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Entrepreneurship and Vocational Education

JEROEN ONSTENK

CINOP, Den Bosch, Netherlands

ABSTRACT Entrepreneurship is an important European Union objective for education and lifelong learning policies (European Community, 1999). This article reports the results of a research project on entrepreneurship competencies in higher and vocational education commissioned by the Dutch Ministry of Economic Affairs. A three-layered concept of entrepreneurship competencies is presented. The way in which innovations in higher and vocational education develop competencies for entrepreneurship, enterprising behaviour and employability is analysed. The views of students and teachers in entrepreneurship-oriented education are presented. The article ends with recommendations on promoting entrepreneurship competencies in (vocational) education and lifelong learning.

Introduction

Entrepreneurship and enterprising behaviour are important objectives for education and lifelong learning policies in the European Union (EU) as a whole (European Community, 1999) as well as in individual member states. It is seen as a source of flexibility and innovation, as a creator of jobs for the economy and, at the same time, as an interesting possibility for individual development, fulfilment and citizenship. This article reports on the results of a research project focusing on the development of entrepreneurship competencies in vocational and higher education. Three main topics are discussed after a short introduction to the research project. A three-layered concept of entrepreneurship competencies is then presented. In the following sections, an overview is given of the representation of entrepreneurship in innovative vocational and higher education and of the views of students and teachers in these projects. Finally, some conclusions are presented concerning improvement in the development of entrepreneurship and enterprising competencies by educational innovation.

In 2000, the Dutch Ministry of Economic Affairs, inspired by the EU and examples in countries like Scotland (McVie, 1998), Sweden and the United States (Reynolds, 1999), launched as part of its policies to promote entrepreneurship, a funding programme, 'Entrepreneurship and Education', designed to guide, stimulate and support education in promoting entrepreneurship. CINOP was commissioned to undertake preparatory conceptual, descriptive and analytic research and to produce an initial document for the programme. The project resulted in a broad overview of concepts, opinions and practices with regard to entrepreneurship and education (Onstenk, 2000a). The research project included, first, a conceptual analysis, second, a search for good practice in the Netherlands and abroad and, third, a review of the 'state of the art' with regard to entrepreneurship in curricula in Dutch education, from primary school to university. Fourth, students and teachers were surveyed on their views on entrepreneurship. In the project, a series of recommendations to promote the development of entrepreneurship competencies in education was elaborated for schools and policy makers. The core question of the research was: 'What must happen in education in order to deliver good preparation for independence, self-employment and entrepreneurship?'

Entrepreneurship is a 'hot topic' in economic and labour market policies, inspired not only by European priorities but also by longstanding concerns about the competitiveness of the Dutch economy. A lack of enterprising spirit is seen as the background for the relatively small number of people starting their own business (Ministry of Economic Affairs [EZ], 1999) as well as for the lack of mobility and flexibility in the labour market. Policy statements (EZ, 1998, 1999) as well as problem analysis (van der Kuip, 1998, Reynolds, 1999) emphasised that education could and should promote entrepreneurship more. Chances to start and run a successful enterprise depend significantly on self-assessment of available or developable competencies by the starting entrepreneur, which is not always accurate (National Employers Union and National Union of Small Enterprises, 1999; BSM, 1999). Starting entrepreneurs often indicate that they are insufficiently prepared (Economic Institute for Medium and Small Enterprises [EIM], 1998; EZ, 1999), although the main problem encountered in starting an enterprise is not a lack of skills but a lack of money, caused by hesitating and not very entrepreneurship-friendly investors or banks (EIM, 1999b). Whatever the reason, a challenge is posed for initial education as well as lifelong learning. Entrepreneurship competencies should be integrated in general and vocational education as a stimulus to enterprising behaviour in the labour market (work-entrepreneur) as well as seeing entrepreneurship as a natural career possibility.

Entrepreneurship Competencies

In the literature on the characteristics and competencies of an entrepreneur, three main themes can be distinguished:

- enterprising key skills;
- the entrepreneur as manager;
- the entrepreneur as entrepreneur.

Enterprising Key Skills

Entrepreneurship is often seen as a way of life (Gibb, 1998). Much literature on entrepreneurship focuses on the person, characteristics and qualities of an entrepreneur. Development of an 'enterprising spirit' is often seen as important and as the main criterion for deciding who chooses entrepreneurship and becomes successful in that field (Tolentino, 1998). Although Mintzberg (1990) notes that literature on the characteristics and qualities of entrepreneurs is hardly based on empirical evidence, there is still an abundance of studies. Van der Kuip (1998) summarises a number of them, listing entrepreneurial qualities like motivation, need for autonomy and independence, creativity and originality, taking initiative, risk taking, looking for possibilities, posing challenging objectives, self-confidence, internal locus of control and endurance. Analogous to the key skills debate in vocational education and lifelong learning (Kämäräinen, 2002), these qualities could be called enterprising key skills. Key skills are applicable in a broad range of entrepreneurial activities but must be concretised. Creativity in relation to possibilities in the market is something different from creative bookkeeping, although of course in real life not all entrepreneurs make the distinction. Some of the literature focusing on the personality characteristic of the entrepreneur is not very favourable – but an antidote to the rosy image of entrepreneurship arising from many policy documents and ideological debates. Mintzberg (1990) or Kets de Vries (1993) stress that entrepreneurs have an obsession with power and a strong need to keep control, for independence and success. They hate authority but have, contrary to popular opinion, only a limited willingness to take risks as they are calculating persons rather than gamblers. When starting an enterprise, in periods of change and when the organisation remains small, there is room and need for the visionary and strong leader kind of entrepreneur (Mintzberg, 1990).

A remarkable likeness can be noted between the image of the entrepreneur rising from key skills lists and the post-modern calculating citizen. This is recognisable in many arguments as to why entrepreneurship in education is important: even if it does not turn students into entrepreneurs, it will prepare them better for employability and active citizenship. This kind of analysis often links entrepreneurship and employability closely. Both are characterised by an emphasis on flexibility, creativity, problem solving, etc. and are often seen as further development along the same lines, for example, as self-employment. But a distinction should be made between 'real' entrepreneurship (starting a business) and work-entrepreneurship or employability, with perhaps the self-employed in the middle. It is in the roles of manager and entrepreneur that differences become visible.

Although key skills are sometimes seen as personality traits ('you're a born entrepreneur'), many of these skills can be developed. The same discussion applies here as in the key skills debate in vocational education (Advisory Committee on Labour and Vocational Education, 1999; Kämäräinen, 2002). These key skills get much attention in projects to promote active and self-directed learning in educational innovation, ranging in the Netherlands from the 'study house' in secondary education, to new educational concepts in vocational education (Onstenk, 2000b, 2001), to entrepreneurial and learner-friendly universities.

The Entrepreneur as Manager

A second main theme concerns the management roles of the entrepreneur: planning, organisation, financial management, leadership and control. In many cases, skills analysis focuses on managing an enterprise, rather than managing your own enterprise. In management training, explicit emphasis on entrepreneurship is a rather recent phenomenon (Kao, 1989; Klandt, 1998), even in small business management (National Council for Small Business and Retail Management Training [LOSBenRM], 1999).

The most common educational approach for entrepreneurship in the Netherlands, the Certificate for General Entrepreneurial Skills (GES), consists mainly of school knowledge and skills for management. In 1993, attainment norms for GES were developed and approved by the Ministry of Economic Affairs (van Mechelen, 1993). Until 2001, this certificate was a necessary precondition for starting a company in many branches. Six types of skills are distinguished: operational management, personnel and organisation, financial administration, marketing, financial management, and making a business plan.

Tolentino (1998) offers a broader analysis of skills needed for managing the business, making a link to more proper entrepreneurial competencies. Alongside traditional functions, such as planning, organising, leading and controlling, a modern small business poses new management challenges. It becomes more embedded in national and international networks of enterprises, as supplier, subcontractor or franchise firm of large corporations. Combined with the growing knowledge intensity of production and of managing the business environment, managerial functions extend to the roles of enabler, facilitator and coordinator, communicator and negotiator, change manager and internal consultant. To be able to operate successfully in new business structures and relation networks, the entrepreneur-manager of modern businesses needs also to develop new competencies (Tolentino, 1998), such as having an international perspective and an eye for implications, opportunities and threats of a global business environment, understanding the surrounding chain of production and network of enterprises, or constant alertness to market change and technical trends. These competencies are still insufficiently covered in the educational objectives of entrepreneurial and management courses.

Entrepreneurial Competencies

The last, and most interesting, theme focuses more explicitly on the role of the entrepreneur *as* entrepreneur. 'Proper' entrepreneurial competencies are needed successfully to start an enterprise, to run it in the market and to let it survive or grow. Problem areas and competencies can be distinguished, ranging from recognising business opportunities, interpretation of market information and the development of customer orientation to the development and effective operation of relation networks and the building of an innovative organisation (Tolentino, 1998; Gibb, 1998). The emphasis is on the relationship between the enterprise and its environment. This category of objectives is less present in education but it is emphasised in many innovative projects, in the Netherlands, as in other countries (Kao, 1989; Carland & Carland, 1997; Johannisson et al, 1997; McVie, 1998; Mohan-Neill, 1997).

Entrepreneurial competence or expertise is the structured and integrated ability to perform entrepreneurial activities adequately and to solve entrepreneurial problems. Competence relates to the individual performance of professionals, entrepreneurs or employees. It denotes the complete range of occupational or entrepreneurial problems that professionals or entrepreneurs are equipped to handle. A competent entrepreneur must be able to use knowledge, attitudes and skills in such a way as to be able to deal effectively with tasks, problems, dilemmas and contradictions resulting, for example, from heavy competition or the changing demands of customers. Based on the International Consortium for Entrepreneurship Education (ICEE, 1998), Gibb (1998) and Tolentino (1998), the following competencies can be distinguished.

A first important competency is the ability to recognise and analyse market opportunities. It consists of a specific combination of handling risk, content and market. Entrepreneurs must redefine 'risk' as an opportunity to use their expertise, rather than as a possible reason for failure. They can 'find' opportunities looking for better ways to accomplish a task through inventions, new services, and new approaches – or through exploring a segment of the population which could respond to a new (or new version of a) product targeted to lifestyle or needs, delivering a cheaper product or service than that which is currently available, applying a new technology to solve customer problems in a different way or finding a business location which is more convenient for customers.

A second competency is the ability to communicate, identify mentally, persuade and discuss with customers, clients, suppliers, competitors, service providers and other stakeholders in the business environment, thus better comprehending their needs, expectations, apprehensions and requirements. Stakeholders are not the only context of direct market relationships; there is the wider societal environment (Gibb, 1998). An entrepreneur needs to act responsibly with regard to the social environment and community. Responsible entrepreneurial governance is a precondition and basis for a society in which self-regulation of entrepreneurial activities can take place.

A third competency is networking, the ability to establish linkages with other business persons and other stakeholders for mutual learning, collaborative undertakings and other joint activities, aimed at achieving common objectives. Entrepreneurs have their own community of practice (Gielen et al, 2003). An essential point is the development of a global orientation and a feeling for the world as a potential working field and an influence on business (Gibb, 1998). According to Gibb, entrepreneurs will be confronted, at the level of society, with developments like the extension of the international market, growing competition, extension of communication technology, internationalisation of quality standards, a broader and more complex range of work process technologies, the need of the consumer for more differentiation, innovation, services and added value and the strong influence on international trade by a limited number of corporations.

A fourth competency, stressed by Gibb (1998), integrates enterprising key skills with the fundamental ability to deal with the life world of entrepreneurship. Entrepreneurs must be able to live with daily insecurity and even enjoy that situation. The entrepreneur has to develop personal entrepreneurial behaviour and characteristics, learning effectively from and in business interactions and the personalisation (knowledge circulation in personal and Internet/email supported networks) of global information.

A further series of competencies is connected to the development of entrepreneurial and learning organisations, management of business developmental processes and of networks of stakeholders, and a flexible strategic orientation. At the level of the organisation, entrepreneurs have to deal more often with more responsibilities and insecurities as a result of restructuring, downsizing and decentralisation of organisations. The greatest challenge is managing stakeholders at a national and international level, in combination with a large degree of insecurity and unpredictability. On top of that, they have to take into account the growing number of small- and medium-sized businesses and, with new configurations of specialist skills and services, they have to be more competitive, opening up new opportunities at the same time. According to Tolentino (1998), this is why building a team is so important for a starting entrepreneur. Delegating responsibilities to a team of employees or even external consultants enables the entrepreneur to focus on his own core competencies but it also opens up ways to improve efficiency and generation of creative ideas in management. A 'smart' entrepreneur organises a varied, compensating and synergetic competence base.

Entrepreneurship in Vocational and Higher Education

In vocational education, curricular attention to entrepreneurship is not new. Traditionally, this focuses on managerial knowledge and, to a lesser degree, skills (Mulder, 1997; Onstenk, 2000a). In Dutch vocational education, specific courses or modules are available, explicitly aiming at entrepreneurship, diverging from trade and commerce training to entrepreneurial qualifications

and specialisations in training systems for bakers, farmers, ceramicists or hairdressers. In 43 certificate courses in secondary vocational education, mostly on higher levels, modules for general entrepreneur skills (GES) are included.

New concepts focus on enterprising key skills and entrepreneurial competencies. One important objective of new contents and didactics in vocational education is the development of core competences (Kämäräinen, 2002; Onstenk, 2000b, 2001). Innovation and enrichment of entrepreneurship education is a good example. An important trend is the emphasis in learning trajectories on actually and actively introducing students to the personal, entrepreneurial and managerial aspects of enterprising by participating in shorter or longer simulations, student competitions or mini-enterprises, as well as by contacts with real entrepreneurs, ranging from visits to enterprises and guest lectures (exemplary models) to actively undertaking assignments for or collaboration with (starting) entrepreneurs. Games and a competitive element are very stimulating for participants.

In 2002, more than 250 schools and 3,500 students participated in youth enterprises (in Dutch: 'mini-ondernemingen'), which offer further opportunities for the acquisition and development of entrepreneurial competencies in the fields of market analysis, building of social networks of suppliers and customers and abilities to deal with risk. They were launched in the Netherlands in 1990 by a foundation originally established by major banks, and later supported by the Dutch accountants society and the Ministry of Economic Affairs. The aims of Youth Enterprises Europe are to foster an understanding of the world of work and a spirit of entrepreneurship, through the principle of 'learning by doing'. It also encourages young people to think internationally by developing international contacts between youth enterprises in member countries through visits, and an international competition. An important characteristic is that volunteers from business (retired entrepreneurs, banks, chambers of commerce, accountants) join forces with teachers to guide and support mini-enterprises. These student companies sell shares, conduct market research, produce and market products, just as real enterprises do. Findings from a recent evaluation in the Netherlands suggest that programme participants develop a range of skills, particularly: working as a team, willingness to take initiative, communication, decision making and other enterprise skills. They become commercially aware and develop a positive attitude towards learning – and they have fun (Meijers & Snippe, 2000).

Several schools are identifying entrepreneurship more clearly in specific learning objectives and developing more integrated curricula. There are interesting projects aimed at the intensification and enrichment of traditional activities around business plans, as included in many trade training courses (Mulder, 1997). As one teacher said: 'a business plan should not be made for the bank, but be an inspiration for business'. That suggests that more emphasis should be placed on good product-market analysis, assessment of chances and

risks, customer orientation and interpretation of market information and probably less on financial matters and bookkeeping.

Other interesting examples were projects in which students of different courses cooperated in enterprise simulations, for example, a combination of technical and more trade- or management-oriented students.

Higher Education

In higher education, there are also curricular innovations in management- and entrepreneurship-oriented courses, as well as support for students in orientation and even starting their own businesses. In business education, specific attention to entrepreneurship is quite recent. The focus has been much more on preparing for management in (big) companies. The same can be observed in other countries (Kao, 1989; Johannisson et al, 1997; Mohan-Neill, 1997; Klandt, 1998).

Several higher education institutions offer courses for entrepreneurship or have developed business centres on campus. In a growing number of higher vocational studies, ranging from entrepreneurial to technological, services or arts education a variety of mini-enterprises are included in the curriculum. Initiatives to connect knowledge production and entrepreneurship are blossoming, as shown by the recent appointment of professors of 'knowledge and entrepreneurship' in several universities (Elfring, 1999; Derksen, 2000). Some universities have undertaken interesting activities, supporting the appointment of entrepreneurs in campus-located company centres or the integration of a more entrepreneurial approach in science development itself. There are several examples of technical studies hosting student enterprises.

One interesting example found in higher vocational education was the new content and didactic arrangements in the course for Small Business and Retail Management at the higher vocational Saxion College in Enschede (LOSBenRM, 1999). Learning objectives are derived from an entrepreneurial competencies profile, inspired by Gibb (1998). Not only did this college work with a very elaborated and entrepreneurial attainment profile, it also designed a very innovative didactic and pedagogical system which oriented around entrepreneurial competence development. The design of the learning process focused on problem solving entrepreneurial learning. Learning is organised in assignments, focusing on specific problems. Students discuss the problem, make working plans, search for relevant information and marketing theory in the study centre or on the Internet, and find explanations and solutions in a group discussion which are presented to other students or the outside world. At the core of the curriculum are enterprising activities of students in mini-enterprises. There are even cases of students starting their own company. Around this core, other learning activities are organised with a great degree of choice and freedom for the student. Students design their own personal development plan, guided by the list of competencies to be acquired. Instead of working with a planned curriculum, tests and examinations, a portfolio

system of competence proofs is developed. Students can collect proof in their enterprise activities. The portfolio also offers the guiding thread for personal entrepreneurial development.

Students on Entrepreneurship

In the research project, data were collected through a survey of students of Dutch secondary, vocational and higher education ($n=308$). The sample is taken from students who are either in courses directly oriented to entrepreneurship or who undertook (extra-)curricular activities on entrepreneurship. Respondents answered a questionnaire on skills and competencies, based on the categories distinguished in the literature search. The results gave a rich overview of perceptions of pupils and students of entrepreneurship. By using variance and factor analysis, relationships were explored between different school types, entrepreneurial orientation of the course, learning experiences and views on entrepreneurship competences (Onstenk, 2000a). A limitation of the empirical data results from the fact that respondents were selected via schools and teachers who are at least favourable to promoting entrepreneurship in education. So a positive attitude and a bias to entrepreneurship-oriented activities is to be expected. Nevertheless, answers show enough variation and critical evaluation of courses as well as of entrepreneurial perspectives.

Many respondents like entrepreneurship because they see it as very varied and challenging. It is also attractive because independence is encouraged and it is possible to see clear results of endeavour. On the other hand, entrepreneurship is also seen as difficult, mainly because of the risks involved. Many respondents make the observation that entrepreneurship asks a lot and that there are many things to deal with. Competition is heavy, finding a market share is difficult and so is getting enough finance. Secondary students at a low educational level (preparatory vocational education) particularly worry about the need for personal finance in starting an enterprise. But, according to some, entrepreneurship offers good possibilities, if you have enough knowledge and are creative. You are free and independent, so you can do what you want without being troubled by others. If you succeed in using these opportunities, you can come a long way. Respondents who, according to their own estimation, have learned that they are good at entrepreneurship, have discovered that they are creative, and have great confidence in their own ideas. Many of these respondents state that they have great perseverance. A considerable group indicates that entrepreneurship is not their 'cup of tea'; they feel that the risks are too big, that they are not willing to take the responsibility, that they like to work under supervision and that entrepreneurship is too difficult. One preparatory vocational education student states that he would not like to be involved in 'all this bullshit with rules, regulations and personnel'.

Students estimate that they are not very strong in many competencies they think necessary for entrepreneurship. Most think that their education paid enough attention to entrepreneurship as well as to required skills. But this does not result in the level of competences they think they need. This could refer to the quality of their training but also to realistic estimations that education could never give full and sufficient preparation for entrepreneurship. It is remarkable, however, that even in this entrepreneurship-biased sample, a third of all respondents indicate that little attention is paid to entrepreneurship in their education.

A relatively large number of students actually expect to start an enterprise of their own. This expectation is strongly related to self-confidence. Respondents who consider starting their own enterprise assess their entrepreneurial skills as higher and see themselves to a greater degree as dominant, independent, self-directed and willing to take risks. At the same time, they recognise shortages in knowledge and insight. They lack factual knowledge in legal, financial and practical affairs in running a business: taxes, legal matters, establishment requirements, environmental permits, administration, financing possibilities and enterprise space and locality. In vocational education, little attention is paid to entrepreneurial competencies with regard to markets, building a network of customers and suppliers and dealing with risk.

A last interesting result of the research is that students indicate what for them would be an effective didactical approach. They emphasise practical oriented elements in the curriculum as very powerful learning experiences.

Teachers and Entrepreneurship

Data were also collected among teachers by computer-supported group discussions ($n=25$). All participating teachers were interested in entrepreneurship and willing to promote it in education. In three 2-hour sessions, groups of five to nine teachers generated many ideas on entrepreneurship competences, and, after extended discussion, scored their relative importance as educational objectives. They also evaluated actual possibilities to develop key skills and entrepreneurial competencies in education and turned out to be quite sceptical about it. There are substantial differences between teachers in general primary and secondary education, on the one hand, and in vocational and higher education on the other.

The key skills considered by all teachers to be important are perseverance, initiative, good communicative skills, flexibility, creative thinking and ability to take decisions. Four competencies are considered important by all teachers: 'establishment of an entrepreneurial and change adaptive organisation', 'ability to deal with the uncertainties of entrepreneurial existence', 'constant alertness for market changes and technological trends' and 'organisation policy development'.

Teachers in vocational and higher education believe that the most important skill is the ability to see chances and act upon them. Teachers in general primary and secondary education do not mention this at all. They think motivation, optimistic thinking and the ability to plan are very important skills, whereas these skills do not occur in the top ten of the other sectors. Competencies in vocational and higher education are strongly oriented to customers and keeping up relationships, while in general education personal entrepreneurial behaviour and the ability to make a sound business plan are emphasised more.

Teachers are optimistic about the possibilities of promoting these key skills and entrepreneurial competencies in education. Skills with regard to communication and planning can be developed in all sectors of education. Entrepreneurial characteristics and attitudes are seen overall as more difficult to influence through education. The ability to make a business plan, marketing and analysing market changes are seen as important competencies that can be developed in education, although it is realised that these can only be rather general because of the age of students and the length of time before actually starting an enterprise. In vocational education, teachers emphasise the development of customer-oriented thinking and dealing with organisational issues in product-centred business. In higher vocational education, more emphasis is placed on organisational policy and managing people. In university, emphasis is more on organising and managing networks of services and knowledge development.

Teachers mention a great variety of activities which could be undertaken in education. These include, for example, the enrichment of enterprise plans, development of better and more activating didactic and pedagogical methods, making education more practical, and developing more explicitly social and communicative skills. Also, activities outside school are mentioned frequently and many teachers plead for more active contact with companies and confrontation with the practical problems of companies.

Teachers also discussed the barriers to more effective entrepreneurial-oriented education. The teacher is key. Even the motivated teachers in the research, who would like to play an exemplary role as a model for enterprising behaviour, see problems in their own entrepreneurial attitudes, knowledge and experience – and also in a lack of necessary preconditions in school. Many schools hesitate to focus more on entrepreneurship or are opposed to doing this. The education system itself is not very enterprising. On the other hand, teachers also resist attempts to blame the school. Education cannot solve all societal problems, like a lack of enterprising spirit and possibilities. Teachers also point to barriers and hindrances resulting from developments in companies and entrepreneurship itself, for example, the contradictory signal coming from the abolition of the general business requirements (GES) or a high employment (and pay) level. Students do not always show the necessary attitudes, capacities or interest needed for entrepreneurship.

Conclusions and Policy Recommendations

The research was done in the Netherlands and focused on the Dutch situation. It included, however, lessons drawn from an international search for literature and entrepreneurship promoting projects. European (and US) sources were very inspirational. In many respects, the Dutch situation is comparable with other European countries. Conclusions and policy recommendations, originally meant for the Dutch Committee on Education and Entrepreneurship, could be of relevance for promoting entrepreneurship education in other member states of the EU.

Towards a Longitudinal, Integral and Differentiated Approach

Although, at all educational levels, initiatives and good practices were found, a differentiated but coherent and integrative approach from primary education to university and continuing and adult education is still to be developed. This fits in with a core element in the recently launched European Committee Action Plan for the promotion of entrepreneurship and competitiveness (European Community, 1999). Sources of inspiration are found in the ICEE model (ICEE, 1998) and the Scottish Enterprise Birthrate Campaign (McVie, 1998). The model, as adopted by the programme, starts with a more general promotion of entrepreneurial attitudes in early stages to a more specifically elaborated development of entrepreneurial competencies in later stages of education.

The model connects to new developments in career and vocational guidance in secondary and vocational education. Entrepreneurship should be more promoted as a real and attractive alternative to active employeeship.

Second, it is important to take into account the different types of entrepreneurial skills distinguished in the research report: key skills and personal qualities, management competencies and entrepreneurial competencies. In enterprise-oriented education, on the other hand, the focus is mainly on the last dimension (management skills). This is also reflected in business schools that mainly prepare students for management in big business, rather than for entrepreneurship. Entrepreneurial competencies are in many cases under-represented. One important conclusion is that all three dimensions are needed for successful entrepreneurship but that more emphasis should be placed on integrating entrepreneurial competencies.

Development of Innovative and Competence-Oriented Education

Innovative competence-oriented education is a good preparation for enterprising behaviour and entrepreneurship. In learning trajectories a clear emphasis must be placed on promoting the actual and active introduction of students to personal, entrepreneurial and management aspects of enterprise. This might be by participation in shorter or longer simulations, student

competitions or mini-enterprises, as well as by contacts with real entrepreneurs, ranging from visits to enterprises and guest lectures (exemplary models) to actively carrying out assignments for, or in collaboration with, (starting) entrepreneurs. A game and competitive element looks very stimulating.

An important part of the promotion of entrepreneurship is the support and stimulation of curricular renewal, of entrepreneurial-oriented courses (trade, economy, management) and also in other sectors where entrepreneurship is a real option. Technical courses, but also services, are interesting areas in this respect. In the development of learning objectives, course profiles, vocational competence profiles and attainment norms and qualification profiles, systematic attention must be paid to entrepreneurship as a realistic career possibility to be promoted. Entrepreneurship should also be promoted in training for vocational teachers, as well as in running projects to attract people into teaching from vocational and professional practice and companies.

Learning by Practical Experience

An important result of the research is the broadly shared opinion – both in literature and by teachers and students – that learning in – and of – practical contexts is essential. Practical experience is both motivating and instructive. The game and competition element has proved inspiring. Successful and growing initiatives, such as the student management competition and foundation for mini-enterprises, seek a more integrated, possibly required, place in the curriculum. Students must have the choice to participate in these opportunities. As much of the work is presently undertaken outside regular school hours, making this a requirement would not be possible. Further, and importantly, obligatory participation by unmotivated students would put too much pressure on the team and prevent optimal learning by the other participants.

Students already build up relevant practical experience during their education years in out-of-school jobs: delivering newspapers can be construed as one example of enterprise (Fortin, 1998). Job experiences while studying should be used in education. One higher vocational school opened up the opportunity to study in students' own enterprises and to be judged by reports, work experience evaluation and assessment. Several schools started or supported entrepreneurial activities in their own neighbourhood in which students were involved.

Lifelong Learning

Entrepreneurship is an important objective of lifelong learning. As most entrepreneurs start their own business or become self-employed in later stages of life, learning possibilities and courses should be available then, when they

are about to start an enterprise. This demands focused, tailor-made and just-in-time training and knowledge sharing. Different levels and types of companies demand a differentiated approach. Next to organisational and management skills, this type of training and learning support should focus on market analysis, building and maintaining networks, etc. Bringing together business school students and starting entrepreneurs provides a learning experience on both sides (Johannisson et al, 1998).

Specific attention should be paid to beginners with a low educational level. Entrepreneurship is an option for low achievers at school, and groups can be motivating. One example is of immigrants who want to start their own company, shop or studio. Research shows that poorly educated people comprise between 34 to 40% of beginners in industry and building and 29 to 45% of beginners in restaurants. Also, the retail trade experiences a relatively large number of low-educated starters (EIM, 1999a). There appears, therefore, to be a need for preparation for entrepreneurship at lower levels of vocational education. Graduates of preparatory vocational education merit attention. They often have a contradictory image of entrepreneurship and they also lack practical preparation. Also, in the 'logical' continuation of preparatory vocational education, apprenticeship, there is little attention to entrepreneurship. As there is a rather large group of beginners at this level, there does appear to be a real need for a post-initial training offer. Local authorities, chambers of commerce, welfare departments and many foundations and organisations already initiate many activities in this field. Regional vocational colleges could be involved more by making available teachers, students, equipment and space (for example, an open learning centre) to support local and regional entrepreneurs.

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JEROEN ONSTENK works as senior consultant and researcher at CINOP, the Dutch Expertise Centre for Innovation of Vocational Education and Training. Research topics include new contents and new educational concepts in vocational training; apprenticeships in secondary vocational education; in-company training; concepts and good practices in on-the-job learning and its reciprocal relationship with organisational renewal. *Correspondence:* Dr Jeroen Onstenk, PO Box 1585, 5200 BP Den Bosch, Netherlands (jonstenk@cinop.nl).