

Vocational Education and Training and Human Capital Development: current practice and future options

MANFRED WALLENBORN

Introduction: the international debate

The international discussion about the increasing importance of vocational education and training (VET) is back on the agenda of bi- and multilateral donors (OECD, 2009a; Asian Development Bank (ADB), 2008; ILO, 2008; World Bank, 2007; DFID, 2007; European Training Foundation (ETF), 2006a; Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung (BMZ), 2006) for three reasons. First, although the UNESCO Education for All initiative has been successful in improving enrolment rates and the quality of primary education, a new problem has arisen in terms of how to promote employability among secondary education graduates. Secondly, global ecological, social and economic development trends provide a rationale for VET and human capital development, as a better skilled labour force is a required precondition for sustainable development, based on coping with ecological issues using appropriate technologies and maintaining infrastructures that minimise pollution and reduce the greenhouse effect. Thirdly, socioeconomic development requires specific kinds of qualified human capital. Whereas knowledge-based economies are likely to increase employment opportunities for non-academic post-secondary and university graduates, middle- and low-income countries are likely to require another kind of human capital stock, with emerging industries and the modern crafts sector demanding the kind of professional qualifications that cannot be acquired in general secondary education.

In the new debate, VET is considered by development experts and donors to be a specific human capital development instrument that can be effective in promoting socioeconomic progress. Investments in VET are viewed as an approach to increasing economic competitiveness and reducing poverty in the triangle of productivity, employability and sustainable growth. This has led to a new international debate on education (Asian Development Bank (ADB), 2008; Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung (BMZ), 2006), where it is recognised that educational achievement or social demand policies alone are no longer suitable reference points for international cooperation. With the new focus, the functional attractiveness of VET and human capital development has been restored after 20 years of a rather low educational profile in international cooperation. Effective VET in different environments and as a tool for overall socioeconomic development has consequences for partner country capacities — at different systemic levels — to reform, implement, manage and conduct training, but also for donor interventions (European Training Foundation, 2008). After briefly broaching the VET problems in the partner countries, we shall discuss the

above mentioned issues and draw some strategic conclusions regarding future reforms and international cooperation in VET.

Vocational Education and Training in Developing and Transition Countries

Traditional approaches to VET took an inner systemic perspective, with VET as a coherent part of the overall education system. Thus, VET could be improved to ensure that young people and adults from the lower social classes could benefit from specific educational programmes, leading to (self-) employment as workers or technicians. The 'vocalisation' of secondary education began in the 1970s (Lauglo, 2004) with a focus on the social demand for skills and competences that could be supplied to less privileged groups. The promotion of social inclusion through VET was a core objective as it would narrow educational gaps and avoid social fragmentation.

The current, more functional, discussion of VET systematically takes into account the fact that the growth, employability and productivity of individuals and enterprises all require up-to-date work-related competences rather than more general educational achievements. VET driven by a human capital development focus on employability and productivity in recent donor discussions is inspired by the evidence that VET systems are contingent on specific social and economic contexts (McCoshan, 2008; Luhmann, 1993). VET might be widespread and institutionalised in formal education system structures but it can also exist in more non-formal learning structures on farms and in enterprises. But the crucial issue is not concrete systemic structures, but the linkages between investment in training to increase human capital and accelerate economic and social progress.

This article adopts the OECD definition of human capital: 'the knowledge, skills, competencies and attributes embodied in individuals that facilitate the creation of personal, social and economic wellbeing' (OECD, 2001, p. 18) which refers to economic and social progress yet keeps the focus on individuals and their qualifications. A narrow economic definition of human capital (Ederer, 2006) does not fit with the realities of EU partner countries; most of these do not view education and training systems as driven by the 'economics of education' paradigm, despite having few resources to invest in their education system. The fact that social objectives (such as the integration of disadvantaged groups) still play an important role in educational policy making leads to different political priorities in lesser developed countries than in developed countries which have other social assistance tools and instruments.

Health assistance, nutrition and vocational guidance are available outside the education system in order to assist vulnerable groups and to better integrate them in society. These options enable education systems to strictly focus on issues such as teaching and learning effectiveness and quality. This is not the case in many EU partner countries, which frequently use the education system for basic social assistance such as nutrition and health. Even donors support such approaches to the basic development of cognitive skills, health care and nutrition in early childhood development (Gaag *et al.*, 1998) or in basic education.

VET rapidly expanded as from the 1960s, mostly under the auspices of labour or education ministries. The former Soviet Union had a school-based VET system that cooperated to some extent with enterprises. Better performing students directly took up university studies, whereas those who were destined to work

in blue-collar jobs enrolled in the VET system. Nevertheless, former socialist countries also established options for students wanting to access universities after initial vocational training. Formal technical education under the responsibility of education ministries was considered an alternative access route to post-secondary technical programmes and universities (Gallart, 2003).

Yet recent demographic developments and rising youth unemployment in Arab countries (World Bank, 2008; United Nations Development Programme (UNDP), 2006) and in some Central Asian countries have raised a fundamental question in regard to VET-driven human capital development: how can employability and productivity that contribute simultaneously to poverty reduction and economic competitiveness be fostered? This is the core issue in the international debate on sustainable VET policies.

From an institutional perspective, VET in partner countries must be considered as having to fulfil educational tasks and objectives while simultaneously making functional contributions to sustainable socio-economic development (Wallenborn, 2008). Implementation of this perspective is not always coherent because VET applies policies developed by different ministries and is also offered by the private sector — a diversity that is partly the result of existing social disparities. Furthermore, both formal and non-formal VET must be taken into account, as the latter plays a relevant role in informal learning processes supported by rural development or within the livelihood context (European Training Foundation, 2009; Atcharena, 2006). In all these different approaches to training, there is a need to outline the relevance for human capital formation so as to achieve development goals, such as poverty alleviation through income generation, greater equity in education systems and enhanced skill-based productivity and employment.

The specific contribution of VET in a human capital development perspective is its capacity to enhance the productivity of individuals and enterprises for economic consolidation and social wellbeing (Wallenborn, 2004). Functional aspects such as labour market relevance, environmental issues and employability are more relevant than educational achievements. Moreover, even developing countries need to consider VET reforms to be a precondition for the development of transnational economies that are capable of attracting foreign direct investment through a suitable human capital structure (Miyamoto, 2003).

Vocational Education and Training in Different Contexts

The educational structures of the former Soviet Union are still in place in many Central Asian countries. VET is mostly delivered in schools, taking little account of the new demands of the emerging economy. Technological development is moving fast in rapidly growing economies like Kazakhstan and in dynamic sectors in other countries. The private sector, however, needs a better qualified workforce. New approaches in Kazakhstan favour cooperation with the private sector and enterprise-targeted VET in order to develop its human capital stock. Training is partly organised in a work-based mode. These efforts are inspired in findings that, in Asia, ‘accumulations of human capital cannot be separated from productivity growth; they are positively associated with catching-up efficiency and, therefore, productivity growth’ (Ching-Cheng & Been Lon, 2004, p. 120).

Countries with non-dynamic economic development offer mostly school-based VET. Training contents are still related to the traditional professions of a former Communist economy and are not adapted to new markets and the requirements of

migrants. Before the current economic crisis, countries like Tajikistan had constant annual growth rates of around 7% (European Training Foundation, 2009), primarily in emerging economic sectors which require a better qualified labour force. But qualified workers are not always available because of the mismatches mentioned above. However, human capital development strategies do not sufficiently contribute to:

- (a) Ensuring better employability in rapidly changing economic environments (European Commission, 2009).
- (b) Delivering income-generation and self-employment skills to rural target groups that reduce rural-urban social and economic disparities (Wallenborn, 2009).
- (c) Developing the qualifications required by external markets for the proportion of the labour force that temporarily migrates in response to modest national demand for workers and increasing population pressures (Asian Development Bank (ADB), 2008).

VET in many countries is still driven by social demand and focused on educational objectives alone. A good example is Egypt, where 55% of all secondary students participate in school-based VET (Arab Republic of Egypt Ministry of Education, 2008) of little relevance to the labour market. Functional VET contributions to productivity and employability are still the exception. VET, however, needs to be removed from educational ivory towers. The Asian Development Bank (ADB) (2008, p. 126) underlined the need for a 'mental shift' from traditional VET approaches to context-related world-of-work competences. This requires practical technological knowledge, flexibility, better productivity and enhanced labour market perspectives in order to reduce education-to-work transition costs.

VET systems and international cooperation in VET need to be better adapted to the particular circumstance of countries. EU neighbouring countries are at different stages of development. They can be classified in three main categories in terms of economic activities and labour market characteristics (Wallenborn, 2004) as follows:

- (a) Regions and sectors in more advanced countries with emerging markets and with production that is partially knowledge-, services- and technology-based. These economies require a highly qualified work force at the secondary and post-secondary levels. Their private sectors have the resources to purchase market-based solutions to skills development in order to improve their human capital stock.
- (b) Economies characterised by conventional trade and industrial production methods and management. The quality/price relationship for investment and consumer goods is not sufficiently favourable for these countries to successfully compete in global markets, and this is partially a consequence of a lack of professional competences. The sales potential of the national markets has tended to be affected by globalisation and many affordable products meeting a certain quality standard are imported, both legally and illegally.
- (c) Economies (partly rural regions) that are increasingly developing informal activities or are dominated by informal activities carried out with scarce

resources and mostly using poorly skilled labour, with the consequence that production is frequently combined with precarious self-employment. Structural shortfalls in capital and know-how, volatile demand and a high rationalisation potential contribute to a harsh business environment. Poverty alleviation and pro-poor growth strategies overlook human capital development as a means of overcoming restrictions in access to financial and other markets and improving production facilities.

The distinction between these economies aims to improve the understanding of sustainable human capital development needs and strategies in VET. Indeed, the segments overlap in some of the more advanced countries, such as Russia, Kazakhstan, Egypt and Tunisia, where highly developed service and manufacturing activities co-exist with outdated production processes. In emerging markets such as Russia or Kazakhstan the industrial sector continues to stagnate, in contrast with high growth rates in high-tech sector services and sales and even in the informal sector. In both these countries, natural resource extraction had boomed before the economic crisis, increasing the demand for a technologically up-to-date labour force.

These segments need different VET-driven human capital development approaches. There is also an urgent need for lifelong learning, even in the informal economy and in countries like Tajikistan (European Training Foundation, 2006b). This has consequences for human capital development and requires new strategies promoted by specific VET schemes that take into account different target groups and competence levels. Although balanced growth strategies and investments in human capital in some countries (Korea, Taiwan and Malaysia) have largely eliminated the informal economy, it is questionable whether this economic development paradigm is valid for EU partner countries, where economic growth on the scale of the former Asian tigers only occurs in some sectors. Unemployment has grown in many countries and this has widened socioeconomic disparities further (OECD, 2009b).

More functional human capital strategies are only partially applied in successfully performing economic sectors and, consequently, private training providers — which cope better with changing qualifications, offer practical training and are more flexible — are emerging in countries with growing purchasing power, bridging the gaps between private sector demand and public-driven VET supply.

Some regions of China and India that are excellent examples of high-tech agglomerations with good human capital endowment have developed strategies which are missing in EU partner countries, for example:

- (a) The establishment of learning environments and flexible organisational structures in VET centres and in firms that are aware of the importance of human capital development strategies.
- (b) The promotion and development of dynamic and self-organised cooperative economic clusters of different firms, designed to deal with rapidly changing technologies and with lifelong learning strategies that ensure connectivity with global economic and technological developments.

Partner countries can learn from developments in the Indian and Chinese economies, where VET systems have been made more flexible and modes of delivery

have been created that specifically focus on the skills and competences required in different economic sectors and by the labour market (contextualisation).

Constraints on Functional Levels of Vocational Education and Training Systems

Nearly all the EU partner countries are confronted with similar structural problems that hamper the effective and efficient delivery of high quality VET programmes. These could be classified in terms of three main problem areas:

- (a) An incoherent political framework and a lack of decentralisation and management policies for both formal and non-formal VET.
- (b) Poor VET performance in terms of quality, labour market relevance and organisational capabilities (Fretwell & Wheeler, 2001) and severe problems in implementing reforms and even smaller innovations.
- (c) Ineffective management and planning expertise and poor teacher and trainer performance (Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung (BMZ), 2006; Gasskov, 2000).

The logic of quality assurance interventions distinguishes between problems at various systemic levels in education and training. This kind of analysis aimed at understanding and improving systems is necessary before any kind of intervention can take place (CEDEFOP, 2007). It is also important from the perspective of international cooperation and the design of suitable intervention instruments. Below we summarise the main problems at different systemic levels.

The Decision-making Level

Although some partner countries became independent after the breakup of the Soviet Union, the inherited VET systems essentially remained unchanged. Internal systemic problems, including outdated curricula, poor quality teacher training and funding instability were accompanied by a lack of effective reform policies. Moreover, in many Central Asian countries, cultural traditions and priorities favoured general and higher education reforms. VET has traditionally been viewed as a second-best alternative for the lower socio-economic classes and poorly performing students. Hence, no clear linkages were established between VET systems and more strategically formulated human capital development policies.

The prevailing social demand focus has favoured a public-driven VET system; furthermore, the opinions of education and training policy makers have not changed substantially since the breakup of the Soviet Union. However, 'an increasing value is therefore given to human capital' (European Training Foundation, 2002, p. 33) as private sector demand for particular skills grows. Better performing economies like Kazakhstan and the Russian Federation are fully aware of the strategic role to be played by VET in human capital development; in other Commonwealth of Independent States, however, there are no clear political statements on human capital development.

Russian policy makers recognise the important role of the private sector in implementing innovative VET programmes aimed at human capital development. The private sector pushes in its own interests in the development of VET programmes and favours new modes of delivery that cannot be designed and

implemented by public schools. Policy makers are thus confronted with two main challenges:

- (a) The need to guarantee the coherence of demand-driven VET programmes.
- (b) The need to build on social partnership in education and training and private sector know-how and resources in order to contribute to the further improvement of VET in emerging economies or in certain economic sectors.

Other partner countries in Central Asia and North Africa are developing innovative VET policies (Arab Republic of Egypt Ministry of Education, 2008), albeit slowly, for a number of reasons. Firstly, scarce public resources and other political priorities mean that neither education nor VET can be used as a strategic instrument for human capital development (European Training Foundation, 2007a). Secondly, an economically stagnant environment provides little stimulus for VET reforms; to cite an appropriate formula from a World Bank policy paper (1991): no demand, no training. In poorly performing economies, the private sector does not pressurise policy makers; furthermore, unlike what happens in better performing economies, constraints on enterprise development are not linked to shortages of skilled workers (OECD, 2006). Finally, and despite the best practice examples from other countries, a lack of strategic vision together with weak innovation and reform implementation capacity foster a status quo. More successful countries like China, Malaysia and Korea have prioritised investments in education and training to promote socio-economic objectives. The challenge for policy-makers is to strike the right balance between general education and VET, not to prioritise either VET or general education.

Considering global economic trends, the forecast for EU member states between 1996 and 2020 is that employment will fall from 7.8% to 3.8% in the primary sector and from 28.7% to 21.5% in the manufacturing sector, due mainly to outsourcing in the globalised economy. According to the European Restructuring Monitor database, most jobs (51.5%) that have been transferred abroad from EU member states are in manufacturing or in production (European Commission, 2009). The service sector, however, will grow in the same period, from 65.4% to 74.8% (CEDEFOP, 2008).

A considerable proportion of outsourced manufacturing and service activities from the EU and other developed regions will shift to countries with an adequate stock of human capital that are capable of meeting the challenge of producing good quality at lower prices. Hence, Europe's neighbours must focus on human capital development and a respective political commitment like in Montenegro. In 2006, the country already spent 17.47% of total public expenditure for education, equivalent to 4.55% of the Gross National Product (European Training Foundation, 2007b). This has consequences for policies, the allocation and management of public and private resources and education and training system reforms. A good practice example for VET is provided by Chile, where stakeholder-driven educational reform was introduced after radical political changes. A country-specific political consensus led to higher-quality teacher training and part-privatisation of education (Cox, 2006). Brazil has also involved private stakeholders in VET programme design, financing and organisation (Lanzendorf, 2000).

The Management Level

Although better VET school and in-company training performance can enhance quality, many training centres do not have quality assurance mechanisms in place. Moreover, training institutions in many countries cannot expect much-needed immediate innovations such as:

- (a) Decentralised and more autonomous VET provision with better linkages to regional economic and social environments.
- (b) Ownership-driven social partnerships at the regional and local levels ensuring feedback and the assumption of responsibilities for adjusting training to changing environments.
- (c) Specialist research institutes contributing to policy learning (European Training Foundation, 2008) and reform by analysing emerging labour market demands and occupational trends.
- (d) Vocational guidance institutions delivering updated services for changing markets to targeted groups and sectors in the economy (Zelloth, 2009; Hansen, 2006).

The challenge facing partner countries is that efficient and effective VET institution performance requires a legal framework that guarantees some level of autonomy, sufficient resources and better trained management in order to develop a social-partnership-driven vision that goes far beyond mere bureaucratic management (Sahlberg, 2010).

Strategic Target Groups at the Micro Level

Public and private teaching staff play a key role in VET systems. 'A high-quality teacher workforce is crucial for the performance of education and training systems as a basis for future global competitiveness' (Schlotter, 2008, p. 9). The role of VET teachers and trainers has not as yet, however, been brought to bear sufficiently on innovative changes in teaching. Teachers are not well paid and receive little further training in technical subjects.

Quality suffers notably and the VET systems tend to lose qualified teaching staff, who are poached by industry that offer higher salaries. This is a critical issue: how to ensure, as part of a staff development strategy, that teachers teach well and that training institutions provide better quality teacher training. At present, nobody has an answer to this problem. Incentive-driven systems, based on better wages and innovative recruitment policies and also on new VET services, do not exist in most Central Asian and Arab countries. This keeps teachers at the lower end of the salary scale for civil servants. This does not mean that nothing can be done; reform and innovation do not exclusively depend on financial resources, as it is possible to effectively build on existing VET structures.

Opening schools to meet local training needs and linking these schools to adult demands for training to generate additional income are viable alternatives in many countries (European Training Foundation, 2009). They build on available VET structures and give more freedom to local providers in Kyrgyzstan to generate additional income through service delivery to rural adults (Castel Branco, 2006). New skills are frequently a precondition for raising productivity levels and generating more income. A country-specific mix of traditional services and new VET

programmes meeting specific demands is a viable way to offer incentives in the form of additional income to VET experts who might otherwise leave the sector. Furthermore, there is evidence that even poor people in Central Asia are willing to pay for training if the new skills may raise their incomes (Wallenborn, 2009).

Demand and requirements for education, training and human capital development are generally more varied in developing countries than in developed countries. This should not necessarily hamper the systemic adjustment of VET to new challenges in human capital development. On the contrary, it could promote a more targeted approach to the requirements of different economic sectors and population groups. For many countries with scarce resources for investment in education, two options are available for reform strategies:

- (a) Using existing VET premises more efficiently in multi-functional contexts that include initial VET and adult learning programmes (emergent solutions for local challenges) as an alternative to investing in new, expensive VET premises (Asian Development Bank (ADB), 2008).
- (b) Mobilising additional resources for demand-driven VET programmes from beneficiaries and the business sector (Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung (BMZ), 2006), thereby fostering human capital development that is adapted to the specific needs of the economy.

The Logic of Intervention Versus Intervention Logic

VET systems have complex structures which cannot be adequately analysed by looking at internal efficiency aspects, especially when reforms are envisaged. These systems have multi-functional interrelationships with other systems, including general education, the labour market, the world of work and the legal and economic systems. These complex interactions do not follow simple input-output mechanisms; furthermore, they imply certain contingencies (Wallenborn, 2008). Interventions for reform must take account of this complexity by incorporating concepts of emergence (Mason, 2009) which could promote systemic solutions that cannot be planned, deduced or identified by looking at parts of the existing system (Luhmann, 1993). New training programmes offered to different target groups by Central Asian VET systems are good examples of emergent adaptations of systems to a changing environment (European Training Foundation, 2006).

Moreover, although world economic growth rates were relatively high and stable before the economic crisis, their impact on employment and on decent work opportunities was modest in the partner countries (OECD, 2009a). Jobless growth in the decade before the economic crisis led to higher employment rates in the informal sector and unsuccessful transition paths from informal to formal employment (European Training Foundation, 2005). Informal employment increased in all regions of the world, with some exceptions in Europe (European Foundation for the Improvement of Living and Working Conditions (EFILWC), 2008) and Asia. The share of informal employment in total non-agricultural employment is today over 50% in Latin America and about 70% in South and Southeast Asia. In the transition countries, 24% of the labour force work in the informal sector (OECD, 2009a). Hence, there are good reasons to orientate VET reforms towards better employability. Such approaches, however, must consider labour market trends and data from reliable manpower forecasts. This could avoid overinvestment

of public resources in VET, which is more expensive than general education. The option also exists of emerging private industry meeting urgent or short-term skill shortages by providing on-the-job training and resources.

VET for successful human capital development must deal with the upcoming complexity-driven problem of 'structural inertia' (Schreyoegg *et al.*, 2007). This new issue in many social systems is influenced by a rapidly changing globalised economy. The VET systems are confronted with strong and partly unforeseeable influences from the global economy: 'theoretically, we have a long way to go in understanding the complexity of the interactions amongst education, skills and sustainable growth' (King, 2009, p. 181). This makes it difficult to explore future labour market demands on human capital. Interventions and reform efforts consequently run a high risk of failure (European Union, 2008) given that interrelationships and outputs arising from various factors influencing VET systems in changing environments are not sufficiently predictable.

Reforms in VET systems must therefore build on existing structures. Heyne-man (2003, p. 333) stated that 'there is no single international institution with the capability to track, much less ameliorate, educational problems', and continued that 'one option might be to place analytic capacity in the hands of the countries themselves'. This is a clear option for the internationally supported capacity development of local actors, such as teachers, trainers, VET experts and researchers, parental associations and social partners. Reforms of VET systems must not only be designed but also implemented, and this is the weakest point in many interventions, which systematically underestimate the time horizons and local capacities required for implementing reforms (OECD, 2008) and because 'policies tend to be adopted and implemented through political processes that reflect the relative power of contending groups more than the relative merits of policy options' (Malen, 2006, p. 83).

Reform processes are not linear nor can they be organised top down. They require time and learning loops for the stakeholders and experts. In complex societies, traditional paradigms for change are no longer valid. Mechanistic thinking is that new knowledge leads to new regulations and laws and ultimately to the implementation of reforms. This is an overly simplistic vision for reforms in today's systems. Iterative intervention strategies take account of traps and errors in implementation processes caused by interrelationships with other systems in society. What a project planning tool such as logical framework calls an 'assumption' is not predictable auto-dynamic resistance, restriction or rejection from social groups who are active in or concerned with educational reforms. Participatory reform approaches are therefore the only viable strategy. The education reform process in Chile is, perhaps, one of the best examples from developing countries. Innovations were owner-driven and dialogue-based. Chilean decision makers availed of national and international expertise for implementation and monitoring and implemented capacity-building programmes for the national experts at all functional levels of the system (Cox, 2006).

Many stakeholders in VET systems must be convinced of, and then actively co-opted into, reform implementation initiatives. The private sector is currently facing technological and economic challenges while trade unions are fighting for higher wages and decent work opportunities. Both have a strong interest in human capital development. Hence, several learning and discussion loops can be integrated in implementation processes at different systemic levels. These include

discussing the perceptions of reform and the potential rejections, obstacles, needs and demands of the experts involved.

Apart from the discussion on the international cooperation instruments best suited for interventions in VET systems, the issue of uncertainty about the impact of interventions on social systems (such as education systems) is acknowledged in bi- and multilateral aid (World Bank, 2005). Moreover, the social systems theory points to the relevance of self-referential codes: systems, with internal dynamics that are complex and partly non-formal, apply these codes. They have their own agenda, which they do not want to share with others (de Moura Castro, 2009). External intervention therefore encounters a certain uncertainty. This is why logical frameworks rely on assumptions, as there is no knowing what interventions can really change VET systems and what elements are the most relevant for the envisaged outcomes. Non-linearity of reactions is an important issue when interventions meet systems with proper self-referential codes (Mason, 2008). These are additional arguments for donor strategies that build on existing educational structures. This option gives priority to action which could further develop local and national potential towards greater efficiency and effectiveness.

Perspectives for Human Capital Development Contributions to Vocational Education and Training

The human capital requirements are rapidly changing and are also affected by key factors such as innovations in trade, technological change, the organisation of production, cost-benefit considerations and global outsourcing of production and services. Such issues immediately challenge VET systems because they require adjustments in terms of world-of-work competences. General education is less affected because structural linkages to the world of work are not so tight. This difference with other educational sub-systems implies that specific approaches to reforming VET systems are required. Moreover, reforms operate in a sensitive environment of social partnerships, the economy, technological innovation and labour markets.

Qualification needs differ from country to country according to economic structures. But the standards in many sectors of the economy — such as energy production, car and aircraft maintenance, emerging green technologies and information and communication technologies — will be very similar worldwide and will challenge existing human capital development strategies even in the least developed countries. The trend is for technologies to globalise and this requires that a certain share of the labour force in a country will be able to cope with these technologies.

Donors consider VET contributions to human capital development in a framework of sustainable socioeconomic development (Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung (BMZ), 2006), distinguishing between different competence areas related to specific stages of development in partner countries (Asian Development Bank (ADB), 2008), classified as follows:

- (a) Factor-driven growth and low-cost manufacturing countries which require lower levels of competences for the predominant natural resource extraction sector.
- (b) Transitional economies where VET reform that fosters flexibility and market-driven VET programmes is urgently required.

- (c) Investment-driven economies with considerable ongoing growth accompanied by a growing demand for VET competences at the secondary and post-secondary levels.
- (d) Countries where growth is mainly and consistently driven by innovation and where creativity and innovation require science- and engineering-based higher education.

The first three categories are relevant to the EU partner countries and partially overlap. Countries in the first category require specific and targeted non-formal VET programmes that increase opportunities for (self) employment and income generation. Greater vocational flexibility and an emphasis on individual competences are therefore urgently required. Informal sector and rural population groups can also benefit from such programmes, which contribute simultaneously to poverty reduction; apart from hands-on technical qualifications, such groups need business skills for income generation through self-employment. Countries in the second category need linkages to the private sector and schools providing short-term training in modern trades, based on updated curricula and new training facilities (in both schools and enterprises) and also better trained teachers and trainers. Pilot schools and selected professional areas could develop best practices, which could be replicated through peer-learning and network activities and fostered by ownership and political power. Inefficient VET schools with outdated programmes should be closed down, using the resources for human capital development in other areas, for example, post-secondary VET.

VET needs to build on a solid general education which promotes lifelong learning motivation because future competences are likely to be hybrid and might rapidly change. Only countries with substantial natural resources and strong export trade can afford publicly funded reforms. Such initiatives in poorer countries require financial assistance from future beneficiaries and/or the private sector which could participate in designing, financing and implementing demand-driven training.

VET and general education student numbers do not follow universal criteria but rely on contingency-driven country-specific cultural and economic realities. Emerging countries can benefit from the ongoing outsourcing of industrial production processes — for which a well-prepared human capital stock is a precondition. Middle-income countries are already producing at a significantly high technological level, and this is likely to be built on further.

Two issues in the partner countries remain fundamental. Firstly, and most importantly, is the scarcity of resources combined with low educational achievements. An example is Croatia. The 2001 Census revealed that 18.5% of the population had none or only a few years of formal education in elementary schools with no final certificate (European Training Foundation, 2007). Secondly, decision makers should have a clear understanding of how VET can contribute to human capital development and of what makes the difference to general secondary or post-secondary education. This requires a sound analysis of existing, school-based VET systems and of country-specific economic and labour trends. The European Training Foundation (ETF) provides a better understanding of the complex interrelationships between VET and other systems and highlights the need for quality in VET. Certain skills, knowledge and competences — such as how to weld different materials, turn a specific piece of metal, mill high-tech pieces or repair

and maintain heavy machinery and infrastructure — can only be effectively acquired outside the classroom. Technical systems which avoid pollution or use renewable energies must be invented but also effectively implemented, maintained and repaired. Such qualifications are not entirely deliverable in classrooms. Learning inside and outside classrooms can be combined in different modes. Although an enhanced general education level and sound generic competences will be the best starting point to enter the VET systems of the future, this does not detract any value from non-school learning and suitable learning arrangements in the world of work, in laboratories and on farms (OECD, 2009).

The issue is not having better educational achievement but having suitable competences that are relevant for the labour market. Although the assumption of contingency is valid for VET systems, effective training for industrial processes, modern crafts and agricultural professions can only be delivered in suitable learning environments. This was even recognised in the former Soviet Union (Fretwell *et al.*, 2001), where large firms were involved in VET delivery. General education is relevant, but the ‘low-skills equilibrium’ (Giguère *et al.*, 2009) can only be abolished mid-term with effective VET. Private firms currently have no incentives for investment because the existing human capital stock is inadequately qualified.

Effective VET contributions to human capital development take into account the specific combination of technical and generic skills required to work productively in the economy. VET is not just another mode of education but a process to transmit professional competences in a context of productivity, employability and sustainable growth. Whether more complex qualifications profiles are required will depend on the organisation of production and the division of work. Initial and further training cover different human capital requirement stages in a way that general education cannot because of its structural limitations in regard to the world of work and its different objectives. This is why a healthy economy like Spain’s Catalonia is aiming ‘to deliver more and better initial vocational training with a 40% increase in vocational training participants’ (Simmonds, 2009, p. 154) between 2008 and 2010. Labour market research has revealed an imbalance between the competence profiles of general education leavers and the human capital requirements of the private sector. Accelerated technological development in a globalised economy will require even more technological competences in the future. The increasing share of post-secondary VET in developed and middle-income countries is evidence of the demand for qualifications using globalised technology (ECOTEC, 2008).

Conclusion

Secondary and post-secondary VET are contingent because training systems are social constructs influenced by many stakeholders with different interests. But the ‘mental shift’ (Asian Development Bank (ADB), 2008) in VET is of utmost importance for all countries. It requires partner countries to reform VET in terms of socioeconomic objectives such as sustainable growth, high employment rates and productivity, and in this it is different from general education, regardless of the fact that it must build on high quality general education. This new approach to reform is imperative, as contributions to human capital derive from a strategic rather than an educational focus, a position corroborated by evidence from developed or even middle-income countries which have VET systems with the following characteristics:

- (a) They are decentralised and are at least partly privately influenced or managed.
- (b) They provide sufficient autonomy for self-organised problem solving by different expert groups.
- (c) They are mainly (co- or multi-) financed by contributions from specific economic sectors and beneficiaries.
- (d) They allow for stakeholder dialogue and give high priority to local human development needs.

What is referred to in terms of the 'adaptability of the work force' (Simmonds, 2009, p. 150) will also play an important role in the partner countries, with new technologies, qualifications for migrants and ongoing economic adjustments to the demand context expected to make an impact. Qualifications suited to the world-of-work may build on general education but go far beyond it in terms of technological competences. Apart from initial VET, specific work-related deliveries that add to the human capital stock will play a major role in the future.

VET contributes to human capital development through its direct linkages with technological standards, the organisation of production processes and culture-specific division of work, all of which require work-related upper secondary and post-secondary qualification profiles. These specific links are what distinguishes VET and its contribution to human capital development from other educational services. VET is not better or worse, simply different.

ETF discusses with its partners VET issues at the crossroads of the general education system, labour markets and economic, ecological and technological development stating that there are no universal solutions for the complex problems raised by human capital development. These are the starting points for international cooperation in VET. VET contributes best to the development of human capital when the following conditions are met:

- (a) When a sound and lifelong learning focused VET policy considers pluralistic contributions of different players as a systemic enrichment in order to design, finance and conduct VET.
- (b) When VET systems are based on institutionalised communication between social partners and close cooperation between private and public stakeholders (Rauner, 2009).
- (c) When training programmes and flexible VET systems develop a robust correlation with rapidly changing technologies and economies, based on sound labour market information.
- (d) When VET programmes are targeted to socioeconomic environments and labour markets requiring specific professional competence profiles of different social groups.

Such functional contributions to human capital and sustainable development are better achieved in training programmes that are adapted to the world of work than in those based on school-centred VET approaches: 'whenever projects have succeeded in building close linkages between employers and the training system, the resultant training has become cost-effective and relevant to the needs of the market' (Canagarajah *et al.*, 2002, p. 33). Sound VET structures lead to the design and implementation of training programmes that promote progress through the

achievement of socio-economic goals such as employability, productivity and sustainable growth. Systemic involvement of the private sector accompanied by labour market research can deliver reliable indicators that strategically determine general and VET education shares at the secondary and post-secondary levels.

VET can also contribute to environmentally sustainable progress. Many recent solutions for improving ecological environments (e.g. low-energy-consumption homes and devices, pollution-reducing filter systems) are associated with new content in education and technical competences in VET. Lower energy consumption by engines, efficient installation and maintenance of power plants and premises for processing natural energy and resources have enormous consequences for VET curricula and emerging professions. Sustainable ecological development combined with social and economic progress is today impossible without the technical qualifications that can be obtained in secondary and post-secondary VET.

ETF has discussed similar conclusions with partner countries and donors at different levels with a view to optimising and coordinating international contributions to VET reform driven by human capital development. What is required is more country-specific research into important issues such as labour markets, migration and human capital reviews. ETF is conducting research into these issues in various regions (Black Sea) and countries (Moldova, Tajikistan) and will, in the future, analyse in greater depth the environments and country specific-factors that favour sustainable reforms.

NOTE

The contents of this article are the sole responsibility of the author and do not necessarily reflect the views of the European Training Foundation (ETF) or the European Union.

REFERENCES

- ARAB REPUBLIC OF EGYPT MINISTRY OF EDUCATION (2008) *Towards an Educational Paradigm Shift, 2007/2008–2011/12* (Cairo, Arab Republic of Egypt).
- ASIAN DEVELOPMENT BANK (ADB) (2008) *Education and Skills: strategies for accelerated development in Asia and the Pacific* (Manila, Department of External Relations).
- ATCHOARENA, D. (2006) Poverty reduction and EFA in rural China: The role of universities, *Norrag News*, 37, pp. 26–27.
- BUNDESMINISTERIUM FÜR WISSENSCHAFTLICHE ZUSAMMENARBEIT UND ENTWICKLUNG (2006) *Technical and Vocational Education and Training and the Labour Market in Development Cooperation* (Bonn, Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung).
- CANAGARAJAH, S., DAR, A., NORDING, R. & RAJU, D. (2002) *Effectiveness of Lending for Vocational Education and Training: lessons from the World Bank experience*. Discussion Paper No. 0222 (Washington, DC, World Bank).
- CASTEL BRANCO, E. (2006) Training Strategies for Local Development, in: *ETF Yearbook. Skills development for poverty reduction* (Luxembourg, EU Publications Office), pp. 69–84.
- CEDEFOP (2007) *Indicators for Quality in VET* (Luxembourg, EU Publications Office).

- CEDEFOP (2008) *Briefing note: mind the gap: Europe's potential skills deficit* (Thessaloniki, CEDEFOP).
- CHING-CHENG, C. & BEEN LON, C. (2004) Productivity growth and catch-up in less-developed economies, in: M. BOLDRIN, B.-L. CHEN & P. WANG (Eds) *Human Capital, Trade and Public Policy in Rapidly Growing Economies. From Theory to Empirics* (Northampton, MPG Books Ltd), pp. 93–129.
- COX, C. (2006) *Policy Formation and Implementation in Secondary Education Reform: the case of Chile at the turn of the century*. Education Working Paper Series No. 3 (Washington, DC, World Bank).
- DE MOURA CASTRO, C. (2009) Does aid aid? *Norrag News*, 42, pp. 36–38.
- DFID (2007) *Educating out of Poverty* (Edinburgh, DFID).
- ECOTEC (2008) *Beyond the Maastricht Communiqué: Developments in the opening up of VET pathways and the role of VET in labour market integration. Consolidated final report* (Birmingham, ECOTEC).
- EDERER, P. (2006) *Innovation at Work: The European Human Capital Index* (Brussels, Lisbon Council).
- EUROPEAN FOUNDATION FOR THE IMPROVEMENT OF LIVING AND WORKING CONDITIONS (EFILWC) (2008) *More and Better Jobs: patterns of employment expansion in Europe* (Luxembourg, EU Publications Office).
- EUROPEAN COMMISSION (2009) *New skills for new jobs: Anticipating and matching labour market and skills needs* (Luxembourg, EU Publications Office).
- EUROPEAN TRAINING FOUNDATION (2002) *Central and Eastern Europe. Key Indicators on Vocational Education and Training* (Luxembourg, EU Publications Office).
- EUROPEAN TRAINING FOUNDATION (2005) *Unemployment in Jordan* (Luxembourg, EU Publications Office).
- EUROPEAN TRAINING FOUNDATION (2006a) *Skills Development for Poverty Reduction* (Luxembourg, EU Publications Office).
- EUROPEAN TRAINING FOUNDATION (2006b) *The Reform of Vocational Education and Training in the Republic of Tajikistan* (Luxembourg, EU Publications Office).
- EUROPEAN TRAINING FOUNDATION (2007a) *Labour Markets in the Western Balkans. Challenges for the Future* (Luxembourg, EU Publications Office).
- EUROPEAN TRAINING FOUNDATION (2007b) *Financing Vocational Education and Training: priorities and mechanisms in South Eastern Europe* (Luxembourg, EU Publications Office).
- EUROPEAN TRAINING FOUNDATION (2008) *Policy Learning in Action* (Luxembourg, EU Publications Office).
- EUROPEAN TRAINING FOUNDATION (2009) *Innovative Training for Poverty Reduction in rural Central Asia, Inform 1* (Turin, ETF) pp. 1–4.
- EUROPEAN UNION/EUROPE AID (2008) *Reforming Technical Cooperation and Project Implementation Units for External European Aid provided by the European Commission: A backbone strategy* (Luxembourg, EU Publications Office).
- FRETWELL, H. & WHEELER, A. (2001) Russia: Secondary education and training, in: WORLD BANK (Ed) *Secondary Education Series* (Washington, DC, World Bank).
- GAAG, J. & JEE-PENG, T. (1998) *The Benefits of Early Child Development Programs: an economic analysis* (Washington, DC, World Bank).
- GALLART, M. A. (2003) *Tendencias de la Educación Técnica en América Latina. Estudios de Caso en Argentina y Chile* (Paris, Institute for International Educational Planning).

- GASSKOV, V. (2000) *Managing Vocational Training Systems. Handbook for Senior Administrators* (Geneva, International Labour Organisation).
- GIGUÈRE, S. & FROY, F. (2009) New framework for labour market policy in a global economy, in: OECD (Ed) *Flexible Policy for More and Better Jobs* (Paris, OECD).
- HANSEN, E. (2006) *Career Guidance: a resource handbook for low- and middle-income countries* (Geneva, International Labour Organisation).
- HEYNEMAN, S. P. (2003) The history and problems in the making of education policy at the World Bank 1960–2000, *International Journal of Educational Development*, 23, pp. 315–337.
- ILO (2008) *Skills for Improved Productivity, Employment Growth and Development* (Geneva, International Labour Organisation).
- KING, K. (2009) Education, skills, sustainability and growth: complex relations, *International Journal of Educational Development*, 29, pp. 175–181.
- LANZENDORF, U. (2000) Der ‘National Dienst fuer industrielle Lehrlingsausbildung (SENAI) in Brasilien’, in: W. D. GREINERT (Ed) *Organisationsmodelle und Lernkonzepte in der beruflichen Bildung* (Baden-Baden, Nomos), pp. 87–118.
- LAUGLO, J. (2004) *Vocationalisation of Secondary Education Revisited* (Washington and Bonn, Springer).
- LUHMANN, N. (1993) *Soziale Systeme. Grundriss einer allgemeinen Theorie* (Frankfurt, Suhrkamp).
- MALEN, B. (2006) Revisiting policy implementation as a political phenomenon: the case of reconstitution policies, in: M. I. HONIG (Ed) *New Directions in Education Policy Implementation: confronting complexity* (Albany, SUNY Press), pp. 243–267.
- MCCOSHAN, A. (2008) *Beyond the Maastricht Communiqué: developments in the opening up of VET pathways and the role of VET in labour market integration* (Birmingham, Priestley House).
- MASON, M. (2008) Complexity theory and its implications for educational change, in: M. MASON (Ed) *Complexity Theory and the Philosophy of Education* (Chichester, Wiley-Blackwell), pp. 35–49.
- MASON, M. (2009) Making educational development and change sustainable: Insights from complexity theory, *International Journal of Educational Development*, 29, pp. 117–124.
- MIYAMOTO, K. (2003) *Human capital formation and foreign direct investment in developing countries*, *OECD Working Paper No. 211* (Paris, OECD).
- OECD (2001) *The Well-being of Nations. The Role of Human and Social Capital* (Paris, OECD).
- OECD (2006) *Policy Framework for Investment. A Review of good Practices* (Paris, OECD).
- OECD (2008) *Effective Aid by 2010? What it will take — key findings and recommendations* (Paris, OECD).
- OECD (2009a) *Learning for Jobs, OECD Policy Review of Vocational Education and Training: initial report* (Paris, OECD).
- OECD (2009b) *Is Informal Normal? Towards more and better Jobs in Developing Countries* (Paris, OECD).
- RAUNER, F. (2009) *Steuerung der beruflichen Bildung im internationalen Vergleich* (Guetersloh, Bertelsmann Stiftung).

- SAHLBERG, P. (2010) Rethinking accountability in a knowledge society, *Journal of Educational Change*, 11, pp. 45–61.
- SCHLOTTER, M. (2008) *The Future of European Education and Training Systems: key challenges and their implications. Analytical report for the European Commission prepared by the European Expert Network on Economics of Education (EENEE)*. <http://www.education-economics.org/>.
- SCHREYOEGG, G. & KLIESCH-EBERL, M. (2007) How dynamic can organizational capabilities be? Towards a dual-process model of capability dynamization, *Strategic Management Journal*, 28, pp. 913–933.
- SIMMONDS, D. (2009) What can governments do to meet skills and employability challenges at the local level? in: OECD (Ed) *Flexible Policy for more and better jobs* (Paris, OECD) pp. 176–211.
- UNITED NATIONS DEVELOPMENT PROGRAMME (UNDP) (2006) *The Arab Human Development Report 2005* (New York, UNDP).
- WALLENBORN, M. (2004) Vocational training — awareness of local conditions, *Development and Cooperation*, 45 http://www.inwent.org/E+Z/content/archive-eng/05-2004/tribune_art3.html.
- WALLENBORN, M. (2008) Are recent development strategies really doing better? The new aid architecture for VET, *Norrag News*, 41, pp. 92–95.
- WALLENBORN, M. (2009) Skills development for poverty reduction (SDPR). The case of Tajikistan, *International Journal of Educational Development*, 29, pp. 550–557.
- WORLD BANK (1991) *Vocational and Technical Education and Training, A World Bank Policy Paper* (Washington, DC, World Bank).
- WORLD BANK (2005) *Education Sector Update Strategy. Final Draft presented to the Board of Directors* (Washington, DC, World Bank).
- WORLD BANK (2007) *World Development Report* (Washington, DC, World Bank).
- WORLD BANK (2008) *Road not Travelled. Education Reform in the Middle East and Africa* (Washington, DC, World Bank).
- ZELLOTH, H. (2009) *In Demand: career guidance in EU neighbouring countries* (Luxembourg, EU Publications Office).