the arrangement of innovative learning tracks and multi-media packages are needed to support learning. The introduction of new information technology is one of the key elements in the programme.
- the introduction of new management tools and improvements in school organisation: educational goals are set for greater flexibility, better tailored administrative procedures leading to a better co-ordination and delivery of the curriculum which implies new ways of thinking about managing schools.

The BVE project is organised on the principle of co-financing which means that the funding by the ministry is connected to the agreement between

different partners to assume joint responsibility for the introduction of an innovation.

One of such projects financed under the BVE 2000 programme with special relevance to evaluation and assessment in VET is the ILS project originated by the University of Leiden (BOEKAERTS, 1996). In the ILS project an instructional arrangement is delivered in school in which students receive opportunities for self-regulated learning in Interactive Learning Groups. These are heterogeneous groups of students (based on learning styles) who complete assigned learning tasks with the aid of curriculum textbooks and several forms of multimedia. The role of the teacher is one of a mentor as well as an assessor helping to diagnose learning problems. Delivery of information by the teacher is kept to a minimum in order to devote time for group learning processes. The ILS system is a major change compared to the regular way of learning in most schools in VET and has major implications for the structure and evaluation of curricula (given its reliance on self responsibility in completion of learning tasks, individualisation of learning tracks, and new demands on content covered/curriculum textbooks). The ILS system completely reverses the interaction style between teachers and students and from an evaluation standpoint places high demands on monitoring learning progress instead of correct attainment of information.

R&D Programmes of Consulting Agencies

The philosophy behind the education has been changed dramatically from one of supply to one of demand. CINOP is a major consulting agency that supports innovations in the domain of VET and is directly involved with local innovations going on in schools. In addition to its counselling and advisory work, an R&D programme has been initiated focusing on priorities in the field as well as policy demands. In order to achieve their goals, CINOP relates with relevant research institutions or experts to initiate in-depth studies on problems such as:

- introduction of competency based learning: issues relating to defining key qualifications and installing instruments for defining and selecting them.
- innovation and internationalisation: linking innovative programmes in the Netherlands with developments elsewhere, learning from successful implementations.
- flexibility of the curriculum: one of the focal issues is the integration of information technology and instruction.
- monitoring flexible learning: new instruments as distance learning, virtual language systems, use of Internet being implemented are related to assessment of learning.
- life-long learning: initiating further discussions on the topic of life long learning and linking it to the position of VET in education and the labour market.
- connecting qualification structures in education with assessment of competencies as defined in organisations: linking assessment approaches

in both areas to attune curriculum and evaluation programmes better to the existing demands.

These are only some of the topics that have been examined by the CINOP. Overlooking these research efforts, its interventional focus and developmental orientation is abundantly clear, especially its interest in the implementation of new instructional arrangements and educational practices. However, in the area of evaluation and assessment, there seems to be a black spot, since only very few research is devoted to the development of structured approaches to assessing the results and outcomes of education in relation to the competencies acquired. It is therefore that we turn to a project in which this connection between assessment and development is actually made as a case to present and exemplify what is being done at integrating assessment with instruction.

4. A Case: Integrating Assessment with Instruction at an Institute of Higher Vocational Education in the Netherlands

The Educational Development and Assessment System (EDAS)

In March 1997, the EDAS system was launched at the Enschede Institute for Higher Education for Small Business and Retail Management. EDAS means linking the curriculum with assessment in order to achieve a better match between student learning and the goals and competencies to be attained. EDAS reverses the traditional attention to learning objectives and instead focuses on monitoring student learning progress and is meant to concretise the close connection between evaluation/assessment and instruction. The term development is meant to strengthen the following: the curriculum is governed by the perspective that education is 'only' a supporting element in the growth of the student towards acquiring the competencies needed in the labour market. Competence-based learning is the central objective of the curriculum and is coupled with the evaluation perspective of continuous monitoring of student learning in order to evaluate the acquisition of relevant competencies. A strong feature of the EDAS system is that high value is placed on the self responsibility of the student for his or her own learning.

EDAS implies a major change in the instructional interaction between students and their teachers as well as in the actual delivery of the curriculum. In evaluating the learning progress, new and better integrated evaluation approaches had to be used in order to reach the program goals.

Assessment Notions Behind EDAS

1. Assessment for development

Performance assessment provides feedback and it is through functional feedback that students learn and develop their competencies (BUTLER & WINNE, 1995). To effectively support students as learners means moving beyond the simple measurement of the impact of what has been learned to assessment approaches that can anticipate competence levels and monitor the learner's progress during the course of competence development. With assessment viewed as the supporting of learners this means providing the opportunity to

give insight into one's current or actual levels of performance as well as into the learner's potential to achieve targeted performance (HAERTEL, 1990). Suitable performance assessment instruments can contribute greatly to this knowledge by effectively providing functional and valid feedback, assessing the learning process as well as the products.

2. Competence-based learning and self-regulated learning

It is the learner who creates value-added solutions to his or her competence profile. It is, therefore, only natural that a student receives responsibility for his or her own development. This offers opportunities for self-regulated learning in which persons are in charge of the goals and strategies of their own learning (OLSON, 1991; FISHER & KING, 1995). Establishing strengths and weaknesses in existing competencies or defining learning needs have often been regarded from a teacher's perspective. In a self-directed view on learning, education and training are looked upon through the eyes of the person who receives support and feedback while developing competence. Training and development become embedded in a careful monitoring and assessment of performance (PETERSON, 1995).

Providing relevant learning opportunities essentially means first choosing interventions that are based upon careful diagnosis and monitoring of competencies (REDMAN, 1994).

3. Integrative approaches to assessing competence

Given the above-mentioned notions with regard to a learner-oriented assessment and evaluation, there is a strong need for instruments that can build an integration between assessment and interventions for performance improvement. As is evident from new insights into performance-based assessment (HAERTEL, 1990; PETERSON, 1995; HERMAN & WINTERS, 1994; WIGGINS, 1989), evaluative information must be extracted from direct and authentic (i.e. work-related) activities, and simultaneously must provide cues for further specific training or development activities. An integrated approach of assessment instruments must be suited to monitoring performance improvement relative to the individual's profile, ensuring that one attains training or development complementary to developing the individual's profile. From the work of Tillema (1994, 1996, 1998) such an approach was derived (See Figure 1 for an outline of the assessment approach).

4. Instruments for integrating assessment with development

Assessment related to development, in our view, should reflect three main conceptions about authentic assessment (WIGGINS, 1994):

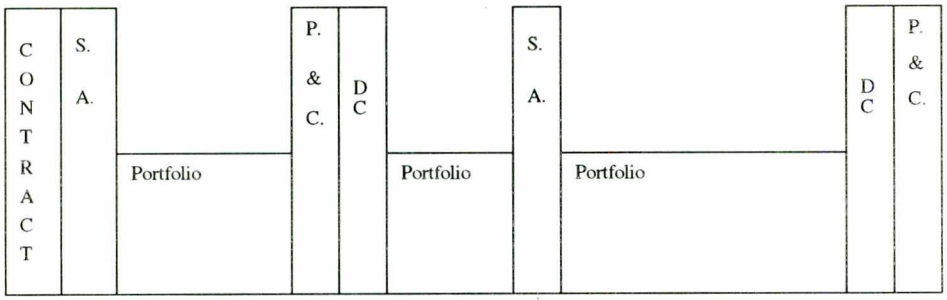
a) it helps the person to monitor his or her own development, he or she then receives feedback on a continuous basis (BUTLER & WINNE, 1996). A learning dialogue needs to be developed,

b) it reveals or highlights a discrepancy between self-perceptions or self assessments and external information about one's competence (HAERTEL, 1990),

c) it is the person instead of the institute who should profit from this information (self-responsibility) and who should be able to utilise it for increased awareness (REDMAN, 1995),

d) it reflects the competence acquired, i.e. the performance itself, in the sense that process as well as products are documented (LANDY & FARR, 1983).

Figure 1: Assessment Instruments Used in an Integrated Assessment Procedure



key:

S.A – self assessment coupled to feedback from peers

P&C - Presentation and counselling

DC - Development or assessment centre; performance simulations or work samples.

To instantiate these conceptions, the EDAS system includes the following instruments:

- the portfolio,
- the development centre,
- the self and peer assessment.

A portfolio is a purposeful collection of examples of learning collected over a period of time (SMITH, 1995), and gives visible and detailed evidence of a person's competence. It serves as a tool to highlight progression in competence development under the control and responsibility of the person involved.

The development centre is a deliberately construed environment in which several simulation/work related exercises are given to test specific competence attainment on a more detailed level. The assessment centre method is used to construct specially designed practice assignments to test these competencies.

The self-assessment and peer assessment serve as a reflective tool for people to elaborate on their own strengths and weaknesses as mirrored by the perceptions of others, thus establishing a baseline of reference point for the person to which the collected assessment information (i.e., in the portfolio and development centre) will be related.

5. Introduction of EDAS in the Educational System

Worries about and a lack of belief in the success of the traditional educational setting in which students work for and are primarily interested in 'making the grade' have been the major impetuses for the creation of a system that is different to what is encountered in most institutions for Higher

Vocational Education. EDAS aims at focusing on competencies for later performance and delivering performance feedback at the centre of teaching and learning to give the student more responsibility for his or her own competence development. Education, i.e. the curriculum is a road or instrument in attaining these competencies. Giving competence development back to the students actually means giving them the opportunity to monitor and highlight their performance more concretely. To achieve this, EDAS entails the following elements:

- the student learning and acquisition of competencies is at the centre of the programme;
- assessment monitors instructional/learning progress;
- competencies are derived from qualification profiles extracted from outside the educational institution and are guides for curriculum construction;
- teachers are facilitators and monitors of instruction.

These elements coincide with and are in line with the positions taken (for instance: DRUCKER, 1993, ENGESTROM, 1996; GIDDENS, 1991) in the thinking on the necessary educational changes that are needed to cope with economic and technological developments in transition from an industrial economy towards a knowledge economy (BECKER & STEELE, 1995). Knowledge productivity and self- management have become major assets of the new employable person who takes an interest in life-long development. There is a growing demand for competencies like problem-solving, self-regulation, reflection, emotional awareness, and stress resistance in order to cope with the rapidly changing demands of the labour market. This implies not only that the educational and instructional system mirrors these changes better by focusing on work-related competence and relating learning processes to it, but also brings the workplace closer to the school and facilitates and stimulates students to learn (Engeström, 1996).

EDAS fits in this development by helping the student to gain insightful information on the progress being made toward the competencies to be attained and by assessing multi-facetted learning experiences (not only knowledge and skills but also perspectives, orientations and experiential learning) in complex and work-related settings.

In this sense, the EDAS system is prospective in that it focuses on the students' potential and urges further developments and investment in learning, to balance one's strengths and weaknesses.

6. Building Blocks of the EDAS System

Defining Competencies

One of the hallmarks of the EDAS system is the way in which relevant competencies are selected and defined. In order to arrive at a balanced set of competencies, a 'Wisdom of Practice' study (MROSECK, 1996) was conducted in which, through a process of dialogue with relevant actors in the field and frequent exchanges with the teaching staff, a careful selection of competence domains or dimensions of work was made. These domains contain areas of

work for the future manager in small business and retail management, and as such 18 domains, later summarised into seven, were identified. For each domain the Wisdom of Practice study engages in an in-depth analysis with relevant actors in that domain to highlight the work-related performance which identifies the proficient expert in that domain. These actors (experts in the field) supply the necessary information on performances and indicate the standards by which these performances can be judged or evaluated. As a result, levels of performance can be identified for each competence selected in a domain. As a further step in the Wisdom of Practice study, these performances are related to relevant assessment levels to identify proficient behaviour, i.e., each performance is coupled with relevant assessment situations. Based on this information it then becomes possible to describe a competence in performance terms and indicate its levels and assessment standards. As a last step in the Wisdom of Practice study, teachers in the program identify relevant curriculum contents that accompany these competencies and which are attached as 'learning packages' to these competencies (as instruction - assessment descriptions) thus constituting a programme of learning. Each competence eventually is described in terms of a) a setting or situation in which the relevant behaviour is to be demonstrated, b) the actual performance to be shown described in behavioural terms, c) the standards by which it is assessed, indicated by attainment levels in order to highlight the development or growth needed to acquire the highest standard.

Constructing Assessments

The assessment and development is primarily organised around the portfolio as an instrument which in the hands of the student should crystallise and demonstrate one's accomplishments. Following the format outlined by Tillema (1998), the portfolio is regarded as a reflective learning tool in which evidence of attained performance (be it a piece of work, a product made, or an outcome of a process the student was involved in) is being reflected upon and which indicates further learning needs. The reflection process is guided by the initial self-assessment in which the student indicates the goals he or she hopes to attain and the perceived levels of proficiency. Relative to his or her own perceptions on accomplishment, the attained level of performance as evidenced by the portfolio is taken as input for the discussions when the student brings the portfolio to the mentor. As an outcome of discussion in the mentor meeting, it may be decided to collect further additional information in the 'development centre' as an assessment intervention which is to be held twice a year. In the development centre, central competencies are assessed as well as competencies that are of special relevance to the student given his or her previous accomplishments as evidenced in the portfolio.

The EDAS team together with the teachers are responsible for the constructions of relevant exercises in the development centre. From the outcomes of the Wisdom of Practice study one can derive several indications about relevant assessments. However, it remains the educational responsibility of the staff to translate this into crucial tests. All practice assignments are derived from work-related problems or situations that have been collected over

time by teachers and as such mirror the experiences and contacts teachers have in the field in which they teach. The assessments are thus expected to change or adapt according to the teachers' knowledge of the competencies needed in the labour market.

Managing the Process

In the organisation of the Small Business Department the traditional teaching sections have been abandoned in favour of a cohort-like organisation of teachers (just like students are organised in cohorts) Each teacher cohort team is responsible for the curriculum of their respective student cohort. EDAS organises a monthly lunch meeting with each cohort called 'EDAS sandwich' to brief a teacher cohort about developments and enter into discussion with them about the implementation of the assessment approach. The EDAS sandwich meetings prove to be a vital connection between the project team and the actual implementation practices. This provides room for alterations and even deviations from the original proposed EDAS guidelines in order to tailor the assessment approach to the actual instruction process as it is being conducted in a cohort. These alterations, however, are discussed intensively and amended accordingly. This is acceptable, given the view that teachers as well as their students are the prime owners of their instructional process and managers of their own learning. As such, they have primary responsibility for implementation and successful adoption of the ideas put forward by the EDAS team.

7. Lessons and Experiences

Construction and implementation of a system for assessment and evaluation alongside a renewal of the curriculum at an institute for vocational edcuation and training are no doubt time-consuming and often cumbersome processes in which, depending on situational constraints, several main problem areas can be identified:

a) The establishment of relevant competencies for development and learning in an occupational domain, i.e, identifying competencies that are of direct concern and can constitute legitimite targets for an educational institution and not 'merely' being the concern of organisations. However, educationally relevant as well as organisation-related competencies are difficult to formulate. A discussion is needed between the occupation i.e., the organisations and corporations constituting the domain, and education practitioners in order to find a common ground. The so-called 'Wisdom of Practice' studies form a sensitive bottom-up approach focused on the 'voice' of practice while at the same time balancing it with teachers' expertise about the feasibility of developing competencies.
b) The levels and standards of performance are not only a matter of complying or meeting external requirements (exams, inspectorate) but also need to express the institute's own profile of excellence and quality. By setting the standards to certain levels, a particular programme can distinguish itself

from others. This calls on the one hand for mutual agreement between institutes for vocational edcuation about selection and definition of competences in a domain, whilst on the other hand it requires differentiation, and sometimes even bifurcation, among these institutitions. This process of defining one's mission in terms of competence profiles is quite new to institutions in vocational education that were more prone to anonymity than to distinction. A management team capable of leading the staff and able to clarify its success standards strongly facilitates the endeavour toward change and resetting boundaries.

c) The collection of relevant information for assessment. The work-related experiences of students and their competence development as produced by the curriculum puts new demands on what is to be assessed and on the way in which it is assessed. Questions like, what is relevant evidence, who decides about inclusion of performance, and how do we integrate performance evidence (i.e. in work samples) whose perceptions count in order to arrive at a meaningful and coherent picture of development or growth, are all crucial and need discussion in a team. The construction of co-operating teams of teachers in cohorts proved to be an important condition for success, although it also gives rise to different solutions.

d) The embedding of assessment as measurement in an evaluative context. Assessment is only complete after a process of deliberation and reflection. This process of educational reasoning and decision-making may be severely hampered and may even become seriously flawed if it is merely regarded as information collection. In a developmentally oriented assessment the viewpoints of the self-regulated learner as well as the qualifying 'system' that has to comply with external requirements or standards have to be reconciled. This means that standards govern the process.

e) Sustainment of an integrated approach to assessment calls for a balanced system with multiple instruments, capable of giving a detailed, i.e., monitored picture of growth in competencies. There is not a single assessment instrument that can do the job alone – an interconnected programme of measurement instruments addressing different functions will be needed. Portfolios stress individual commitment and strong involvement in monitoring one's development. Work samples satisfy the need for more direct performance-related evidence while development centres open the possibility for specially constructed simulations of performance to show excellence. This 'balanced' system can only be maintained with sufficient care and attention for procedures, clear guidelines and well established rules of conduct.

f) Participation of students in their assessment for development is not self-evident or can not be taken for granted. Fear of underachieving, possibly hyperinflation of evidence, and ignorance about standards all lead unduly to a collection of unauthentic and invalid information. Portfolio construction in itself is a lengthy process and highly dependent on what the work environment offers. Students, therefore, need to be motivated and instructed to use the instruments and engage in self-reflective activities about their learning

('learning to learn' as a condition). It proves that students are not necessarely convinced of their self- regulative role in instruction.

g) The internal organisation of the curriculum has to support procedures for collecting information as well as transforming them into development or further learning. The assessment information needs to be evaluated and properly discussed in order to point out profitable roads for further development, resulting in adaptive learning tracks and putting a flexible demand on the curriculum. Teachers and students together need to be prepared to enter in a debate on the evaluation of progress and its consequences for learning. For teachers as mentors and coaches this means not to fall back in regular solutions and options already provided but supporting their learners in an adaptive way. For students it means taking a stance as a learner with high responsibility for self success.

h) Maintaining a coherent programme and staff. Every innovation calls for breaking down existing strategies and epistomologies of practice. Some persons seem to flourish in such an environment which brings the best out of them, but a lack of programme coherence and structure can backfire on the implemented changes at some later date. The acquisition of knowledge in an organisation and especially in teams of teachers needs vehicles for change and criteria for success in order to 'route' the innovation. This involves making explicit and recognizing tacit theories in use. The EDAS sandwich meetings in this respect form a crucial element in explicating this knowledge and promoting team learning.

EDAS clearly shows the interconnectivity of evaluation and assessment with the curriculum and selection of competencies. Teachers play a crucial role in this link because of their 'content' and 'delivery' expertise. However, they also may endanger a successful link because a teacher's outlook on competencies and his or her ability to frame competencies in the format of the curriculum, requires a new perspective and special attention to the outcomes of education while at the same time it places new demands on the ability of teachers and staff to incorporate the world of work into their teaching programmes. Teachers can be helped substantially by providing them with the necessary tools that go along with the new thinking about incorporating competencies in the curriculum. Valid assessment procedures and evaluation arrangements open up new horizons in discussing and exploring solutions in the teacher's own work.

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