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Revisiting global trends in TVET:
Reflections on theory and practice

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Foreword

The essays presented in this publication are complementary to the UNESCO forthcoming volume on global TVET trends and issues in UNESCO's new Education on the Move series. Just like the latter, they cover a wide, although certainly not exhaustive, range of current practices, ideas and debates in the field of technical and vocational education and training (TVET). They come at a time when the importance and value of TVET is being increasingly recognized in the context of lifelong learning in a globalized world, by UNESCO and other national, regional and global stakeholders in education and international development.

Through its TVET Strategy (2010-2015) UNESCO explicitly recognizes the value of TVET in addressing a host of issues, such as youth unemployment and socio-economic inequalities. Specifically, the TVET Strategy aims to 'strengthen its assistance to Member States to improve their TVET systems and practices' (...) by promoting long-term solutions based on an inclusive and rights-based approach'. The Strategy explicitly recognizes the importance of research, knowledge generation and debate as one way of achieving this aim; indeed one of its three core areas is to 'act as a clearinghouse and inform the global TVET debate'. Through work in this core area, UNESCO aims to foster the development of evidence-based policies in TVET globally and to promote South-South and North-South-South cooperation.

The Third International Congress on TVET that took place in Shanghai in May 2012 played an important role in further enhancing the debate on the role of TVET in the 21st century, providing a forum for discussion on the challenges faced by the TVET systems and the appropriate responses to them. One of its important outcomes was the production of a set of key recommendations to governments and other TVET stakeholders in UNESCO Member States, presented under seven strands (known as the Shanghai Consensus, UNESCO 2012). It is perhaps useful to remind ourselves of them now as they certainly relate to many of the ideas that are discussed in the chapters of this volume. Indeed, one of the aims of this volume is to provide some assistance in the implementation of these recommendations, through the fostering

of reflection and sharing of knowledge, ideas and experience. We believe that readers will find in the papers of this volume material that is of relevance to all of the recommendation strands below:

1. Enhance the relevance of TVET
2. Expand access and improve quality and equity
3. Adapt qualifications and develop pathways
4. Improve the evidence base
5. Strengthen governance and expand partnerships
6. Increase investment in TVET and diversify financing
7. Advocate for TVET

The papers in this volume cover a wide range of topics relevant to current developments in TVET. Although by no means an exhaustive list, we believe that the issues covered will enable interested readers to form a picture of current thinking in the field, both theoretical and practice-related.

The volume opens with Leon Tikly's contribution (Chapter 1), which examines the relevance of the human capability and social justice approaches, as developed by Amartya Sen and Martha Nussbaum, for understanding the role of TVET in development, and contrasts them to other approaches, such as the human capital and sustainable development ones. In Chapter 2, Rupert Maclean and Margarita Pavlova discuss the vocationalization of secondary and higher education within the human resource development agenda. Christopher Winch, in Chapter 3, considers the factors that make TVET an unattractive option, as well as approaches that may be taken to make it more attractive. Looking at two related concpets, Stephen Billet (in Chapter 4) and Richard Sweet (Chapter 5) reconsider the importance for TVET of learning through practice and work-based learning respectively. In Chapter 6, Jean Gamble considers the idea of vocational pedagogy and argues for the strengthening of formal teaching and learning in TVET institutions. The topic of Chapter 7 by Anthony Watts is the relationship of career guidance and orientation to TVET. Chapter 8, by Aboubakr Abdeen Badawi, looks at the role of entrepreneurship skills in TVET.

Finally, Darol Cavanagh, Greg Shaw and Li Wang investigate the concept of rural transformation and the role that TVET and skills development play in it (Chapter 9).

The volume was edited by Katerina Ananiadou, Programme Specialist at UNESCO-UNEVOC, under my supervision. Alix Wurdak and Aldrich Mejia provided valuable support and assistance in the final stages of this publication. I wish to thank them, as well as the rest of our colleagues at UNESCO-UNEVOC, UNESCO Headquarters and beyond for their help with producing this volume. Last but not least I would like to thank the authors, all leading experts in their field, for sharing with us their expertise, reflections and insights. I hope that the ideas contained in this volume will provide interesting 'food for thought' and material for reflection in all our readers.

Shyamal Majumdar
Head of UNESCO-UNEVOC

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Chapter 1

Reconceptualizing TVET and development: a human capability and social justice approach

Leon Tikly

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1 Introduction

This paper considers the relevance of a human capability and social justice approach for understanding the role of technical and vocational education and training (TVET) in relation to development. The paper starts out by reviewing existing, dominant approaches towards conceptualizing TVET in relation to human development, namely the human capital approach and a sustainable development approach. Each is considered in relation to its underlying view of human development; how TVET is defined and understood in relation to its role in development; and key policy issues and priorities for national governments and donors. It is argued that while the two approaches offer valuable insights into TVET's role in relation to different aspects of human development, they are also partial in addressing key issues facing the TVET sector. The paper then outlines a human capability approach based on the work of Amartya Sen and Martha Nussbaum. It is argued that such an approach has the potential to develop and extend existing approaches, while addressing some of their limitations.

TVET has historically played a key part in UNESCO's mandate for education. Other organizations including the World Bank have begun to place a greater priority than has previously been the case on the skills agenda (World Bank, 2011). These organizations often provide overlapping but different rationales for investing in TVET. In the case of financial institutions such as the World Bank, for example, policies to promote TVET are principally seen as an investment in human capital and as a means for supporting economic growth. The underlying view of development in operation is an economic one in which 'progress' is measured in relation to levels of economic growth and prosperity. UNESCO's long-standing interest in TVET on the other hand has been linked to a more human-centred view of TVET as a means for supporting sustainable development.

These underlying views are, however, rarely made explicit. The aim of this paper is to consider different perspectives for understanding the role of TVET in relation to human development. It should be emphasized that each perspective is considered as an 'ideal type' and that in reality key policy documents of organizations such as the

World Bank and of UNESCO, including for example the Bonn Declaration (UNESCO, 2004), are informed by elements of both approaches, albeit with differing degrees of emphasis.

It is argued that while both approaches offer valuable insights, they also have limitations. Thus, while human capital approaches emphasize the instrumental role of skills in relation to economic growth they often lack a normative basis and do not take account of the environmental, social or cultural dimensions of skills. The sustainable development approach on the other hand has been key in addressing some of these omissions through emphasizing the role of skills to support economic, social and environmental sustainability.

More recently, new concerns have begun to dominate the debate about TVET. These include a recognition of an increasing skills gap within and between countries as an aspect of globalization, and a growing recognition of different forms of marginalization based for example on social class, rurality, gender and ethnicity. These in turn highlight the importance of context in overcoming disadvantage and in defining the nature of valued skills.

Building on the work of Sen and Nussbaum, the paper outlines an alternative approach that builds on and extends existing approaches but is based on the concept of human capabilities and informed by principles of social justice. In this approach TVET is seen as a means for supporting the development of a range of capabilities that are conceived as opportunities to develop functionings that individuals, their communities and society at large have reason to value. Rather than being universal in nature, capabilities are defined in relation to context, and can potentially contribute to economic, social, political, environmental and cultural development. Indeed, the development of valued capabilities and functionings is seen as a good for human development in itself. Crucially, capabilities need to be defined through processes of informed public debate, and it is this democratic dimension that is seen to underpin the capability approach. It is argued, however, that if public debate is to serve the interests of marginalized groups then it needs to be read against an understanding of the structural, institutional and cultural barriers that prevent marginalized groups from having their voices heard in policy debate.

2 TVET and human capital

Anderson (2009) argues that TVET first emerged in the context of the industrial revolution in Europe and North America as part of a philosophy of 'productivism'. He argues that the quest for efficiency and profit was the principal dynamic of the new industrial mode, and that in this context TVET was perceived to have a fundamentally instrumental function in providing the necessary human capital required by industry. Human capital theory has been the dominant approach adopted by global financial institutions such as the World Bank, the International Monetary Fund (IMF), the International Labour Organization (ILO) and by national governments, although human capital theory has changed in form and emphasis over time (see for example Anderson, 2009; Ilon, 1994; King, 2009; King and Palmer, 2008; Robertson et al., 2007; Tikly, 2004; Unterhalter, 2007). The central rationale for investing in education including TVET within a human capital framework has remained the same, however, and lies in the contribution that different kinds of skill can make to economic growth (DfID, 2008; World Bank, 2011).

In this approach gross domestic product (GDP) is understood as the most significant indicator of development. The perceived role of education and skills in relation to economic growth, however, has shifted over the years. The very first World Bank loan for education, granted in 1963, was for TVET, which accounted for about 40 per cent of all educational loans in sub-Saharan Africa up until the early 1980s (Maclean, 2011). At that time investment in TVET was considered to be a crucial component of labour force planning.

The early prioritization of TVET was criticized on a number of grounds. Some pointed to the 'vocational school fallacy' (Foster, 1965). Based on studies in the Gold Coast in Ghana, Foster questioned the link between the vocationalization of education and the needs of the labour market. He argued that the academic/vocational divide created under colonialism remained intact in the post-independence period, and that academic qualifications were perceived to lead to more and better opportunities in the labour market. There was a disjuncture between the needs dictated by labour force planning and the realities of labour markets. Economists working in the World

Bank also began to question the cost-effectiveness of vocational education and the rate of return to investments in TVET (Psacharopoulos, 1991; Psacharopoulos and Woodhall, 1985). It was argued that unless the policy environment for TVET was reformed, further investment would be an inefficient use of scarce resources (Middleton et al., 1991). It was argued that investment in basic education provided a much higher rate of return than did investment in secondary (including vocational) and post-basic education, and this shift in emphasis provided an economic rationale for emphasizing primary education in the Millennium Development Goals (MDGs). As a consequence of these criticisms funding for TVET dried up, with TVET now accounting for just 8 to 9 per cent of World Bank educational spending (Maclean, 2011).

More recently, and in the context of the shift from the Washington to the post-Washington consensus (see Robertson et al., 2007), proponents of human capital theory have begun to complement a continued interest in rates of return with an interest in education's role in alleviating poverty and promoting social welfare, including women's welfare, as a basis for promoting growth and human security. There has also been recognition of the need to prepare workers for participation in the 'global knowledge economy' and to address the growing skills dividend (incomes differential) between skilled and unskilled workers. As the world moves towards a post-2015 educational agenda, there is an increasing emphasis on learning rather than simply access to basic education. For example, Vegas and Petrow (2008), writing about Latin America, argue that 'expansion of educational opportunities has not markedly reduced income inequality, underdevelopment and poverty, possibly because of the poor quality of education'. Hanushek and Wößmann (2007) conclude that there is a statistically and economically positive effect of the quality of education on economic growth which is far larger than the association between quantity of education and growth. They suggest that quality, as measured by student achievement on standardized tests, correlates more strongly with economic growth than simply years spent in education.

Priorities are also currently widening to include secondary and post-basic levels of education and training, in order to equip the populations of low- and middle-income countries with skills for participation in the 'global knowledge economy'. These shifts are also linked to recognition of demographic changes that have seen

unemployed youth make up a growing proportion of the population. Reflecting this shift in emphasis, the latest World Bank education strategy (2011), suitably subtitled *Investing in People's Knowledge and Skills to Promote Development*, argues that 'growth, development, and poverty reduction depend on the knowledge and skills that people acquire, not the number of years that they sit in a classroom' (World Bank, 2011, p. vii). In a similar vein, the UK Department for International Development (DfID) has recently argued that:

> The evidence is strong. In the technology literature, microeconomic case studies have identified the critical role of educated workers in the innovation process, and industry-level studies have found new technology to be complementary with the education of the workforce. Human capital studies have also shown that educated farmers and workers are more productive in a rapidly changing environment, and thus earn higher incomes.
>
> (DfID, 2008, p. 8)

The new emphasis on skills for growth has led exponents of human capital theory to suggest different kinds of policy solutions. These are summarized in the latest World Bank strategy. In keeping with the findings of previous reports, there is an emphasis on supporting system reform through system assessments, impact evaluations and assessments of learning and skills (including not only basic literacy and numeracy but also a range of further skills including information and communications technology (ICT), critical thinking, problem-solving and team skills). The Bank has expanded its definition of education systems to include not just public schools, universities and training programmes but:

> The full range of learning opportunities available in a country, whether they are provided or financed by the public or private sector (including religious, non-profit, and for-profit organizations). An education system thus includes formal and non-formal programs, plus the full range of beneficiaries of and stakeholders in these programs: teachers, trainers, administrators, employees, students and their families, and employers.
>
> (World Bank, 2011, p. ix)

The Bank is also committed to supporting a multi-sectoral approach including the health and social protection sectors. This expanded definition of an education system and of cross-sectoral working is significant because it has the potential to encompass a range of contexts within which skills training is potentially delivered, and reflects the significance of a number of sectors for supporting skills acquisition and learning.

The Bank is committed to supporting greater accountability. According to human capital theory, increased accountability within a more diversified and market-led system is perceived as a means to improve the overall efficiency of the system (Anderson, 2008). Accountability will be achieved through not only more careful monitoring of learning outcomes at different stages of the expanded education and training system to better trace the development of learning and of skills, but an emphasis on support for institutional governance. At a system level, national governments will be held more accountable through the use of results-oriented financing, with different sets of performance indicators used to monitor progress of countries at different stages of development.

Box 1

The human capital approach in practice: a tale of two countries

The human capital approach has been influential at the level of government policy. Singapore and Ghana provide contrasting examples of how a broad human capital approach has informed policy in relation to TVET and serve to illustrate its strengths but also some of its limitations.

Singapore

Law has provided an excellent account of the development of TVET in Singapore (Law, 2010). He argues that a major factor behind Singapore's economic success has been the ability to align policy shifts in TVET with economic development. This is in keeping with the successful approach adopted by other South East Asian 'tiger' economies (Green et al., 2007). The system of TVET has been able to respond to sometimes rapid changes in the direction of economic policy. For example, following independence the first vocational institute along with the industrial training board were established specifically to meet the

manpower planning needs of a rapidly industrializing society. But during the 1970s, as the government sought to attract Multi-national Corporations (MNCs), the emphasis shifted towards meeting the needs of the MNCs through the establishment of Joint Government Training Centres and 'science parks' for fostering knowledge exchange and innovation. In 1979, the government embarked on major economic restructuring towards higher value-added, high technology and more capital-intensive industries including petrochemicals, biotechnology, information technology and manufacturing services. Once again TVET was expanded and restructured to respond to the needs of the more capital-intensive industries. A Continuing Education and Training system was introduced focusing on reskilling those members of the workforce with lower education and skills. With the introduction of the Economic Plan in 1991, a component of the strategy was to introduce a minimum of ten years of basic general education as it was felt that a primary school education was no longer sufficient for those who were to pursue vocational skills. The Institute of Technical Education (ITE) was also introduced. This laid the basis for the move to a knowledge-intensive economy during the 2000s based on new growth sectors including Biomedical Sciences, Info-Communications, Creativity Technology, Integrated Resorts and High-Value Engineering. To meet these challenges the ITE has effectively rebuilt and transformed the system of vocational institutes into regional colleges. It is held up by the Education Minister as the 'shining jewel' in the education system. Law argues that behind Singapore's success was the ability of the government to shift public perceptions of TVET - through the work of the ITE. As in many former colonised countries the colonial system had been academically biased and there was little attention paid to TVET before Singapore's independence in 1965. Vocational subjects have until quite recently been held in lower esteem than academic ones but this perception is rapidly changing as a result of the government's sustained efforts.

Despite its obvious successes in supporting economic growth, a criticism that has often been levelled at Singapore's education system is that it is too specialized, rigid and elitist. A consequence is that whilst, Singapore does

exceptionally well in international assessment exercises such as TIMS, this success has often been attributed to an emphasis on rote learning. It is claimed that graduates of the system are not taught to think creatively and critically and this can potentially stifle both innovation and the potential for democratic citizenship in the context of an authoritarian state (Tan & Gopinathan, 2000). More recently, the government has introduced a range of initiatives to stimulate creativity in the curriculum, in line with, for example, the World Bank highlighting the importance of team building, problem solving and communication skills. It will be instructive to see how these initiatives develop and the impact of these on Singapore's longer term ability to innovate.

Ghana

As was the case in Singapore, the system of education inherited by the post-independent government of Ghana was biased towards academic subjects. Since the 1950s Ghana has made a number of attempts to reform the education system put in place by the British colonial administration, driven by the desire to make it more relevant to its needs as a developing economy (Akyeampong, 2002). Under colonialism there had developed a system of trade schools that were linked to providing skills for the global economy. Following independence from Britain in 1957, the Government of Ghana's strong commitment to developing human resources was consolidated by the 1961 Education Act that made education free and compulsory at the basic level and by 1970 Ghana had one of the most highly developed education systems in West Africa. The late 1970s and early 1980s, however, saw a sharp economic decline with a dramatic fall in the real value of government financing for education, resulting in near collapse of the education system. As a key component of its plan for economic recovery, the government initiated the 1987 Education Reform Program (ERP). A key feature of the 1987 ERP was the diversification of the secondary school curriculum to include technical and vocational subjects. Under the 1987 education reforms Ghana's basic education cycle was changed to six years of primary and three years of junior secondary schooling, followed by a three-year senior secondary cycle and

a tertiary sub-sector comprising polytechnics, universities and professional training institutions such as Teacher Training Colleges. At the junior secondary school (JSS) level, the reforms introduced pre-vocational skills programmes that all JSS students were expected to study. The diversification of the secondary curriculum was much more extensive at the Senior Secondary School (SSS) level than JSS. A significant feature of the diversified SSS curriculum is the opportunity it offers students studying different programs to select from a menu of general education subjects considered foundational in their programme.

There have been several criticisms directed at Ghana's system of TVET. Part of the problem has been an historic lack of resources devoted to basic infrastructure and materials and qualified teachers to support such an ambitious approach to TVET expansion. In general, vocational education continues to be perceived to be of a lower status than academically-oriented education, a phenomenon that has not changed much since Foster's original work in Ghana on the 'vocational school fallacy' (King & Martin, 2002). Linked to this phenomenon is that universities have often not recognized vocational qualifications achieved from SSS. Akyeampong argues that one possible reason for the fact that public perceptions of TVET have not markedly changed is that there has been a tendency in the past for the government not to consult with stakeholders such as teachers, schools and parents as to the nature and objectives of vocational secondary education reform (Akyeampong, 2010).

A second major criticism is that Ghana's system has historically been more supply- rather than demand-driven with the implication that the relevance and quality of vocational education has often been questioned. For example, although most of the employment opportunities for young people lie in the informal sector the government has not prioritized the development of this sector including the development of skills that can support micro-enterprises. As Akyeampong (2010: vii) notes, today global and local economies are much more dynamic and competitive with the informal and private sectors playing important roles. The challenge for the future of TVET in Ghana is how it can

respond to markets that are highly competitive and dynamic, and how it can produce graduates with skills that can respond to demands of the local and global networks of production, technology, and trade.

There are also related issues of access in Ghana, particularly for girls in some areas of TVET (Palmer, 2009). Evidence suggests that overall, most informal apprentices are males training in traditionally male trades (e.g. carpentry, auto-mechanics and welding), while young women have fewer opportunities in apprenticeship; those opportunities that do exist for women are usually in traditionally female trade areas for which the market demand is often limited. The educational and gender fragmentation of informal apprenticeship training suggests that the poor, and especially poor women, are less able (either through cost, education level or gender) to access the more dynamic and, potentially, more lucrative trade areas under the present status quo.

There are several criticisms that have been levelled at a human capital approach to TVET, some of which are highlighted in the above examples. Firstly, the underlying view of development is a limited one. As exponents of sustainable development and of capability theory approaches argue, whilst economic growth is important it is not an end in itself and human centred development needs to be conceptualized more holistically than simply in terms of increases in GDP and in a way that incorporates environmental, social and cultural factors. Singapore is an example of a country that despite doing very well in linking TVET to a developmental pathway, has focused up until quite recently on developing a rather narrow set of instrumentalist skills. Related to this criticism is that rather than see education and skills as a good in themselves, exponents of human capital theory prefer to see them as an objective factor in production.

There is often a positivistic bias in human capital inspired writing and research and the lack of an overt normative framework for engaging with issues such as inequality and marginalisation. Thus although human capital theorists do recognise forms of inequality in relation to education and skills this is perceived a as problem only in so far as it impacts on national growth rates (Wils et al., 2005). As we have seen in relation to Ghana, some groups including girls have not had equal access to TVET

opportunities. This may indeed impact on economic growth more broadly because a potentially highly productive sector of the workforce is not being adequately developed. The issue, however, is more than simply about the negative implications for productivity. The denial of equal opportunities to participate in TVET also impacts on the ability of women to maintain independent and sustainable livelihoods. In this sense issues of poverty, disadvantage and marginalisation from opportunities to develop skills should not simply be seen simply as an obstacle to growth but normatively, in terms of the rights and entitlements that are being denied through lack of equal access to quality vocational education and training.

It is easy to read off from human capital theory a simplistic and linear understanding of the relationship between skills, employment and economic growth. A common assumption in the past was that provided the supply side of the skills equation is right, then employment and growth will follow. In this regard there is growing recognition within human capital theory itself of the significance of demand-side issues, of the rapidly changing nature of labour markets and the limited opportunities that exist for skilled as well as unskilled workers in many low- and middle-income countries (DfID, 2008; Hanushek and Wößmann, 2007). Other critics have highlighted the cyclical rather than linear nature of economic development and the impact of global economic crisis on labour markets, employment and poverty reduction in the global era (King, 2009; Tikly and Barrett, 2009). Critics have also argued the need for skills training to be much more closely integrated into an overall skills development and growth strategy, including different areas of economic and social policy and straddling government departments (Green et al., 2007; Tikly et al., 2003).

Finally, human capital theory often assumes a 'one size fits all' approach to education and skills. For example, many of the policy prescriptions and conditionalities imposed by the Bank as part of structural adjustment and poverty reduction strategies in the 1980s and 1990s involved a common set of policy prescriptions regardless of context (Robertson et al., 2007). Similarly, there is often the assumption that integration into the global knowledge economy requires similar kinds of skill sets. This is not necessarily the case. Countries pursue different growth paths in relation to development. Thus even two countries at a similar stage in development may have quite different needs in terms of skills development. For example, a comparative study of Rwanda and of Tanzania revealed overlapping but different skills needs

linked to different development priorities (Tikly et al., 2003). A further driver for the new emphasis on skills has been the growing recognition of the informal sector for supporting livelihoods and growth (Adams, 2011; King and Martin, 2002, for example). Studies of the informal sector in different African countries, however, reveal diverse skills needs and modes of delivery linked to context (Adams, 2011; King and McGrath, 2002; McGrath, 2002).

Finally, the over-reliance on standardized assessments of cognitive learning within the human capital approach can also be problematic (see Barrett, 2011 for a fuller critique of this). Readily measurable cognitive outcomes shift from being privileged indicators of learning to defining what skills are required in development. This is potentially damaging for the development of TVET because of the range of cognitive, affective and practical skills that are involved. When this happens, qualitative indicators and scrutiny of processes can also be overlooked (Alexander, 2008).

3 TVET and sustainable development

The sustainable development approach is the dominant approach of UNESCO. Like the human capital approach it has evolved over time. The notion of sustainable development dates back some twenty years to the Brundtland Commission, which used it to connote an approach to development that 'meets the needs of the present without compromising the ability of future generations to meet their own needs' (WCED, 1987, p. 43). A key driver for the concept of sustainable development is to develop a human-centred response to globalization that is based on principles of environmental, economic and social sustainability. According to Fien and Wilson, and in contrast to the economic approach, sustainable development is more of a 'moral precept than a scientific concept' (2005, p. 274). It is a:

> Culturally-directed search for a dynamic balance in the relationships between social, economic and natural systems – a balance that seeks to promote equity between the present and the future, and equity between countries,

> races, social classes and genders. The interdependence of people and the environment requires that no single development or environmental objective shall be pursued to the detriment of others. The environment cannot be protected in a way that leaves half of humanity in poverty. Likewise, there can be no long-term development on a depleted planet.
>
> (Fien and Wilson, 2005, p. 274)

Sustainable development became part of a new paradigm for TVET that was adopted at the International Conference on TVET in Seoul, Korea in April 1999. It is a central plank of the Bonn Declaration on TVET (UNESCO, 2004) and there has been discussion about adding TVET to the UNESCO Education for Sustainable Development Initiative (Maclean, 2011).

According to Fien and Wilson (2005), there are a number of ways to reorient TVET to address the sustainability of the economy, the environment and society in the global era. Competencies in economic literacy, sustainable consumption and managing small enterprises are emphasized in relation to the economic aspects, while using resources wisely and minimizing waste and pollution are considered central to ensuring environmental sustainability. As both a consumer and a producer of resources, and as the focus of training for resource-intensive industries, such as agriculture, mining, forestry, construction, manufacturing and tourism, TVET is considered to have multiple responsibilities in the area of environmental sustainability, including developing an understanding through the TVET curriculum of a range of environmental concepts, encouraging reflection on the effects of personal values and lifestyle choices, and promoting critical thinking and relevant practical skills.

Preparation for sustainable livelihoods is considered a particular responsibility of TVET, while social sustainability involves the development of an ethic of social responsibility in firms and organizations, as well as in the actions of individual workers. According to Fien and Wilson, promoting such an ethic requires TVET to 'attend to issues of gender and ethnic equality in the workplace, the development of team and group skills, the ability to explain, justify and negotiate ideas and plans, and the promotion of practical citizenship in the wider community' (2005, p. 277) (see also Fien et al., 2009a; Fien et al., 2009b; Majumdar, 2007, 2009).

However, it is acknowledged that efforts to define exactly what sustainable development is must reflect the varying conditions in different parts of the world and their impact on national and cultural priorities and values. For example, for an individual living in rural poverty in the developing world, 'sustainable development', if it is to make any sense, must mean increased consumption and a higher living standard. By contrast, to an individual in a wealthy country, with a closet full of clothes, a pantry full of food and a garage full of cars, 'sustainable development' could mean more modest and carefully considered consumption (UNESCO in Fien and Wilson, 2005, pp. 274–77).

The concept of sustainable development has been linked over the years with a variety of issues and concerns with implications for TVET. For example, since the Seoul conference sustainable development has been linked with the concept of lifelong learning, which is perceived as a means to promote sustainable economies and livelihoods in the context of the advent of the information age and knowledge economy. Further, in the context of concern about growing youth unemployment, the growth of the informal sector and the failure of basic education to impact even basic skills, there have been calls for TVET to be included in a conception of education for all (Hughes, 2005). More recently, the sustainable development approach has been linked to issues of human security (Alkire, 2003; Paris, 2001).

For example, basic adult literacy for women is seen as a way of promoting children's health and well-being and reducing mortality rates (Scott-Goldman, 2001; Sen, 2002). Imparting life skills through basic education is a means for preventing HIV and AIDS and for peace building in post-conflict societies (Barrett et al., 2007; Maclean, 2010). There has also been a growing concern in UNESCO over the marginalization of women and girls from TVET to support sustainable livelihoods (Maclean, 2010; Maclean and Wilson, 2011)[1]. There are many examples of projects that have been sponsored by UNESCO and other agencies and national governments linked to differing aspects of education and sustainable development (see e.g. contributions to Fien et al., 2009b; Maclean, 2010).

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1 See for example the gender issues and TVET website at www.unevoc.unesco.org/tvetipedia.0.html?&tx_drwiki_pi1%5Bkeyword%5D=Gender%20issues%20and%20TVET

It is clear that the sustainable development approach links to key priorities and concerns for UNESCO. It is presented as a human-centred alternative to the narrow instrumentalism of human capital approaches. It provides a valuable normative lens through which to perceive TVET's contribution to development. It has also proved enduring and flexible in its ability to frame debates about TVET in relation to a range of emerging issues and concerns. Nonetheless, it is possible to criticize aspects of the approach.

To begin with, the concept of sustainable development is rather vague. It appears to be all things to all people, and is therefore difficult to pin down and to quantify. Linked to this, despite the concern with understanding sustainability in relation to the interests of different individuals and groups living in different contexts, the process underlying how this might be achieved is not specified. As a consequence there is a danger that policy can appear top-down and prescriptive rather than inclusive and context-sensitive. Further, as King has remarked (2009), there are tensions between the idea of TVET for sustainability, and creating the wider macroeconomic conditions of growth under which TVET itself can become sustainable, in the current global financial context in which TVET remains underfunded. There appears little in the debate about TVET and sustainable development that addresses this tension. Finally, although there has been an increased concern with issues of gender, this appears at the margins rather than integral to the way that the sustainable development approach has been developed thus far. The implications of other forms of disadvantage, based for example on social class, rurality, ethnicity, language, religion and disability, are also not given the focus that they deserve.

4 Sen, Nussbaum and human capabilities

The capability approach has been developed by Sen (e.g. 1999, 2009) and Nussbaum (e.g. 2000, 2006) as a means for reconceptualising human development. Although still in its infancy compared with the approaches outlined above, it has already

achieved a degree of influence, for example through Sen's contribution to the United Nations Human Development Index. Sen starts with an alternative view of the goals of human development from that suggested by human capital theory. For Sen, it is the realization of human capabilities and well-being rather than the pursuit of wealth that should underpin development. Thus while prosperity and growth are important, their significance lies in the extent to which they can contribute to the realization of valued capabilities. Capabilities are the opportunities that individuals have to realize different 'functionings' that they may have reason to value (Sen, 1999, 2009).

Expanding this understanding, Walker argues that:

> A capability is a potential functioning; the list of functionings is endless. It might include doings and beings such as being well nourished, having shelter and access to clean water, being mobile, being well-educated, having paid work, being safe, being respected, taking part in discussions with your peers, and so on. The difference between a capability and functioning is like one between an opportunity to achieve and the actual achievement, between potential and outcome.
>
> (Walker, 2006, p. 165)[2]

While Sen and Nussbaum identify education and skills as having an instrumental value in terms of supporting livelihoods, generating income and reducing human insecurity, they are also seen as having a great deal of intrinsic worth as capabilities in their own right[3]. Thus the capabilities developed through TVET may include literacy and numeracy and the ability to apply basic scientific knowledge, but they are not reducible to these and may relate to a wider range of cognitive, affective and practical outcomes.

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2 Walker goes on to give some useful examples that assist in distinguishing capabilities from functionings. Thus she distinguishes mobility (a capability) from actually being able to move around (a functioning). Similarly she separates the capability of literacy from the function of actually reading, and the capability of being well educated from acting and being a well-educated person.

3 Thus one of Nussbaum's ten core capabilities is 'senses, imagination and thought' – 'being able to use the senses, to imagine, think, and reason – and to do these things in a truly "human" way, in a way informed and cultivated by an adequate education, including, but by no means limited to, literacy and basic mathematical and scientific training' (2000, pp. 78–79).

Central to the concept of capabilities is the idea of 'agency freedom': that individuals can act to bring about changes they value. Thus although the development of capabilities through TVET might involve the provision of basic resources, including for example food to meet nutritional needs, suitably prepared and motivated educators, appropriate learning materials, a relevant curriculum and an accessible built environment, capabilities also imply the freedom and opportunities that individuals are provided with through TVET to convert whatever resources they may have at their disposal into achievements or outcomes of different kinds. The view of agency freedom has implications for the way that TVET is potentially understood and evaluated, because a key role for TVET is then to support the development of autonomy and the ability to make choices rather than simply provide individuals with the necessary resources to learn.

According to Unterhalter:

> The capability approach urges that when making evaluations in education we should look not just at inputs like teachers, hours in class, or learning materials or outputs, earning from a particular level of education – be these earnings, that is a form of resources – or preference satisfaction – doing what is best for the family as assumed in human capital theory. Evaluations should look at the condition of being educated, the negative and positive freedoms that sustain this condition and the ways in which being educated supports what each and every person has reason to value.
>
> (Unterhalter, 2007, p. 75)

The idea that TVET should be aimed at developing capabilities that individuals, communities and society at large have reason to value draws attention to the central importance of context in the capability approach. It also draws attention to the processes by which capabilities might be determined. For Sen this necessarily involves a commitment to informed public dialogue as a cornerstone for identifying capabilities. A key implication of this is that marginalized as well as mainstream groups have their voices heard in the policy process.

In emphasizing the importance of public dialogue, the capability approach potentially deepens and extends the sustainable development approach. Like the sustainability

approach the capability approach draws attention to the importance of the wider moral imperative for providing TVET, and the importance of groups within civil society as well as the state in developing and realizing this imperative through their own commitments and actions (see Robeyns, 2006).

It is implicit in Sen's notion of capabilities that this moral imperative needs to relate to the experiences and values of individuals and communities in different contexts, and can only be arrived at through processes of informed public dialogue at different levels. In this view capabilities can also be seen as the ethical basis of rights in education (Brighouse, 2000) in that they provide form and substance beyond what is written in international law and policy frameworks such as the Convention on the Rights of the Child, the MDGs and the Dakar Framework for Action. In this sense capabilities potentially involve the realization of a range of opportunities rather than simply guaranteeing a basic entitlement. This means paying attention not only to negative freedoms, such as the rights of learners not to be subject to corporal punishment and for girls to be educated without fear of sexual harassment, but to the promotion of positive freedoms such as capabilities of learners to contribute towards peace in their schools and communities, to learn in their mother tongue and a language of wider communication, and to be able to experiment creatively with ICTs.

Sen's work also assists in developing understanding of the implications of multiple, overlapping forms of disadvantage. Evaluating equality in terms of capabilities requires a prior recognition of different types of disadvantage and of how they interact in different settings, if misrecognition of a learner's capabilities and rights in education is to be avoided. Although Nussbaum and other exponents of the capability approach have argued the importance of identifying universal, core, basic capabilities against which inequalities can be evaluated and governments held to account, Sen has steered clear of such an approach, preferring instead to emphasize the diversity of capabilities linked to individual differences and differences in context.

For example, Sen is careful to emphasize how different economic, cultural and political barriers can prevent disadvantaged groups (such as the disabled, women and girl learners) from converting whatever resources they have at their disposal into

capabilities and useful functionings (Sen, 2009)[4]. This is also to acknowledge that an individual's capability set (the sum of the opportunities that learners require to achieve whatever they choose to value in later life) will differ depending on forms of disadvantage including rurality, gender, disability, ethnicity and sexual orientation. The wider social relations of power and inequality that give rise to disadvantage become deeply implicated in the very notion of capability. Thus a learner with a disability may require a different or slightly modified capability set from an able-bodied learner. Similarly, a female learner's capability set may be influenced by sexist norms and practices that deny her access to certain curriculum areas, prevent her from going out alone and fail to protect her from sexualized violence (see also Walker, 2006).

Capabilities are also embedded in broader processes of development, and both at individual and aggregate levels, societies pursue differing developmental paths which have implications for the kinds of capabilities individuals and groups within society will require. In a recent comparative study of Tanzania and Rwanda, for example, a range of capabilities were identified that are required to support quite different proposed development pathways (Tikly et al., 2003). Capabilities are in this sense relative. They are also contested, with different interests defining capabilities in different ways, and potential conflicts between individually and collectively identified capabilities and between aggregative and distributive considerations (Sen, 2009).

Understanding the social embeddedness and contextualized nature of individual capabilities is important in the debate about TVET, where it is often appropriate to understand educational needs in terms of groups of learners as a basis for determining priorities and targeting interventions. As part of his approach Sen makes use of social choice theory as a means for developing policies that are based on an aggregated evaluation of the needs of different individuals and groups (Sen, 1999). This is also to acknowledge that capabilities inevitably need to be defined at different scales and levels of abstraction. These go from the individual to include the levels of global,

[4] Such an approach stands in contrast to the use of rational choice theory in mainstream economics, which provides the philosophical underpinning for human-capital-inspired reforms. Here the assumptions are that individuals act on the basis of a rational assessment of the maximization of their own utility, and that efficiency within the public welfare system is best served through maximizing 'choice'.

regional and national policy frameworks, but also involve how these are mediated and implemented locally in relation to the needs of individuals and the communities in which they are located. In this respect, it is the process of arriving at appropriate capability sets in any context that is critical.[5]

Implicit in Sen and Nussbaum's understanding of capabilities is a commitment to social justice. Sen (2009) has recently elaborated his view of 'comparative justice', which he claims is about real-world choices to improve human lives. In this view making hard policy decisions, such as about the goals of TVET, which areas of TVET to prioritize and who should have access to TVET, inevitably involves dealing with competing value claims that can only ultimately be resolved through processes of informed public dialogue at different levels. This point is taken up below.

5 TVET, human capabilities and social justice

While the above outline of a capabilities and social justice approach was largely theoretical in orientation, the focus in this section is to try to relate the approach to key aspects of the debate on TVET and development that have arisen in the discussion of dominant approaches in previous sections. Two caveats are necessary. The first is that the capability approach should not be seen as providing ready-made answers to the policy issues and challenges facing the TVET sector today. Rather, like the human capital and sustainable development approaches, it should be seen as a way of framing issues and as a starting point for evaluating policy choices. Related to this is the fact that capability theory is still in its infancy. Thus although

[5] Here Robeyns (2003) has usefully identified five criteria for the process of selecting capabilities: (i) that it should be explicit, discussed and defended; (ii) that the method should be clear; (iii) that the level of abstraction of the list should be appropriate; (iv) that the list comprises two stages, an ideal list and pragmatic or non-ideal list; and (v) the listed capabilities should not be reducible to each other. Similarly, Alkire (2005b) has contributed to thinking through issues with respect to operationalizing the capability approach. For both scholars the capability approach is very conducive to participatory undertakings of the kind undertaken by Walker, Biggeri et al. and Alkire herself.

Sen's work has been influential in policy terms (for instance, through his contribution to the development of the UN Human Development Index) the implications of his and Nussbaum's work are still in the process of being fleshed out for education in general and TVET in particular. The discussion below is therefore exploratory in nature, and should itself be seen as a contribution to debate on the future of TVET.

5.1 Rethinking the nature of TVET

A capability approach allows for an expanded view of the purpose of TVET as supporting the development of human capabilities and functionings that individuals, communities and society at large have reason to value. This suggests that there can be no single purpose for TVET. The range of capabilities that individuals have reason to value and that make up an individual's capability set will depend on need and circumstance. Key here is the idea of agency freedom; that individuals need to be empowered to exercise their agency through being granted access to information and opportunities to participate in TVET. The way that the purpose of TVET is defined at an institutional and societal level must rest on an aggregated evaluation of the needs of different individuals and groups (see below). The upshot is that the purpose of TVET will inevitably embrace a range of economic, social and cultural objectives depending on context.

The capability approach also suggests an alternative way of thinking about the nature of TVET. TVET is often perceived as a means for developing a range of skills, aptitudes and competences. In the language of capabilities these translate broadly into functionings – ways of 'doing' and 'being'. The idea of capabilities adds to existing conceptions of TVET through drawing attention to the opportunities and freedoms (capabilities) that lead to the development of these functionings. This has implications for access and inclusion issues, as discussed below.

Understanding TVET through the lens of capabilities also allows for a reconsideration of existing binaries, such as 'vocational' and 'academic', and 'indigenous' and 'modern'. Placing the onus on what is valued in different contexts shifts the focus away from old debates about the nature and status of different forms of knowledge, to focus on the real-world needs of individuals and communities. This opens up potential for

public debate to focus on how different forms of knowledge, including indigenous knowledge, can be used to address contemporary issues. This is in keeping with UNESCO's own emphasis on recognizing the potential role of indigenous knowledge in relation to development (UNESCO, 2005).

Capabilities also allow for a reconceptualization of TVET as a sector. Understanding capabilities as opportunities to learn across the life span draws attention to the relationship between different modes and levels of education. This is evident, for example, in debates about how best to support literacy and numeracy and life skills, including access to basic to post-basic forms of provision and in different kinds of institutional and workplace settings. From a capability perspective it is therefore more helpful to think about the education system holistically rather than in terms of discrete sectors. Here the approach lends support to the more holistic approach to conceptualizing the education system outlined in the latest World Bank document (2011), albeit from a different conceptual starting point.

5.2 Inclusion and diversity in TVET

A human capabilities and social justice approach draws attention to an aspect of the TVET debate that is being given increasing attention by UNESCO, namely inclusion and diversity. Sen and Nussbaum see education and especially literacy as an unqualified good for human development, lending support to those who have argued that access to TVET should be thought of as an entitlement (Hughes, 2005). From a capabilities perspective, a key issue is the access that different individuals and groups have to good-quality TVET, and the opportunities they have for achieving desired outcomes. It has implications for how resources for a quality TVET are distributed, and also the recognition of the sociocultural identities of different groups of learners, which influence how they develop valued capabilities.

A capability approach implies a focus on the institutional and cultural barriers that prevent inclusion of different groups. Girls and women, for example, often come up against sexist norms and practices that limit their involvement in TVET (UNESCO, 2011). These need to be understood in relation to broader societal barriers that discriminate against women and girls (Unterhalter, 2007). There is evidence

that learners with disabilities, members of minority ethnic groups and speakers of minority languages also often encounter forms of discrimination that not only limit access to TVET but also limit their opportunities for learning once they are enrolled in programmes (Maclean, 2010). This is a rather under-researched area, and there is scope here for further research to identify the barriers to inclusion facing different groups of learners.

For example, learners who have an identifiable disability, or who are affected by HIV/AIDS, may benefit from targeted resource inputs such as complementary extracurricular programmes or changes to the built environment. Existing research has indicated that girls, particularly at post-primary levels, require greater investment in sanitary facilities (UNESCO, 2005). Materials provided need to be appropriate to the curriculum, environment, learners' cognitive level, their language proficiency(ies) and multiple sociocultural identities (see Heugh, 2002; Rubagumya, 2007). Learning materials, however, do not work in isolation to enhance learning outcomes for different groups, but rather are dependent on and need to be compatible with teachers' pedagogic practices, professional values and language proficiency(ies). Teacher education, training, continuing professional development and professional morale all circumscribe what it is possible to achieve in the classroom. Effective systems of professional support that create accountability and autonomy are vital for developing teachers' capabilities, which in turn enable them to enhance learning opportunities for students. (For a systematic application of the capability approach to teachers see Avalos, forthcoming; Tao, 2010.)

Box 2

A capabilities approach and existing UNESCO initiatives

Although UNESCO and UNEVOC documents do not make reference explicitly to capability theory, aspects of a capability approach are clearly implicit in many existing projects and programmes. The projects outlined below are taken from a recent overview provided by Maclean (2010). Between them they can be seen to exemplify the expanded view of sustainable development to embrace issues such as gender, livelihoods, ethnicity and peace building.

The implications of the projects from a capabilities perspective, however, are discussed below.

- Education of Girls (China). Projects in Ganzu Province, China, are concerned with increasing the participation of girls in schools in rural areas, to attract them to attend school and to reduce the high drop-out rate amongst girls. They are also concerned with values education, since the aim is to encourage families and the local community to value the education of girls.
- Education of demobilized and physically challenged soldiers, with particular reference to youth (Afghanistan and Timor Leste). These projects focus on skills development for employability, with particular reference to assisting demobilized soldiers, especially youth soldiers, achieve gainful employment in civil society. Assistance is also provided for soldiers and others who are physically challenged due to the problem of land mines.
- Values education for community development (Afghanistan and Philippines). In Afghanistan radio was used to produce a soap opera about family and community life which became a very popular 'must listen to' programme throughout the country. This programme promoted values such as the importance of the role of women in the family, and the importance of girls education. In the Philippines, APNIEVE has developed with UNESCO-UNEVOC a manual for teachers on values education that is concerned with promoting desirable values in the workplace and in particular the need to counteract the widespread problem of xenophobia.
- Educating street children to become functionally literate (India).

Promoting functional literacy for the world of work, with particular reference to street children. This has been achieved by assisting youth to establish and operate modest bicycle repair businesses, using micro-credit, as an incentive to developing literacy, and enterprise/entrepreneurship skills.

- Information and communication technologies to support rural populations (Thailand).

Use of computers in rural schools and adult learning programmes using satellite communications in communities with no supply of electricity, through using solar panels to provide electricity. This has enabled learning to continue, between the intermittent visits of teachers, who are part of the 'teachers on horseback' programme.

- Vocationalization of secondary education (Marshall Islands). This project has involved assistance to the Ministry of Education to rewrite the country's Education Act to make the education system more relevant to meeting the employment needs of the country, with particular reference to skills development for the employability of young people. This had involved the vocationalization of secondary education, to help fill the skills gap, reduce the problem of youth unemployment and less dependence on foreign workers who generally repatriate their income to support family back in their home country.

- Skills development in the water and sanitation industry to improve health (Vietnam).

UNESCO-UNEVOC, with overseas development agencies in Germany, Norway and Vietnam, has developed a multi-million dollar training-the-trainers project to equip technicians to work in the water and sanitation industries in Vietnam. This project is designed to impact positively on poverty alleviation, and is part of UNEVOC's EFA and Lifelong Learning initiatives.

Each project described by Maclean can be seen to be addressing aspects of a capability approach. Each involves developing the capabilities of different marginalized groups – girls in the case of the Ganzu project in China, young soldiers in the case of Afghanistan and Timor Leste for example. Each also involves paying attention to the context within which capabilities are being developed which impact on the kinds of opportunities to develop skills that are made available: skills to support sustainable livelihoods in the case of the young soldiers; literacy skills in the case of the street children; ICT skills in the

case of adult learners in Thailand; a broader range of vocational skills in the case of the Marshall Islands; and, quite specialised skills in the case of the sanitation workers in Vietnam to promote health.

Each project also involves the targeting of resources in order to meet the needs of marginalized groups. In some cases this may be perceived as ensuring access to what ought to be a basic entitlement, for example in relation to the street children in India or the girls in Ganzu, China. Importantly, however, and in keeping with the view of capabilities and social justice put forward by Sen, the examples also illustrate how targeting of resources needs to often go beyond a simple view of basic entitlement. This is to acknowledge that in order to develop the desired capability set, to recognize forms of inequality and to overcome existing barriers to participation may require resources over and above what might be termed a basic entitlement.

Some of the examples also place an emphasis on values – overcoming gender stereotypes in the case of the Chinese girls for example or in the use of values education to promote social cohesion in the Philippines and Afghanistan. This raises important issues from a capabilities perspective about the values and the extent to which they have emerged from processes of informed public dialogue. Although this appears to be the case in the examples given, a capabilities approach would demand that this aspect be made more explicit. In some cases, such as the girls' education project in Ganzu, this would involve discussion of the inevitably difficult issues raised in challenging entrenched sexist norms and values and developing consensus in relation to the need to develop the girls' capabilities. A capabilities approach would also demand a more explicit basis for evaluating the development of capabilities with attention given to how capabilities are identified and measured.

5.3 Planning and financing TVET

For exponents of human capital theory the point of planning lies in creating greater efficiency and effectiveness in the use of scarce resources, measured in relation to

defined performance indicators. In these terms the latest World Bank strategy (2011) gives some useful pointers for how donors can support system reform in a way that can assist governments to plan more effectively.

From a human capabilities perspective, the efficiency of a system, while important, needs to be evaluated against a more holistic set of criteria. It also draws attention to sometimes neglected areas of planning. For example, a nuanced understanding of the different kinds and levels of resource input required by different groups of learners is critical for enabling education planners to effectively target resources and interventions where they are most needed. This kind of targeting is rare in many low-income contexts, in particular where existing education management information systems (EMIS) are inadequate for the task (as is often the case), or where an appearance of uniform distribution of access to education is seen as supporting a government's legitimacy. Besides potentially assisting in understanding how resources can be distributed between different kinds of TVET systems, research into the kinds of resource input required by different groups of learners can assist policy-makers to better understand how resources can be more effectively distributed not only between institutions but within institutions as well (Aikman and Unterhalter, 2005).

A key debate at present centres on how TVET can be financed, particularly in times of global financial uncertainty and crisis, in which governments and donors find it difficult to make long-term commitments to the sector. Capability theory does not in itself provide a standard set of 'solutions' about how different kinds of public and private finance may be generated, in the way that, say, human capital theory does. A capability approach can, however, provide a normative basis for evaluating the impact of different kinds of funding mechanisms in terms of social choice theory, and a comparative assessment of their likely impact on the capabilities of individuals and groups (Sen, 2009).

5.4 A public debate on TVET

Central to a capability approach is the idea of informed public debate as a means of determining capabilities at different levels of the system. This opens up a number of challenges at different levels. A starting point is to evaluate the processes and

mechanisms by which policy relating to TVET is determined, and how these reflect different interests within the state, civil society and globally (Robertson et al., 2007). It is important that local perspectives and voices predominate in debates about national TVET priorities. The international aid community has a role in this respect: to develop leadership capabilities and ownership of educational agendas to ensure that they reflect local realities and priorities, and break the cycle of dependency on donors, including reliance on overseas technical expertise in writing policy (Tikly and Dachi, 2009). It is this ability to determine TVET policy autonomously and to link it to a view of the national interest and to an overall development strategy that has characterized emerging economies that have globalized successfully (Green et al., 2007). Increasingly the regional level has also been an important space in which educational priorities and agendas have been contested in Africa (Tikly and Dachi, 2008).

A second challenge arises from the recognition that not all those with an interest in TVET share what Chisholm (2004) has described as an equal 'social voice'. For example, key interest groups such as teachers and their organizations are often not consulted and in some cases are actively discouraged from participating in the policy-making process. Yet engaging the perspectives and experiences of educational professionals in decision-making is particularly important because of their role as change agents (DFID and VSO, 2008).

Other constituencies and interests, including women, the poor, rural dwellers, indigenous peoples, members of religious and cultural minorities, and learners themselves, have also often remained excluded. In some countries organizations in civil society have played a proactive role in demanding that their concerns be recognized. Public debates around the right to good-quality TVET potentially provide an important focus for elaborating the wider ethical and political issues involved. It is in the context of this kind of discussion that debates about the economic rationale for investing in different forms of TVET or about the importance of sustainable forms of development become relevant. Mobilizing marginalized groups around educational issues requires an educative effort on the part of the state and civil society, including the media, and this effort needs to take place using a variety of modalities and at a number of scales.

Norms and values are of course contested. Some traditional values, for example in relation to gender, may appear irreconcilable with social justice in that they reinforce stereotypes and barriers to achievement for women and girls. However, debate over values within the TVET sector is a necessary and healthy indicator of a broader social democratic capability, the touchstone being the realization of individual freedoms including those of girls, cultural and other minorities. Agencies such as UNESCO potentially have a crucial role here in facilitating debate and sharing good practice between countries.

5.5 Evaluating TVET

Sen and other scholars working with a capability approach have advanced thinking of how indicators relevant to measuring the development of capabilities might be developed. (Sen was instrumental in developing the UN Human Development Index, for example, which included a range of indicators linked to capabilities and well-being.) These considerations are evident in UNESCO's Education Development Index (EDI), which uses indicators related to access (enrolments), quality (survival rates to grade five), outcomes (literacy rates) and gender parity. Nonetheless, Unterhalter and Brighouse (2007) have drawn attention to the difficulties associated with the EDI and existing EMIS, related to the unreliability of data and of data-collection processes. An issue for TVET is that many of the indicators are biased towards basic education, reflecting current global priorities. There is scope for further development and research to construct an index that is more reflective of the range of capabilities that are developed through TVET.

While traditional data-collection techniques remain important, they have drawn attention to the potentially significant role of more participative approaches to collecting relevant data, such as those used by non-governmental organizations, where the process as well as the data itself can be used to evaluate capabilities. Alkire (2005), Robeyns (2006) and Walker (2006) have also drawn attention to the use of interdisciplinary research and mixed methods to capture the range of capabilities in a field such as education. For example, participative research methodologies including action research can play an important role in identifying capabilities either on their own terms or when considered in relation to different sources of information

(Walker, 2005). This is consistent with recent development within UNESCO to make use of both quantitative and qualitative indicators to measure cultural development (UNESCO, 2005).

6 Conclusion

The paper has outlined three approaches for conceptualizing TVET. Each provides a different lens on the nature of the challenges facing TVET in the global era, and proposes different solutions to those challenges. It was argued that human capital approaches provide too narrow and instrumental a view of human development, and suggest a one-size-fits-all solution to the challenges facing TVET which does not make sufficient allowances for differences in context. Nor does it pay sufficient attention to issues of inclusion and diversity. The sustainable development approach, while drawing attention to important normative dimensions of TVET's role in relation to sustainable development, also focuses on universal solutions and does not sufficiently address the processes by which policies and values relating to TVET can be made relevant for local contexts. It is argued that a capabilities and social justice approach, while still in its infancy, can offer a fresh way of conceptualizing TVET in relation to human-centred development in a way that draws on and extends aspects of dominant approaches and addresses emerging agendas.

Acronyms and abbreviations

DfID	Department for International Development (UK)
EDI	UNESCO Education Development Index
EMIS	education management information system
GDP	gross domestic product
ICT	information and communications technology
ILO	International Labour Organization
IMF	International Monetary Fund
MDGs	Millennium Development Goals
TVET	technical and vocational education and training

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Chapter 2

Vocationalization of secondary and higher education: pathways to the world of work

Rupert Maclean and Margarita Pavlova

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1 Introduction

This paper examines the changing nature of vocationalization within the human resource development (HRD) agenda that came to the fore several decades ago. Although originally it included a broader interpretation (education and training, health, standards of living), gradually, over time, a narrower definition has come to prevail (Kelly, 2001). Therefore, the economic aspect of HRD, that is the development of employability skills, is currently the main emphasis within policy development. This employability focus has changed the nature of vocationalization from 'educational' to 'functional'. However, in many cases this brings general and vocational education together at both secondary and higher education[1] levels. This paper also reveals that vocationalization depends on the level of economic development and cultural specificities. Analysis of vocationalization at secondary level is followed by a brief examination of post-secondary technical and vocational education and training (TVET) that through articulation pathways are linked to higher education and lastly, vocationalization of higher education.

2 Vocationalization of secondary schooling and higher education

Internationally, a major and persistent overall trend in education has been the massification of both secondary schooling and higher education. This is also the case, albeit on a more limited basis, in those developing countries that have achieved major progress in the universalization of primary education, with more students going on to secondary-level education.

[1] The terms 'higher education' and tertiary education' are used throughout the paper since they are both used in different contexts internationally.

In the past it was widely accepted that secondary schooling and higher education were for a relatively small number and proportion of students who were mainly concerned with receiving an academic-type education and (in the case of universities) obtaining entry to the higher-status professions. With an increasing proportion of the relevant age groups wanting to complete a full cycle of secondary schooling, before then going on to university, both schools and universities have had to modify their curriculum and entrance procedures to become more comprehensive by providing a more diverse range of courses in order to accommodate the more diverse study interests and range of capabilities of students. These courses are both academic and (increasingly) vocational in nature.

There is now more emphasis on economic productivity, with secondary schools and many universities increasingly stressing skills development for employability, and so preparing graduates more directly to meet labour force requirements. There are some, such as Professor Steven Schwartz, vice-chancellor of Macquarie University in Australia, who lament this trend, and argue that the programmes offered in secondary schools and universities are 'being reduced to vocational training' (Schwartz, 2010). This is a view that is shared by Professor Martha Nussbaum at the University of Chicago (Nussbaum, 2010). However, others (including ourselves) disagree, and argue that it is both desirable and appropriate that secondary schools and universities are more accountable to meeting the economic and labour force needs of society through placing a greater emphasis on skills development for employability (Fien, Maclean and Park, 2008; Maclean and Wilson, 2009; Rauner and Maclean, 2008). These are matters that are examined in greater detail in the main body of this paper.

3 Vocationalization of secondary schooling

3.1 Historical development

Traditionally, vocational skills have been developed through apprenticeship structures. Secondary schools in medieval and Renaissance Europe focused on intellectual

training in its narrow sense, educating an elite group of men in the liberal arts.[2] The industrial revolution put a new emphasis on science and technology, and as a result a number of technical schools (which were less prestigious) appeared in the nineteenth century. Gradually the whole of secondary education became less elitist and its curriculum more diverse. Three overlapping categories of general/academic, TVET[3] and diversified/comprehensive curriculum could be identified. Academic and TVET schools are single-purpose institutions. Diversified schools lie in the middle of the continuum, and are multi-purpose, combining elements of both ends of the spectrum into their programmes so they combine the objectives of an academic course of study with one or more vocational fields, to make schools more responsive to labour market needs and to serve a more diverse student clientele. Typically, these schools allow academic students to take some vocational coursework and vocational students to continue some academic coursework. In many cases all types of schools include 'preparing students for the world of work' among their objectives. To determine the nature of secondary schooling a number of priorities have to be considered by educational planners: for example, to prepare youth to fill wage-sector jobs, to raise the quality of university entrants, to reinforce nation building, and to increase enrolments of a particular group or in a particular region. Therefore to 'position' secondary education within a country's educational system, many dimensions need to be taken into account including the degree of vocationalization of the curriculum. The share of curriculum devoted to vocational subjects reflects the degree of vocationalization.

Most countries divide the secondary level of education into lower (LSE) and upper (USE) segments. The division between lower and upper levels of secondary education coincides with the divide between general, universal 'basic' education (LSE) and

2 For an elaboration on the development of TVET over the centuries see chapter 1 in Maclean and Wilson (2009).

3 TVET refers to a broad range of preparation at different levels of the education and training system. 'Vocational' refers to middle-level, or traditional trade occupations for semi-skilled and skilled workers. 'Technical' refers to occupations in the technician category that are usually prepared for at the postsecondary level. Vocational and technical 'education' refers to exposure to the world of work and to preparation for entry into further studies in vocational and technical education. Technical-vocational 'training' means preparation for direct entry into, or upgrading in, specific (or clusters of) occupations in the labour market (ADB, 2009b; Maclean and Wilson, 2009).

selective, specialized, differentiated more occupation-oriented education (USE) designed to prepare students directly for the labour market, or for tertiary studies. Within the formal education system, TVET occurs at different levels. The International Standard Classification of Education (ISCED), developed by the United Nations Educational, Scientific and Cultural Organization (UNESCO) in 1997, specifies four levels of education and training pertinent to TVET: levels 2 (lower secondary), 3 (upper secondary), 4 (non-tertiary postsecondary) and 5 (first stage tertiary, non-degree.) Within these levels there are three types of programme orientation – type A (general), type B (pre-vocational), and type C (vocational or technical) – for direct entry into specific occupations.

The process of 'vocationalization' of secondary education began in the 1970s with the aims of promoting the social inclusion of less privileged groups in education and training, narrowing educational gaps and avoiding social fragmentation (Lauglo, 2005; Lauglo and Maclean, 2005). Vocational skills were viewed as a coherent part of the overall education system.

For example, the Technical and Vocational Education Initiative (TVEI) in the United Kingdom was designed to help produce a 'more highly skilled, competent, effective and enterprising workforce for the 1990s' by investing in the skills of all young people aged 14–19 in full-time education and equipping them for the demands of working life in a rapidly changing society. Work experience placements proposed through this framework contributed to General Certificate of Secondary Education (GCSE) results, and 71 per cent of teachers believed that TVEI had increased students' abilities to solve problems. Evaluation of the initiative revealed that ex-TVEI students were more likely to continue into jobs with training than non-TVEI students (74 per cent compared with 65 per cent) (TVEI Training Agency information letter, 1988).

The diversification of secondary education and the expansion of access to TVET have helped to retain more students in school. This social function of vocationalization led some youths to stay in school longer than they might have if they only had the choice of an academic curriculum. Studies in Organisation for Economic Co-Operation and Development (OECD) countries provide evidence of this trend. They report that a 10 per cent increase in the share of upper secondary students in vocational and pre-vocational programmes is associated with a 2.6 per cent increase in the secondary

school graduation rate and a 1.9 per cent increase in the proportion of 15–19-year-olds in school (Bishop and Ferran, 2005).

Social relevance and the equity aspect of vocationalization can be illustrated by the case of Indonesia. Upper secondary vocational schools in Indonesia cater more to the poor than general secondary schools, drawing 21 per cent of their students from the lowest income quintile, compared with only 13 per cent for general secondary schools (ADB, 2007a, p. 30).

At that time, the vocationalization of secondary education referred to the process of including practical skills in the educational process. Vocationalization is designed to prepare students for the world of work better than does just 'academic' education. Traditionally it was interpreted as not being oriented towards a specific class of occupations or trades, and it does not lead to a qualification that is relevant to the labour market (Lauglo, 2005). The difference between the vocationalization of general education and a vocational stream in secondary education refers to the degree of institutional integration of vocational training into education.

The OECD (2010, p. 300) makes the following distinction between secondary-level programmes:

- General education programmes are not designed explicitly to prepare participants for specific occupations or trades, or for entry to further vocational or technical education programmes (less than 25 per cent of programme content is vocational or technical).
- Pre-vocational or pre-technical education programmes are mainly designed to introduce participants to the world of work and to prepare them for entry into further vocational or technical education programmes. Successful completion of such programmes does not lead to a vocational or technical qualification that is directly relevant to the labour market (at least 25 per cent of programme content is vocational or technical).
- Vocational or technical education programmes prepare participants for direct entry into specific occupations without further training. Successful completion of such programmes leads to a vocational or technical qualification that is relevant to the labour market.

Vocational and pre-vocational programmes are further divided into two categories (school-based, and combined school-based and work-based programmes) on the basis of the amount of training provided in school as opposed to the workplace. Programmes are classified as school-based if at least 75 per cent of the programme curriculum is presented in the school environment, a proportion which may include distance education. In combined school- and work-based programmes, less than 75 per cent of the curriculum is presented in the school environment or through distance education (OECD, 2010).

Statistics show a very close number of enrolments in general and vocational programmes at the upper secondary level in European Union (EU) and OECD countries (Table 1). Among countries for which data are available, in thirteen OECD countries and in the partner country Slovenia, the majority of upper secondary students pursue pre-vocational or vocational programmes. In most OECD countries with dual-system apprenticeship programmes (Austria, Germany, Luxembourg, the Netherlands and Switzerland) and in Australia, Belgium, the Czech Republic, Finland, Italy, Norway, the Slovak Republic, Sweden and the partner country Slovenia, 55 per cent or more of upper secondary students are enrolled in pre-vocational or vocational programmes. However, in Canada, Chile, Greece, Hungary, Iceland, Ireland, Japan, Korea, Mexico, Portugal, Turkey, the United Kingdom and the partner countries Brazil, Estonia and Israel, 60 per cent or more of upper secondary students are enrolled in general programmes even though pre-vocational and/or vocational programmes are offered (OECD, 2010).

Enrolment in the pre-vocational options remains the smallest among the three available options. On the basis of the 'old' interpretation of the vocationalization process, only academic and pre-vocational strands could be considered as constituting the vocationalization process. UNESCO Institute for Statistics (UIS) revealed that globally, the gross enrolment ratio in TVET programmes at the upper secondary school level increased between 1999 and 2009. However, enrolment in TVET as a percentage of total enrolment decreased in many countries, including Western Europe, as this statistic does not show distribution by programme orientation.

Table 1. Upper secondary enrolment patterns

Upper secondary enrolment patterns (2008)

Enrolment in upper secondary programmes in public and private institutions, by programme destination and programme orientation

	Upper secondary education						
	Distribution of enrolment by programme destination			Distribution of enrolment by programme orientation			
	ISCED 3A	ISCED 3B	ISCED 3C	General	Pre-vocational	Vocational	Combined school and work-based
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
OECD countries							
Australia	38.9	a	61.1	38.9	a	61.1	m
Austria	45.0	46.6	8.4	22.9	6.3	70.8	35.0
Belgium	44.1	a	55.9	27.1	a	72.9	3.2
Canada[1]	94.7	a	5.3	94.7	x(6)	5.3	a
Chile	100.0	a	a	65.4	a	34.6	a
Czech Republic	73.9	0.5	25.6	25.8	n	74.2	33.1
Denmark	52.0	a	48.0	52.0	a	48.0	47.5
Finland	100.0	a	a	32.1	a	67.9	13.4
France	55.8	11.9	32.3	55.8	a	44.2	12.4
Germany	42.5	57.2	0.3	42.5	a	57.5	42.8
Greece	69.1	a	30.9	69.1	a	30.9	a
Hungary	76.3	a	23.7	75.6	10.5	13.9	13.9
Iceland	51.0	0.6	48.4	65.9	1.6	32.5	15.5
Ireland	70.6	a	29.4	66.1	31.8	2.1	2.1
Italy	81.5	1.3	17.2	40.6	32.7	26.7	a
Japan	76.0	0.9	23.1	76.0	0.9	23.1	a
Korea	74.5	a	25.5	74.5	a	25.5	a
Luxembourg	60.9	15.1	23.9	37.9	a	62.1	14.3
Mexico	90.6	a	9.4	90.6	a	9.4	a
Netherlands	63.0	a	37.0	32.9	a	67.1	20.2
New Zealand	m	m	m	m	m	m	m
Norway	44.8	a	55.2	44.8	a	55.2	15.9
Poland	87.1	a	12.9	53.8	a	46.2	5.5
Portugal	100.0	x(1)	x(1)	69.3	8.5	22.2	m
Slovak Republic	84.0	a	16.0	27.7	a	72.3	28.6
Spain	56.2	n	43.8	56.2	n	43.8	1.8
Sweden	93.5	n	6.5	43.2	1.0	55.7	n
Switzerland	30.2	66.4	3.3	35.2	n	64.8	n
Turkey[2]	100.0	a	m	61.0	a	39.0	n
United Kingdom[3]	82.9	x(1)	17.1	68.6	x(4)	31.4	m
United States	100.0	x(1)	x(1)	100.0	x(4)	x(4)	x(4)
OECD average	*71.3*	*7.4*	*24.5*	*54.9*	*3.5*	*43.5*	*11.7*
EU19 average	*70.5*	*7.8*	*23.8*	*47.3*	*5.0*	*47.9*	*16.1*
Partner countries							
Brazil	89.4	10.6	a	89.4	a	10.6	a
China	53.3	x(1)	49.9	52.5	50.7	x(5)	a
Estonia	68.0	31.3	0.7	68.0	a	32.0	0.4
India[1]	98.2	a	1.8	98.2	a	1.8	m
Indonesia	64.0	38.0	a	64.0	a	38.0	m
Israel	96.2	a	3.8	65.5	a	34.5	3.8
Russian Federation	53.0	16.2	30.8	53.0	16.2	30.8	m
Slovenia	35.5	45.9	18.6	35.5	a	64.5	n

1. Year of reference 2007.
2. Excludes ISCED 3C.
3. Includes post secondary non tertiary education.

Source: OECD. China, India, Indonesia: UNESCO Institute for Statistics (World Education Indicators Programme). See Annex 3 for notes *(www.oecd.org/edu/eag2010).*

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/888932310415

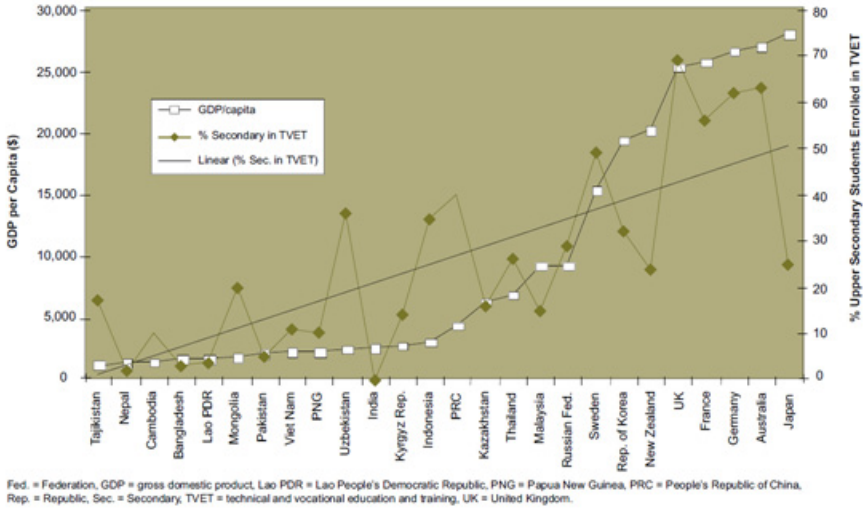
Source: OECD, 2010, p.305

3.2 'New' vocationalization

The human capital/HRD debate generates a more functional (not pure educational) approach to skills development that impacts on general, pre-vocational and vocational education, and changes the nature of secondary TVET. The demand to enhance productivity and the employability of individuals through the development of work-related competences brings the vocational strand at the secondary school level under the umbrella of 'vocationalization', together with general and pre-vocational options. The main reason for this is that in some contexts TVET development at the level of secondary education can have a maximum effect in increasing the employability of graduates. Functional aspects of this training relevant to labour market needs (such as technological knowledge, flexibility and better productivity) become increasingly more important than do educational achievements. However, many countries are still driven by social demand, focusing on educational objectives alone for instance in Egypt 55 per cent of all secondary students participate in school-based vocational education and training (VET) (Arab Republic of Egypt MOE, 2008) which is of little relevance to the labour market (Wallenborn, 2010). Therefore, a call by the Asian Development Bank (ADB, 2008, p. 126) for a 'mental shift' from traditional VET approaches to context-related world-of-work competences could be interpreted as a request to broaden the notion of vocationalization by including secondary VET under its umbrella.

So the change is from education-driven to a functional model of skills development within secondary schooling. Governments commonly establish high targets for the proportion of secondary students they want to enrol in vocational programmes, as they see a strong correlation between the proportion of students enrolled in TVET subjects and per capita income. Figure 1 shows 2002 enrolment in upper-secondary TVET for selected countries, and targets for secondary vocational programme enrolment for Indonesia and the People's Republic of (PR) China, which were 70 per cent and 60 per cent respectively (Copenhagen Development Consult A/S, 2005, p. 7).

Figure 1. Percentage of Upper Secondary Students Enrolled in TVET Programmes in Selected Countries, 2002



Source ADB, 2009 (Calculated from enrolment data in International Centre for Technical and Vocational Education and Training (UNEVOC, 2006).

India targeted 25 per cent (World Bank, 2006b, p. ii) and Bangladesh 20 per cent (World Bank, 2007, p. 12) of all secondary students to be enrolled in the vocational/technical secondary stream. Pakistan planned to add technical/vocational streams in secondary education, and aimed for half of all secondary students to enter those streams (World Bank, 2006a). Considering the very low enrolments in 2002, these targets could provide implementation challenges for these governments.

In terms of TVET levels, UIS data (Table 2) reveals that lower secondary (ISCED 2) is the least frequent option: 125 countries do not report enrolment in such programmes, while 49 countries do. Some countries regard this level as being too early a stage to offer TVET; other countries, however, offer vocational programmes within compulsory education ages, to provide some skills for children who may not continue further studies. In developed countries, pre-vocational programmes may be widespread at this level, but since they are included within general programmes, they are not included in the international statistics.

More countries provide TVET at the upper secondary level (ISCED 3). In 2005, 136 countries reported enrolments in vocational programmes at this level, as it is regarded as a suitable point for curriculum diversification. This is aimed to meet the needs of a larger and more differentiated group of participants who require a wider range of educational provision. Enrolment in vocational programmes in post-secondary non-tertiary education (ISCED 4) was reported upon in eighty countries.

Table 2. TVET provision by level and ISCED 5B programmes (number and percentage of countries)

		No	Yes	Data not available	Total
Vocational enrolment at lower secondary (ISCED 2)	N	125	49	33	207
	%	60.4%	23.7%	15.9%	100.0%
Vocational enrolment at upper secondary (ISCED 3)	N	29	136	42	207
	%	14.0%	65.7%	20.3%	100.0%
Vocational enrolment at post-secondary non-tertiary (ISCED 4)	N	79	80	48	207
	%	38.2%	38.6%	23.2%	100.0%
Enrolment at tertiary ISCED 5B	N	43	104	60	207
	%	20.8%	50.2%	29.0%	100.0%

Source: UNESCO Institute for Statistics database, 2005.

Another move is from specific job-skills training (reflecting a 'career for life' reality, with immediate and long-term relevance to occupational requirements) to flexible training (reflecting a 'no lifetime job security' reality, and a requirement for a rapidly redeployable labour force). The slow change of available technologies in the 1960s and 1970s favoured specialized skills development and more or less guaranteed a career for life. The more rapid pace of technological change in recent years, particularly in developed countries, has contributed to the increasing importance of general education that helps workers to perform within the high-productivity sectors. Therefore, vocationalization of general education became more and more important for these economies, and the role of general human capital is increasing. The distinction between general and specific training and knowledge closely relates to technologies, and could be described in terms of general human capital (GHC) and specific human capital (SHC). The distinction is made on the basis of whether the individuals can operate only one specific technology (SHC) or whether their GHC

helps them to operate any technology (Kim and Terada-Hagiwara, 2010). Depending on the stage of development, countries should balance the development of GHC and SHC properly to ensure the adaptation and diffusion of new technologies.

In Latin America where the model of academic secondary education has been traditionally strong, a movement can be observed from exclusive emphasis on development of general competencies through academic secondary education, towards inclusion of general job skills and even specific competencies training (for instance, in Colombia and Mexico) (Jacinto, 2010). In Brazil, the government has introduced a programme, 'Brasil Profesionalizante', which aims to develop a new model of secondary education to include general, scientific, cultural education and vocational training with the allocation of $120 million in 2008 (Jacinto, 2010).

Advanced countries are making upper secondary vocational education more general so that vocational students receive more academic content to broaden their occupational focus, while general students are given more opportunity to apply academic principles to practical problems. Previous analysis by UIS- UNEVOC (2006) demonstrates a trend towards the creation of broad vocational tracks due to changing technologies and work organization that require workers with multiple skills and flexibility to adapt to a changing labour market. In response to this, many countries readjust some of their Level 3 vocational programmes to contain a larger element of general education and more generic forms of vocational preparation.

Broader forms of initial vocational training, to lay the foundation for further learning, have been introduced. In such programmes as the baccalauréat professionnel in France, and the MBO (secondary vocational education) programmes in the Netherlands, which were created during the 1980s, general education content was enhanced (up to one-half of the course is based on general education).

To support the broadness of vocational education, the General National Vocational Qualification (GNVQ) programmes, set up in England in the 1990s, were divided into only twelve broad fields. Engineering, health and social care, and leisure and tourism were among the main areas of study. Currently OCR Nationals (established, instead of GNVQs, in nine broad areas: art and design; business; health and social care; information and communications technology (ICT); leisure, travel and tourism;

media; public service; science and sport) have enabled students from across the ability range to obtain qualifications. They help learners to acquire relevant, work-based skills and knowledge, to prepare them for employment, or to go on to further education. Alternatively, Applied GCSEs are ideal qualifications for learners who want to gain valuable insights into a range of broad vocational areas, and enable learners to progress to further education, training or employment (http://www.ocrnationals.com/index.asp). German and Austrian apprenticeships have also enhanced general content within occupational training (UIS-UNEVOC, 2006). Thus, a shift towards broader initial vocational training programmes can be observed in Europe.

Tech-Prep programmes in the United States of America (USA) are another example of how this 'blending' approach is used to help students make connections between school and the world of work. In Year 9, programmes in broad occupational fields (such as the health professions, automotive technology and computer systems networking) are offered within the sequence of general technology studies. The programme continues for at least two years after the end of secondary school, through a tertiary education or an apprenticeship programme, with students getting an associate degree or certificate by the end of the programme. This progression from general to specific technologies provides students with more flexible and informed choices of career pathways. By helping students to complete high school, and encouraging them to enrol in two-year colleges, these Tech-Prep programmes increase the educational attainment of students and improve their readiness for employment (Cellini, 2006).

In the Republic of Korea, about 40 per cent of secondary students are currently enrolled in TVET. In some schools, academic and vocational students share almost 75 per cent of the curriculum. By doing this the government is opening up new pathways for TVET students to higher education (UNESCO, 2005).

This increasing convergence between academic and vocational education at the upper-secondary level works well for countries located at the innovation-driven stage of economic development.

3.3 Costs

A large body of empirical literature has developed over the past 25 years which argues strongly, on cost–benefit grounds, against vocational schooling at the secondary level.

TVET is generally more expensive than general education because of factors such as smaller classes and the cost of equipment and supplies. In the People's Republic of China, for example, specialized secondary schools and vocational schools cost $660 and $350 per student respectively, compared with $240 per student in regular secondary schools (Copenhagen Development Consult A/S, 2005, p. 41). In Indonesia, vocational secondary schools cost 25 per cent more per student than general secondary schools (ADB, 2009b). The unit costs of vocational education in India are about 60 per cent higher than those of general secondary education (Government of India, 2010).

Despite these higher costs, in some countries TVET graduates do not receive higher wages than general education graduates. The results of a World Bank tracer study in Bangladesh indicated that overall only 10 per cent of TVET graduates were employed, while in the case of female graduates the proportion was just 5 per cent. About 45 per cent of graduates were unemployed and 45 per cent were pursuing further education (World Bank, 2007, p. 29). In addition, those with vocational qualifications who were employed received lower wages than did graduates of the general education system (World Bank, 2007, p. 33), suggesting low returns on investment in TVET that is supply-driven. Bangladesh is at the factor-driven stage of economic development.

However, evidence from Tajikistan (Table 3), which is at the same stage of economic development as Bangladesh, demonstrates that in 2009 more secondary TVET graduates were employed at the level of 'mid-level specialists' than were graduates from general secondary education (45.8 per cent and 17.3 per cent respectively). A majority of general education graduates were employed as unskilled workers. Therefore a wage difference associated with vocational or general secondary education can be observed. It is important to note that traditionally a sizeable proportion of the TVET curriculum comprises general studies.

Table 3. The level of education by occupation

	In percentage to population								
Total	**14,9**	**0,7**	**6,3**	**7,9**	**51,8**	**14,7**	**2,9**	**0,7**	**100,0**
	High education	Incomplete high education	Secondary vocational education	Primary vocational education	Senior secondary education	Basic education	Elementary general education	Zero elementary general education	Total
Managers of all levels	73,4	0,5	9,2	4,6	11,2	1,2	-	-	100,0
High level specialists	86,3	0,4	8,8	0,6	3,5	0,5	-	-	100,0
Mid-level specialists	27,1	2,6	45,8	6,3	17,3	0,8	-	-	100,0
Employees, involved in preparation of information	33,7	-	19,5	5,7	38,5	-	2,6	-	100,0
Service providers, employees of housing and public utilities	15,9	1,3	8,2	8,3	56,5	7,8	1,7	0,3	100,0
Qualified workers of agricultural sector	5,3	-	4,2	6,4	47,5	30,1	4,5	2,1	100,0
Qualified workers at the industrial enterprises	5,8	0,5	6,0	18,8	58,2	10,0	0,5	0,2	100,0
Operators, mechanics	8,5	0,4	3,6	38,7	39,8	6,9	1,2	0,8	100,0
Unskilled workers	3,5	0,6	2,5	5,2	63,0	20,7	4,2	1,0	100,0

Source: Labor market situation in the Republic of Tajikistan
(According to findings of the Labour Force Survey June- July 2009), The World Bank.

Some evidence indicates that returns on investment in vocational education may differ according to the stage of development of a country. An ADB Report (2009b) argues that in low-income countries primary education is the best investment, while the expansion of secondary education would yield the highest social returns for middle-income countries, and in high-income countries the returns may be greatest in tertiary education.

Regionalization is an additional factor to be considered. Another ADB report (2009a) suggests that considering costs and the difficulty of implementation, vocationalization may be considered advantageous only in several cases in the Asia-Pacific region:

- Training in the use of computers (which is applicable across a variety of occupations and across subjects within general education);
- Low-cost programmes that are not gender specific such as agriculture, accounting and business studies (they are useful for broad occupational segments);
- Entrepreneurship training to enable school graduates to plan, start and run a business to boost self-employment.

It is important to add that the nature of secondary TVET (for example, its proportion of general studies) is equally important for increasing returns on the vocationalization of secondary education. As was suggested in the Introduction to this paper, the development of human capital/HRD contributes significantly to economic growth at each stage of economic development, and TVET is an important factor in this process, particularly considering its changing nature at the level of secondary education within 'new' vocationalization.

A well-cited study by Psacharopolos and Loxley (1985) evaluated the economic soundness of curricular diversification. They concluded that:

> Based on comparisons of costs and achievement gains in academic and vocational knowledge between INEM [schools with some pre-vocational courses] and control schools [in Colombia], INEM industrial, social service, and agricultural streams are substantially less expensive than their control counterparts. Combined with the fact that these programs substantially boost achievement scores, they are unquestionably successful. Although the INEM academic and commercial programmes cost more than their control counterparts, they also substantially boost achievement.
>
> (Psacharopolos and Loxley, 1985, p. 93)

Similar results were found for Tanzania, where it was found that although diversified schools cost more, there was a substantial increase in both academic and vocational knowledge over that of the academic control group (Psacharopolos and Loxley, 1985, p.179). Therefore, the investment in diversified schooling did boost learning in both vocational subjects, explicitly targeted, and general academic subjects.

Considering the diversity of vocationalization pathways at the secondary education level, and the variety of contexts, there is a danger of overgeneralization. However, it is clear that investments in vocational and technical skills at the level of secondary school can be an important factor in economic development and growth. To increase returns on investment, demand-driven approaches to vocationalization need to be developed relevant to the stage of economic development, the type of the economy and regional specificities.

3.4 Implementation initiatives

Traditionally, countries around the globe have placed varying emphases on general and vocational education within secondary schooling. These were dependent on various historical, social, technological, economic and political considerations. Vocationalization of secondary education is taking a new form now, and aims at increasing students' employability through developing their personal characteristics, general competencies and specific vocational skills. The emphasis on the particular components depends mainly on the level of economic development, which predetermines the required skills.

Vocationalization occurs at both lower and upper secondary levels, through both embedded and distinct deliveries. At the upper-secondary level most countries have both technical/vocational schools and diversified secondary schools with general academic and vocational courses. Sections 3.5, 3.6 and 3.7 illustrate current practices and policy plans across a number of countries.

3.5 Vocationalization of the lower-secondary curriculum

Malaysia

Vocationalization at this level is not widespread. Only 49 out of 207 countries (23.7 per cent) reported students' enrolment at this level (Figure 6). Many programmes that are included in the UIS statistics are distinguished in nature, and aim to deal with drop-outs by providing an alternative option for low academic achievers at the lower secondary level.

In Malaysia the government is currently reviewing a curriculum to introduce vocational subjects at the lower-secondary level. This programme will target 13–15-year-old students, and is designed to prepare them to enter upper-secondary technical schools, which train students towards the Malaysian skills certificate. This preparatory programme consists of three blocks (taster electives, general/instructional subjects and a character-building programme) (Kasih, 2010).

Scotland, Germany and Poland

A quite different rationale can be found among developed countries vocationalizing lower secondary education. Berger and colleagues (2011) examined pre-vocational models in three European countries aimed at achieving a better understanding of the world of work and providing students with experiences and learning in 'near-work' environments. A pre-vocational curriculum was identified as a range of competences covering the broad economic and business environment, firm-specific knowledge and a range of core competencies and general skills. The curriculum was either offered as a separate subject area in schools (Scotland) or integrated into existing subject areas (social sciences and geography–economics–politics in Germany, and civic education in Poland).

The study identified a match between different types of economies (the liberal market economy of Scotland, the coordinated market economy of Germany, and the mixed market economy of Poland) and the structure of the syllabus and the competitive core competences identified for each of the countries. In the case of Scotland, the emphasis of the pre-vocational curriculum was on general and transferable personal skills following a core competencies model. Such self and social competencies as internal locus of control, risk-taking, communication ability and team ability were most important. In Germany, the wider economic and market environment and social and collective competencies prevailed over competencies in business. These competencies were knowledge-based in the field of trade and globalization, teamwork abilities and communication competencies (the role of enterprises in the debate on economic restructuring and globalization, and the development of new technologies). In Poland, priority was given to the wider market economy, including aspects of the labour market and industrial relations. The most dominant competencies were labour market, communication ability, monetary system, government policies, income, and

economic indicators. Self-competencies and competencies related to the level of individual firms gained very little attention in Poland.

In each country there was a very weak link between the prescribed curriculum and what was taught in the schools. The study concluded:

> In the case of Scotland and Germany, this was because teachers had decided to prioritise certain aspects of the curriculum and exclude others. In the case of Poland, the teachers were not trained adequately enough to teach the subject area and/or had insufficient resources to do so within an already overcrowded curriculum. What transpired, in effect, was a teacher driven curriculum that, by and large, emphasized the wider educational components of the subject area and the civic and social aspects of the curriculum. In Poland, pre-vocational education was primarily associated with Civic Education. While in Germany, the teachers were much more concerned with the wider social dimensions of citizenship rather than the broader economic and market structures highlighted within the core curriculum. Finally, in Scotland the teachers tended to teach the subject as a part of a broader occupational framework that tended to emphasise the educational aspects of the curriculum.
>
> (Berger et al., 2011)

There was a gap between the prescribed and enacted curriculum in all three countries. This study supported the notion of the importance of the cultural and economic contexts that influence the nature of pre-vocational education.

3.6 Vocationalization of the general secondary curriculum across all levels

Russia

According to Pavlova (2005), a new spin for the vocationalization of secondary schooling in Russia was introduced within the framework of general educational reform, guided by the Strategy of Modernization, Ministry of Education (MOE) of the Russian Federation, National Fund for Personal Training, in 2001. This restructured

the rationale behind schooling from academic subjects and content delivery to the development of general competencies and activity-based learning.

Vocationalization in Russia relates to the introduction of what is called profile education [profil'noe obuchenie] at the upper-secondary level (the last two years of schooling, grade 10 and 11) and the process of preparation for profile selection. Profile education provides students with the opportunity to study in depth a chosen area, usually one that is related to their planned further study (TVET or academic). Schools can design their own profiles, such as science, socio-economics, humanity or technology profiles, or keep a general orientation to their curriculum. This meant that specializations were established at the level of upper-secondary education.

In preparation for the upper-secondary specialization a 'pre- profiling' programme was introduced in grade 9 (comprising100 study hours or three hours per week) to help students to make their choices in grade 10. The structure of this programme was identified as follows: two hours per week to be used for two types of courses: subject courses (to deepen knowledge and understanding in particular subjects depending on the student's interests) and orientation courses (to help students choose an educational profile for upper-secondary school); one hour per week to be used for information courses about the local educational institution, rules of enrolment and other practical details (Russian Federation, 2003). There is current debate on the value of starting the 'pre- profiling' programme earlier, perhaps in Year 7 or 8.

Pavlova (2005) identified three components of vocationalization: learning for work (work-related knowledge, practices), learning about work (settings and conditions), and understanding the nature of work (sociocultural, economic and political forces that influence work). This 'pre-profiling' programme focuses on the learning for work component. It was integrated into the academic curriculum (1–11) through general competencies in the sphere of socio-working activities (such as the ability to analyse the situation in the labour market, evaluate personal professional abilities, and orientation to the norms and ethics of labour relationships). Competencies in the sphere of socio-working activities are positioned among other general key competencies in the spheres of cognitive activities, civil-social activities, household activities, and culture-leisure activities that provide a framework for curriculum development in general education.

Therefore, the process of vocationalization consist of three parts: general work-related competencies integrated into the academic curriculum, specialized studies at the level of upper-secondary school, and the pre-profiling programme at the lower secondary level that guides students in making important decisions related to their further studies at the upper-secondary level and future employment. The introduction of 'pre- profiling' programmes and profile education developed a vision of how education for the world of work could be included in school curricula, and set up a firm opportunity to develop a modern system of lifelong vocational education.

At the upper-secondary level students can enrol in technical and vocational colleges where traditionally general education has played a significant part.

India

According to the Government of India (GoI) (2010), India is making a distinction between work-centred education, which is known as 'vocationalized education', and 'vocational education' at the upper-secondary level. Currently, there are no relationships between these two components. Work education is included in the primary standards (grades 1–8) to make the students aware of the concept of work. At the lower secondary level (grades 9 –10) pre-vocational education does exist, and aims to increase students' familiarity with the world of work.

Vocational education is a distinct stream in upper-secondary education (grades 11–12). It was introduced in the year 1976/77 and then revisited in 1992/93 as a way to diversify educational opportunities, enhance individual employability, and reduce the mismatch between supply and demand of a skilled labour force. It was also aimed at diverting a substantial portion of students away from the 'academic' stream.

The need to bring together vocational and academic education at the level of policy plans was recognized by the Indian government. On the one hand, it identified a need to reconstruct the entire school curriculum (from pre-primary to senior secondary) around a common core curriculum that will incorporate work-based pedagogy initially until grade 10 and then up to grade 12 for all children. A set of work-related generic competencies (basic, interpersonal and systemic) is planned to be addressed at all stages of education and be included in assessment. Among others, such generic competencies as 'critical thinking, transfer of learning, creativity, communication

skills, aesthetics, work motivation, work ethics of collaboration, entrepreneurship and social accountability' are to be included.

On the other hand, strengthening the general education component of vocational education has been recognized as an important development. Vocational programmes are to provide sound basic knowledge in the humanities and sciences, preparing students to work in various occupations, teaching students to be problem-solvers and encouraging them to continue learning.

Currently, vocational education in schools at upper secondary level is mainly offered by government schools, although in some states private schools are also offering these courses. As of 2007 9,583 schools were offering about 150 educational courses of two years' duration in the broad areas of agriculture, business and commerce, engineering and technology, health and paramedical, home science and science and technology (Planning Commission, 2008, cited in GoI, 2010). Only 3 per cent of secondary school children are enrolled in the vocational stream.

Despite the fact that the 11th Five Year Plan aimed to double the number of schools offering TVET (from 9,583 to 20,000, so that the intake capacity would increase from 1 million to 2.5 million), there has been very slow change. The report (GoI, 2010) questioned the quality and relevance of TVET provided at the upper secondary level for equipping schoolchildren for the requirements of the world of work. Most of the courses are school-based. However, some of these have been perceived on a collaborative model with industry. The theory part and some basic skills are developed in schools, and there is further refinement of skills in industry.

India is among the countries with the lowest proportion of trained youth: 80 per cent of new entrants to the workforce have no opportunity for skill training. The existing training capacity is 3.1 million per annum compared with 12.8 million new entrants to the workforce annually. The government has taken due recognition of the skill gaps and plans to take new initiatives for bridging them. In this regard, the National Policy on Skill Development (GoI, 2009) provides a direction for skill development in the country.

3.7 Vocationalization of the upper-secondary curriculum

Malaysia

(This section draws on Minghat et al., 2010.) The MOE recognizes the importance of HRD in achieving the country's development aspirations. The introduction of vocational subjects (VS) at the upper-secondary academic school level is an important measure stated in the Education Development Master Plan (EDMP) 2006–2010 by the MOE. Twenty-two elective vocational subjects were approved to be included in the secondary school curriculum (Table 4).

Table 4. Vocational Subjects in secondary schools

Field	Vocational Subjects
Engineering Services	1. Domestic Electrical Equipment Servicing 2. Domestic Wiring 3. Repair Refrigeration and Air-Conditioning Equipment 4. Gas and Arc Welding 5. Motorcycle Servicing 6. Basic Gerontology and Services
Construction	1. Domestic Construction 2. Furniture Making 3. Domestic Plumbing 4. Architectural Signs 5. Interior Design Basis
Home Economics	1. Clothing Design and Sewing 2. Catering and Serving 3. Food Processing 4. Home Hair Care and Toiletries 5. Care and Early Childhood Education 6. Basic Gerontology and Services
Agriculture	1. Landscape and Nursery 2. Food Crops 3. Aquaculture and Animal Entertainment
Computer Applications	1. Domestic Computer Graphics 2. Multimedia Production

Source: Concept Paper Vocational Subjects, Curriculum Development Centre, MOE (2001).

The MOE has set up National Key Performance Indicators (NKPI) to expand access to quality and affordable education. In the Fifth NKPI, TVET gained a very significant role in the Malaysian development agenda, with a target of 100 per cent student participation in both vocational education and skills development by the end of 2015. According to Jab (2009), VS in secondary schools were the ones specifically targeted in NKPI-5. Figure 2 illustrates one of the NKPI planned by the MOE to increase the number of students in both academic and technical schools at the upper secondary level over the five years from 2010 to 2015 to 100 per cent.

However, participation in TVET does not lead to further employment in the area of training. A case study conducted by the Johor State Education Department in 2004 analysed destinations of the students who graduated with the VS Malaysian Certificate of Education (MCE) from three schools. The results are presented in Table 5. Only 15 people (14.29 per cent) of the 105 students who sat for the exam pursued education in the same area in both public and private institutes of higher education. Only 8.57 per cent of students, nine people, pursued careers in the field of their training. A much higher percentage of students, 45.7 per cent, were not engaged in careers relevant to their VS studies at school.

Inadequate career counselling arrangements, provision of only work-related knowledge through VS, and failure to build motivation lead to a lack of interest in pursuing further studies in TVET. Other problems are the poor quality of many courses, the need for them to be updated, and the need to improve teachers' qualifications.

Therefore, students' VS studies have not resulted in career paths. This is cause for economic concern for the government. The introduction of VS at the secondary school level was aimed at increasing the level of training of the national workforce to enhance economic growth. However, the results of the above study demonstrated that this was not the case. Another tracer study of secondary TVET graduates in Malaysia by the ADB indicated that 90 per cent of technical graduates moved on to polytechnics, while the remaining 10 per cent (mostly secondary vocational school graduates) proceeded to specialized vocational institutes. A telephone survey in 2006 by the Malaysian Employers Federation indicated satisfaction with graduates' technical knowledge, but employers wished to see more emphasis placed on soft

skills, such as problem-solving, communication and work ethics (ADB, 2007a, pp. 16–17).

Figure 2: The planned number of students in both VS (academic schools) and skills development subjects (technical schools) at the upper-secondary level.

Source: Technical & Vocational Education Department, MOE, 2009

Table 5. The paths chosen by the MCE VS Leavers in 2004 (across three secondary academic schools in Johor, Malaysia).

Item	Subject	No. of Students	%
1.	Continued education to Form 6	6	5.71
2.	Continued education to Public/Private Institutes in the same field of study	15	14.29
3.	Continued education to Public/Private Institutes in different fields of study	7	6.67
4.	Pursued careers related to VS	9	8.57
5.	Pursued careers not related to VS	48	45.70
6.	Worked independently	3	2.86
7.	Did not work	17	16.19
	TOTAL	105	100.00

Source: The Technical & Vocational Education Unit, Johor State Education Department (2007) Note: The sample above was based on three schools that offer the VS; the SMK Pekan Baru, Muar, SMK Perling, Johor Bahru and SMK Bandar Tenggara, Kulai.

The examples above illustrate a political will to vocationalize secondary education at both lower-secondary and upper-secondary levels. They reveal several rationales behind these processes:

- A social trend: to keep potential drop-outs in school, to provide greater accessibility of skills development, character building, increase in attainment;
- A technology trend: to develop higher-order thinking skills, and problem-solving skills, as a part of general/flexible work-related competencies to help students to adapt to the fast-changing technological environment;
- An economic trend: to develop employability skills to improve the quality of human resources to meet the needs of globalization.

The first two trends also contribute to economic development goals.

4 Diversifying post-secondary TVET

Many countries have taken steps to improve the articulation of secondary vocational education with higher education to open up more options for students and to meet an increasing demand for skills and qualifications at ISCED Levels 4 (non-tertiary post-secondary) and 5 (first stage of tertiary), which are designed for employment in technical, managerial and professional occupations. As the demand for enrolment at post-secondary and tertiary levels has increased in most countries, pressure has grown for diversification of the types and modes of provision at these levels. In many countries this has led to a proliferation of new vocational programmes at both Levels 4 and 5. For example, many two-year 'colleges' in Japan, which catered exclusively for women, have either closed or been converted to four-year institutions, as the 'glass ceiling' in the labour market changes. In the USA, two-year community colleges with high vocational content are designed to extend students' opportunities to enter the labour market or to continue to a baccalaureate degree. Some countries allow graduates from apprenticeship programmes to enter

tertiary education (such as Austria, Switzerland and the United Kingdom, for selected apprenticeship programmes). Many countries in Latin America, South Africa and Europe have gradually opened up further education to technical education graduates.

'Junior colleges' in the Republic of Korea (jeonmun daehack) offer two- or three-year post-secondary vocational education programmes. They were established in 1979 due to rapid industrialization in Korea and the increasing demand for middle-level technicians with both theoretical understanding and practical skills (Goodman, Hatakemada and Kim, 2009). Specialized courses offered at junior colleges are grouped into broad areas such as engineering, agriculture, fishery, nursing, health, home economics, social work and arts (with two- or three-year programmes). Programmes for such majors as nursing, kindergarten teacher training, mechanics courses, and fisheries are three years (Korean Culture and Information Service, 2009 cited in Goodman et al., 2009). To increase the employability and career opportunities of their graduates, some colleges include additional practical courses in their programmes such as ICT, computer software, internet business, cosmetic science and physiotherapy.

Due to a thorough curriculum, strong school–industry cooperation including internships, industry-based training for faculty members, education for mid-career industry employees, joint college/industry research programmes, information exchange, the active work of industry/college cooperation committees, and curriculum development at the industries' request, college graduates are highly valued in the Republic of Korea. The employment rate of college graduates in 2004 was 18.1–21.5 per cent higher than that of four-year university graduates (Korean Council for College Education, 2005, p. 41). Out of 329 higher educational institutions in the Republic of Korea, 158 are colleges (of which 6 are national, 9 public and 143 private). Of the 80 per cent of high school graduates who pursued further studies, 45 per cent enrolled in colleges.

The definition of programmes at Level 4 is extremely broad, and there is a wide range of programme types which may be classified here, ranging from short pre-employment courses to longer courses oriented towards higher-level education and training. One area where there has been a marked rate of growth in participation across regions is in the provision of skills training programmes for lower- and middle-

ranking administrative and technical occupations, and particularly those involving business, administrative and ICT skills. Polytechnics in many countries, industrial training institutes in India and technical colleges in Sri Lanka belong to the post-secondary non-tertiary level.

A comparable diversification has occurred in vocational tertiary programmes. As demand for tertiary education has increased, many countries have substantially extended the range of short- and medium-length vocational programmes available at ISCED 5B[4] (see Table 2 for country provision). These have included developing skills for a large number of occupations which previously did not exist or for which there was previously no higher-level qualification. In some cases these new programmes have been offered in traditional university environments, but for the most part they have been developed in polytechnic-type tertiary vocational institutions. Community and technical colleges in the USA have developed post-diploma programmes to deliver such 'newer' skills to those both with and without first degrees, as well as those wishing to upgrade their skills.

At the same time, as the range of types of programme has increased in terms of content and intended labour market utility, so have the ranges of provider institutions and modes of delivery. Many countries, notably Malaysia and the Republic of Korea, have developed very extensive systems of open university distance education provision both in general areas and TVET, although the latter is largely limited to what can be learned without highly specialized and expensive equipment. The USA has also developed 'open college' TVET programmes. It is interesting to note that many of the new programmes are delivered by private providers, especially in Asia. These are often licensed and subsidized by the state, but increasingly they also include entirely independent providers, particularly at Level 4.

[4] Tertiary-type B programmes (ISCED 5B) are typically shorter than tertiary-type A programmes, and focus on practical, technical or occupational skills for direct entry into the labour market, although some theoretical foundations may be covered. They have a minimum duration of two years full-time equivalent at the tertiary level (OECD, 2002).

5 Vocationalization of higher education

Historically, vocational education and higher education emerged from opposing traditions, with universities producing systematic scientific knowledge, and vocational education providing training for specific occupations. As a result, university outputs were evaluated on the basis of their contributions to scientific disciplines (Klüver, 1995) while vocational education outputs were concerned with the ability to undertake useful work. Those relationships have been established over time, with socio-economic development influencing the process. Mass higher education, elite higher education, polytechnics and different levels of vocational institutions, including higher vocational education establishments to train doctors, teachers and lawyers, have been developing complex relationships in countries around the globe. Even countries in the European Union, such as Germany and the United Kingdom, with market economies, have different approaches to higher and vocational education. As stated by Hoelscher (2005), in Germany higher education is more vocationally oriented than in the United Kingdom, and vocationalization is more related to the development of specific skills that are tied closely to a particular occupation. In the United Kingdom particular higher degrees typically do not lead into specific occupational fields, as it is considered reasonable for individuals to invest in the development of general and transferable skills. At the same time there is a wide range of extremely specialized short-term programmes offering vocational qualifications.

Due to the changing nature of the state, the role of the university in the current economic situation is the topic of wide-ranging discussions, particularly in terms of the usefulness of the model that can be characterized as 'humanitarian university education'. The major point of criticism of this model is that it does not serve the demand for instrumental knowledge and specialization, formulated by the so-called 'knowledge society'.

5.1 Levels of debate

Current discourses on vocation and higher education relationships can be viewed at a number of levels – political/economic, epistemological and individual.

At the political level, the debate relates to HRD issues and the need to increase employability (as discussed in the Introduction). Currently the speed of transformation is far more intense than in the past. As it was put in a report on Life Based Learning:

> The knowledge Era is characterised by impermanence, turbulence, multiple and competing agendas and priorities, diversity in ideologies, ambiguity, multiple roles, irritations, uncertainty and contradictions and a great amount of energy and creativity .... The knowledge Era is an era of rapid movement. There is so much going on that we need new and meaningful ways to make sense of how to best work, learn and live effectively in these times.
>
> (Staron, Jasinski and Weatherley, 2006, p.23)

At the political level, the ideology of detachment of university degrees and their academic curricula from the labour markets can be regarded as a negative trend in university development. It overlooks one of the important elements composing a university: its students. Academically detached education is regarded as providing insufficient skills for the appropriate employability of university graduates. Thus, at the political level there is a basis for establishing close links between higher and vocational education.

At the epistemological level, the discourse on what is knowledge, and what is worthwhile knowledge, has its influence on the concept of university knowledge. Some of the dichotomies presented in this discourse, such as the universal versus the particular, formal versus experience-based, the search for truth versus utilitarianism, context-free versus context-dependent, position university knowledge much closer to the individual than the discipline, depending on a person's subjectivity, needs and experiences. Additionally, TVET is seen as 'a knowledge-based industry, where knowledge is its core business' (Staron et al., 2006, p. 24). Recent research on TVET (Staron et al., 2006, p. 24) argues that life-based learning is required for vocational education focusing on capability development and considering the learner as a whole person. 'The emphasis is on personal responsibility for learning through the provision

of rich learning environments with the learning benefits both the individual and the organisation' (Staron et al., 2006, p. 49). This model suggests using methods that are diverse, adaptive, self-facilitated, and based on reflexive practice strategies to achieve the goals and aspirations of the individual. This broad interpretation of TVET training positions it closer to higher education. Thus, on the epistemological level there is the basis for developing close relationships between higher and vocational education.

At the individual level, the personal needs of the student should be met through education. As stated by Nikolaou and Papadakis (2003), the ongoing revision of the relationship between education in general, university education and the labour market requires a 'balanced holism between the economy-oriented view – OECD, E.U. – and the human-oriented approach – UNESCO – of the Knowledge Society and the role of Higher Education in it' (p. 5). To achieve this, regulatory mechanisms and frameworks that could shape particular policies need to be developed. Structural changes, requirements of the globalized economy and interpretation of knowledge, and the repositioning of individuals and their actions in the centre of the educational process, need to be considered to harmonize higher education within counties' economies. An Australian study on learning pathways within and between TVET and higher education (Harris, Rainey and Sumner, 2006) identified five pathways within the overall framework of lifelong learning:

- Interest chasers: when describing this pattern of movement, the terms used might be 'multi-directional', 'searching', or 'yo-yo': that is, bouncing between different fields of interest.
- Career developers: some participants showed consistent interest, even though they may have made several sectoral moves. Sometimes this looked like a domino pattern, where an element of one learning experience led to a sectoral move to further develop this as a career. This pattern was more linear, being less of a 'jump' than a 'flow' into another course of study.
- Career mergers: having explored interests in other areas, some participants then drew different experiences together to move into a more focused course of study. This was different from the 'career developer' pattern, in that it was usually non-linear.

- Forced learners: sometimes participants undertook what appeared to be a completely different course of study for professional development reasons. Sometimes this change was the result of some practical factor which obliged them to undertake a particular course, such as affordability, location or entry requirements. This might appear like a detour or sidestep.
- Two-trackers: some more experienced respondents attempted to develop an alternative career as insurance for a time when their current career was no longer possible. This pattern also occurred when students were trying to improve their chances of earning an income while studying. (Harris et al., 2006, p. 10).

The results highlight the role of personal choices where an individual has autonomy to choose their pathway. The study also revealed that approximately 40 per cent of all sectoral moves were within the same field of education. There was more movement within TVET, both for the same and for different fields of education, than there was within the higher education sector. Students' interests as well as vocational reasons were behind their choices. Thus, at the individual level, in the countries where articulation between TVET and higher education is in place, there is freedom of movement between two sectors that are beneficial for students.

5.2 Issues with statistics

Currently, it is difficult to capture TVET-related enrolments at the tertiary level. The UIS focuses primarily on public provision, and distinguishes two categories in tertiary education: programmes that lead students to further levels of education and are normally general education, and programmes that lead to the labour market and out of formal education.

Conservative estimates of tertiary education that is labour market-oriented hover around 25 per cent (Ellis, 2005). At the top end of the range are countries like Belgium (51.4 per cent), Kenya (49.9 per cent), Malaysia (47.3 per cent), Mauritius (55 per cent), and Slovenia (48.8 per cent). At the low end are countries such as Finland (5.6 per cent), Germany (15.2 per cent), Italy (2.4 per cent), Mexico (2.9 per cent), the Netherlands (1.5 per cent), and South Africa (14.3 per cent).

5.3 Challenges and issues

The challenge is to link higher education with the constantly changing needs and opportunities of contemporary society and economy, and this is seen as an increasingly important issue by universities and politicians (European Commission 1995, p. 21; Neave and van Vught, 1991). Creating a fruitful and dynamic partnership between higher education and society at large has become one of the basic missions (together with teaching and research) of universities (e.g. Dewar, 2005; Griffith University, 2002). At the level of structural change the following three trends can be seen as important in that respect:

- The distinction between top universities (highly selective admission) and mass universities (open to all school leavers) might influence the scope of their responses to the trends discussed above.
- Improvement of the reputation of TVET through developing it within the university sector is seen as one way of establishing close relationships between higher and vocational education. Higher vocational institutes in PR China are an example of this approach. They have been developed as an independent branch of the university sector.
- A common qualification framework for vocational and higher education that reflects the interrelationships between the structure of educational qualifications and the occupational structure of the labour force, and between education and social change, could provide possible synergies between higher education and vocational education.

Some trends that are related to the challenge of the knowledge economy are:

- Development of interdisciplinary links across traditional academic disciplines, blurring the boundaries and developing new approaches towards knowledge production.
- Development of employability skills required for all sectors of the economy can be seen as a priority for both vocational and higher education. In Germany, for example, it is quite common that graduates with a bachelor's degree undergo an apprenticeship in order to improve their employment opportunities (Rauner, 2005).

- Life-long learning as a way of responding to rapid knowledge development and market change is considered as essential for both sectors.

In terms of human-oriented approaches and personal development, life-based learning can contribute towards the development of policies and practices. This learning should be personalized in the following ways: self-directed; context based; work/life integration; holistic; learner as designer; adaptable and sustainable (Staron, Jasinski and Weatherley, 2006, p. 50).

A number of concerns have been expressed by both TVET and higher education practitioners:[5]

- Change in the nature of societies, which relates to global economic competition and a request for graduates relevant to the economies.
- Quality and standards. The distinction should be considered between short and medium-term orientation in qualification demands that are met through vocational training, and long-term educational profiles for university qualifications. Thus, the goal of tertiary education must be sustainable and provide long-term usable professional education (Schulte, 2005).
- Vocational qualifications should provide access to university education.
- University education for vocation education teachers is required which should include occupational domains and pedagogical qualifications.
- There is no one model approach that fits all because frameworks for the vocationalization of higher education will be different in different contexts.

5.4 Implementation modes

Different ways of implementing vocationalization include:

- At the higher education level, programmes have been redesigned to incorporate a more vocationally-oriented content, such as workplace problems being used as learning resources, professional placements (internships, work placement schemes, innovative provision of work-based learning/work experience through

[5] As discussed at a Bonn seminar on the vocationalization of higher education, 2005.

opportunities within, or external to, programmes of study), negotiated learning contracts for individual students, and the development of complementary ICT, language and management skills to equip graduates for future careers.

- Cross-faculty courses and interdisciplinary research centres have been established by the universities to overcome a segmented approach to knowledge development and acquisition.
- Higher education institutions are marketing new programmes more oriented to market needs, such as programmes related to business, commerce and the human professions.
- Employability-enhancing activities that are not related to content teaching, such as enhanced support (usually via career services) for undergraduates and graduates in their search for work; enabled reflection on and recording of experience, attribute development and achievement, alongside academic abilities; the appointment of specialist staff such as skills advisors and pathway officers.
- Embedded attribute development within programmes of study to make skills explicit, or to accommodate employer inputs by securing involvement of the industry representatives in higher education policy-making, strategies and implementation (as is done for example in PR China's vocational institutes).
- Postgraduate, on-the-job training and experience both as a compulsory part of educational programmes (for instance, for the medical professions) or as a non-compulsory part of the programme required by professional associations as a prerequisite for joining the profession (for instance, for lawyers).
- Recognition of prior learning for both vocational and higher education programmes particularly as part of an increasing stress on the importance of life-long learning; arrangements for articulation, provision of enabling or bridging courses for those lacking knowledge and skills for the higher education programme.
- Inter-institutional collaborative arrangements (for example some technical colleges in Tajikistan have the same first two-year programmes as their 'linked'

universities, so high achievers from colleges can transfer to the third year of study at the university; institution from both sectors use same campuses and deliver joint courses).

Trends, concerns and examples of the vocationalization of higher education represent the ways education is adjusting to changes in the socio-economic environment. These processes can be viewed as a way of self-organization where economic, vocational and higher education systems exchange information by interpreting the actors' understanding of approaches and issues. This dynamic is viewed as a way of achieving harmonization of universities with the country's economy.

6 Conclusions

The rapid transformation of societies in their social, political, economic, technological, and education spheres has changed perspectives on the need for and nature of vocational skills. A historical change of views on vocationalization from more educational to more functional (where the development of employability skills became the main focus) has broadened the nature of vocationalization and included separate technical courses under its umbrella. This pattern is due to the gradual blending of general and vocational programmes, which sometimes share up to 75 per cent of their content.

Within general secondary education there is a diverse pattern of provision of TVET. This includes at least two levels, lower secondary and upper secondary, and is delivered within two modes, as embedded learning and as separate course/programmes. Many versions of post-secondary and tertiary delivery are in place. The degree to which vocationalization occurs and its nature depends on the level of economic development and on cultural traditions. Social, economic and technology rationales are used by governments to decide on their particular vocationalization policy.

Acronyms and abbreviations

ADB	Asian Development Bank
EU	European Union
GCSE	General Certificate of Secondary Education
GHC	general human capital
GNVQ	General National Vocational Qualification
GoI	Government of India
HRD	human resource development
ICT	information and communications technology
ISCED	International Standard Classification of Education
LSE	lower secondary education
MOE	Ministry of Education
MCE	Malaysian Certificate of Education
NKPI	National Key Performance Indicators
OECD	Organisation for Economic Co-Operation and Development
SHC	specific human capital
TVEI	Technical and Vocational Education Initiative
TVET	technical and vocational education and training
UIS	UNESCO Institute for Statistics
UNESCO	United Nations Educational, Scientific and Cultural Organization
USE	upper secondary education
VET	vocational education and training
VS	vocational subjects

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Chapter 3

The attractiveness of TVET

Christopher Winch

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1 Introduction

This background paper addresses the issue of what barriers lie in the way of technical and vocational education and training (TVET) becoming a more attractive option, the social dynamics that create such barriers, the attitudes and options of the various interested parties, and finally, approaches that may be taken to make TVET more attractive.

By 'attractiveness' in relation to TVET is meant the preferability of TVET compared with alternatives. Thus for individuals this means the preferability of TVET as opposed to, for example, direct engagement in the labour market or the pursuit of higher education. This is also the case for parents' preferences for their children. For employers and trade unions it relates to consideration of the alternatives of not providing TVET at all or of hiring individuals who have already received TVET elsewhere. For governments it is more complex. The attractiveness of TVET for governments is manifested as a policy preference contrasted with options such as the development of higher education (HE), leaving decisions to employers, or investment in general education. In the case of governments the attractiveness or otherwise of investment in TVET as a policy option is likely to be bound up with economic and political priorities and ideological predispositions as well as short-term pragmatic considerations.

2 What is TVET?

2.1 Some basic terminology

The phrase 'technical and vocational education and training' needs to be carefully unpacked before we can have a clear view of what it means and why it may or may not be attractive. We should also note that this is not terminology in universal use. For example VET (vocational education and training) is more commonly used

in Anglophone countries. We need, in particular, to discuss 'technical education', 'vocational education' and 'training', as these are all distinct, if related, concepts.

Education can in a broad sense be defined as a preparation for adult life or for a phase of adult life. Since a significant part of most adults' lives is spent in paid employment, vocational education is that part of their education that prepares them for this element of their lives, just as general education prepares them to develop themselves as individuals and civic education as citizens. None of these are mutually exclusive, as we shall see, and indeed an important element in making TVET attractive rests on its having relatively porous boundaries with these other aspects of education.

Vocational education should be clearly distinguished from training. Training is essentially concerned with the inculcation of routine activities so that they can be carried out with competence and confidence. This does not mean that they should be carried out without the exercise of judgement and discretion. Gilbert Ryle's distinction between training and conditioning makes this clear (1949, p. 43). Someone who is trained may have to perform the same type of task repeatedly; in doing so however, they have to adapt to the particularities of each task, the context in which they are operating and the requirements of their manager or customer. Someone who is conditioned, on the other hand, simply performs a routine without thinking or exercising judgement.

Training is, in fact, a significant part of the education of all of us, and not just part of our vocational education, to the extent that competence and confidence in certain routine and regularly performed activities are preconditions of more sophisticated forms of learning (Winch, 1998, ch. 5). We should not regard training as particularly vocational in character; rather accept that training to carry out routine tasks is a necessary part of preparation for many kinds of practical activity as well as job. But it is a very different matter to maintain that vocational education is nothing more than training. When in fact that is all it appears to be, we are likely to find employment where routine work is all that is available, and the preparation for it is correspondingly less attractive than other forms of education. The distinction between vocational education and training is, then, of great importance, and needs to be observed carefully in the construction of TVET programmes.

Technical education involves preparation for the use of techniques, usually in vocational activities. These techniques are derived from the application of scientific principles to practice. Indeed, it is sometimes said that those whose expertise derives from the application of science, or more generally of systematic knowledge, to practice, are technicians even when their occupation is classified as a profession (ISCO, 2008 pp.14 ff; Freidson, 1986). It is easy, therefore, to see why technical education is usually associated with vocational education although it is not to be identified with it since there are forms of vocational education that prepare people for occupations whose practice does not require the application of systematic or scientific knowledge. See Sturt (1923) for an eloquent and highly informative account of a traditional rural craft occupation.

2.2 The relationship between TVET and HE

Although higher-level (International Standard Classification of Education [ISCED] 5B and above) vocational education needs to be considered in this paper, especially level 5B, the main focus is on TVET that has exit qualifications below that level. HE, classified as ISCED levels 5 and 6, also needs to be considered. There are two relevant issues. The first concerns permeability or the capacity of a qualification at ISCED level 4 to provide access to and preparation for a qualification at level 5 and above. The second concerns qualifications at level 5, particular at 5B, which are of an explicitly occupational orientation (ISCED, 1997, paras 89–90). The attractiveness of TVET is connected to both issues, and therefore the relationship of TVET to HE is of major importance here. A significant part of HE is directly concerned with TVET, and so we cannot give an adequate account of the attractiveness of TVET without a close consideration of its relationship to HE.

3 Why is there a problem concerning the attractiveness of TVET?

3.1 History

TVET has traditionally been thought to be a relatively unattractive educational option compared with higher education (including vocational higher education, VHE). While the relative unattractiveness varies greatly across different countries and cultures, it is nevertheless remarkably pervasive, and has ancient roots:

> When we abuse or commend the upbringing of individual people and say that one of us is educated and the other uneducated, we sometimes use this latter term of men who have in fact had a thorough education – one directed towards petty trade or the merchant shipping business, or something like that. But I take it that for the purpose of the present discussion we are not going to treat this sort of thing as 'education' when what we have in mind is education from childhood in virtue, a training which produces a keen desire to become a perfect citizen who knows how to rule and be ruled as justice demands.
>
> (Plato, 1970, p. 73)

Until very recently, in most civilizations, education was offered only to a small proportion of the population. Training, on the other hand, was provided in order for the large majority of the population who find themselves in employment of one kind or another to do their work. Sometimes, for a relatively favoured few, it was in the form of a formal apprenticeship with a contractual agreement, but for the vast majority of the world's population, informal workplace learning or an extended informal apprenticeship was the most that they could expect. It was rare that such forms of vocational learning incorporated elements that belonged to the curriculum of those who received a formal education. The confinement of restricted TVET to the non-élite sections of the population, and the isolation of its curriculum from that of élite education, did nothing to enhance its attractiveness.

Connected with this is the fact that to engage in paid employment was widely thought in earlier times to exclude individuals from participation in élite culture. Those being paid to work were essentially seen as engaged in ignoble activities not befitting a gentleman. As Aristotle says of musical education:

> The right measure will be obtained if students stop short of the arts which are practised in professional contexts and do not seek to acquire those fantastic marvels of execution that are now the fashion in professional contexts and from these have passed into education.
>
> (Aristotle, 1988, Book VIII, p. 193)

In other words, the educated person in Aristotle's day would be aware of the difficulty of making music in order to appreciate it properly, but would not stoop to acquire the degree of professional expertise that is proper to someone who has to make a living from playing.

TVET has then been associated historically with those classes of society who have to work for a living and who do not partake of the kind of education fit for the gentry, even if the greatest experience and ability is required in order to practise an occupation. A conception of what a worthwhile life could be has thus been implicitly shaped around the ideal of cultivated leisure. Working for a living has traditionally been thought in many societies to be undignified and not a worthwhile way of spending one's time. This view was reinforced in classical and neoclassical economic theory through the idea that work is a disutility and needs to be compensated for (Verdon, 1996, p. 21).

Although this kind of negative attitude is associated with an obsolete view of society, in which education was not offered to the great majority of the population, it nevertheless has a continuing effect on the attitudes of wide and influential strata of the societies of many different countries around the world concerning the aims of education in an age of mass public education. The expansion of education through mass public provision has sometimes been accompanied by renewed thinking about what its aims should be. However, where this thinking does not take place there is often an assumption that the aims that hold good for a small, economically independent éite will hold good for the rest of the population. In other words, there

is no distinction between the aims of education for a small élite accustomed to leisure and personal cultivation, and for the large, economically dependent majority of the population.

Even the initial restricted expansion of education, which developed a stratum of officials who could manage the complex literacy-dependent demands of running an industrial and financial economy, did not raise tensions too seriously. It turned out that the kind of liberal education offered to them was not too dissonant with their employment trajectories. But it is almost inevitable that there will be a tension between the expectations of new strata of society brought into education and the aims, often unstated, of the newly expanded public education system. It cannot be assumed that the aims of education considered desirable by the élite or the new bureaucratic class will be regarded with favour by the rest of the population, apart from those who wish to move socially into one of these classes.

This was a problem of which the earlier advocates of mass education like Wilhelm von Humboldt, Adam Smith and John Stuart Mill were aware (Benner, 2003, ch. 2). Even liberals like Smith and Mill thought that sanctions would be necessary in order to ensure that parents met their educational responsibilities. In Smith's case this involved restricted labour market entry for those who failed to gain appropriate qualifications (Smith, 1776/1981, p. 786). In Mill's case it involved fines on negligent parents (Mill, 1859, pp.161–62). In both cases mass assessment was thought to be necessary in order to enforce such policies.

Neither of these authors, however, paid much attention to vocational education. They assumed that a good general education was a sound basis for citizenship even if it was not always necessary for employment. This omission is a legacy which some developed countries have, with varying success, struggled to overcome in their development of TVET. A particular problem has arisen over the perceived discontinuity between TVET and liberal/academic education. Where the discontinuity has been institutionalized, problems of the attractiveness of TVET have become particularly acute. We can see, therefore, that attention to the fundamentals of education is a necessary basis for reforms that seek to make TVET attractive to broad sections of the population.

3.2 Contemporary implications

The challenge is, therefore, to provide an appropriate kind of education for a large section of the population, which suits their needs but does not seem degrading at the same time. One way of approaching this which has been tried with some success in Western Europe is to frame the aims of the public education system in such a way that developing different dimensions of their humanity is recognized as an appropriate goal for all who undertake public education. The emphasis may vary from individual to individual, but participation in common goals will be prescribed for all. Thus French education recognizes that all should be prepared for roles as individuals whose personal development is important, as workers (economically active) and as citizens capable of taking part in the life of a democracy (Méhaut, 2011, pp. 36–49). It is an important feature of any such aim if it is officially recognized, that being economically active is, in some sense, both a valuable and a rewarding exercise of human powers and a recognizable expression of humanity (Kerschensteiner, 1906). Furthermore, and in pursuit of this objective, all qualifications recognized as educational, but with a significant vocational purpose, should have a dual value both as passports through education and as accreditation in the labour market.

There are a number of issues that we need to consider.

The need to sustain promises made about the individual value of post-secondary education

Although the development of mass education has had a number of aims, and although compulsion exists in order to ensure it, education has also to hold out a promise of a better life to those who have to undertake it. TVET needs, therefore, to have demonstrable benefits. These need not only be economic ones, but if economic benefits do not result, then the attractiveness of TVET becomes problematic.

The need to address disparities of esteem between academic and vocational education

It is often said that there needs to be 'parity of esteem' between vocational and non-vocational education (e.g. HM Treasury, 2006, p. 16). There are reasons for thinking that this is more a hope than an expectation. We have already noted that TVET attracts

less esteem than liberal education, and that it has done so for a long time. There is no doubt that the gap in esteem between liberal and vocational education varies in different states and societies, and there are some countries, such as Germany, where TVET has traditionally enjoyed high esteem. But this does not mean that it enjoys, or is likely to enjoy in the foreseeable future, 'parity of esteem'.

However, there is a problem when TVET enjoys little or no esteem, and it should be one of the priorities of governments interested in increasing its attractiveness to individuals that it should enjoy a substantial degree of esteem. 'Parity of esteem' is probably a chimera; a good degree of esteem, will however, greatly enhance the attractiveness of TVET. We look in more detail at this issue below. However, it is almost tautological to say that if TVET does not enjoy at least some degree of esteem, it is most unlikely to be an attractive option to more than a small minority of the population.

The need to provide technical resources for economic development

Economic development, especially if it is to be based on development of a society's productive powers, demands, among other factors, the development of the technical potential of a sizeable proportion of the working population (List, 1841, ch. 16). States that are concerned with economic development in this sense are drawn to consideration of how it is possible to develop these kinds of resource. TVET is a potentially attractive route for such governments if their aim is to develop an economy that relies on technical and vocational abilities that, although they require the basis of a good lower secondary education, do not require higher education for their development.

'Technical resources' in this sense means abilities that involve the application of systematic and scientific knowledge to manufacturing or service activities. Such knowledge is that of the 'technician' rather than the 'technologist': that is, someone who makes use of systematic knowledge in performance and judgement in the workplace in conditions of moderate independence. Such employees are not normally required to contribute to the creation of systematic knowledge relevant to their occupation, although they might do so on occasion. Economies such as that of Germany, which specializes in high-quality, high-value-added manufactures and services, rely greatly on having a large proportion of employees of this type. For

states that do not propose that a major part of their economic development takes place along this route, TVET is a less attractive option.

The need to provide sustainable resources for economic sectors in danger of being neglected in rapid economic development

This is a pressing issue at the current time for societies such as India and China, whose path of economic development involves rapid urbanization. Although such economic development involves huge population shifts into urban areas where new forms of work are available, such societies will continue to have predominantly rural populations which participate in economic development in a much more limited way. There is a serious danger that rural communities and their economies will become impoverished relative to the new urban areas, and that they will suffer significant depletion of human, cultural and social capital as a result of migration.

Yet the economic activities that they support will continue to be of importance not just to these communities themselves, but to the national economy. Such sectors as fisheries, agriculture and craft manufacture are particularly significant in rural areas. Vocational education in these contexts has tended to be informal and based on traditional forms of apprenticeship. Technical innovation has tended to be ad hoc and uneven, and the TVET infrastructure has been limited. In addition, poor transportation infrastructure and distance have tended to militate against the concentration of good-quality TVET provision, making informal VET the only realistic option. However, the inevitable backwardness of informal rural VET, which is unable to access either technical innovation or a significant educational element apart from technical and craft training, is likely to make it increasingly unattractive to young people, thus accentuating urban drift. Improving the offer of rural TVET in developing societies is vital to making it more attractive to potential consumers. The ability to slow down or halt unwanted urban drift and the prospect of reviving rural economies should make the right kind of rural TVET strategy attractive to national and regional governments as well.

For those societies with high levels of upper primary general education and literacy, such as can be found in parts of India, it is increasingly clear that the successful transition of youth into employment within or near their own communities cannot be guaranteed by the provision of near universal literacy if there are not sufficient

labour market opportunities to retain young people in the locality. TVET is potentially attractive to regional governments in such areas as a significant way of retaining their young people and of furthering economic development based on contemporary approaches to the provision of manufacturing and services.

See for example, the Government of Kerala's website on TVET:

> Technical education contributes substantially to the Socio Economic development of the country as a whole. The development sustenance of the industrial sector is entirely dependent upon the availability of trained manpower to perform the multidimensional activities needed to keep the wheel of industry running. The Technical Education Department aims towards making available these trained technically qualified hands to serve the industry and society.

There are also further details on the wide variety of TVET institutions in the state (www.dtekerala.gov.in).

The need to cope with a possible oversupply of non-vocational higher education

Evidence is growing that mass access to higher education in developing as well as developed societies is leading to declining economic returns for graduates. This phenomenon is not confined to the developed world (Brown et al., 2011, pp. 116–21). Clear social as well as economic dangers are posed by this phenomenon, and governments may find that excessive concentration on certain sectors of higher education constitutes a poor allocation of resources with consequent high and unacceptable opportunity costs. There are also considerable costs involved for those undertaking HE programmes. These consist of opportunity costs for employment forgone while undertaking HE, and also, in most cases, direct or deferred payments for tuition fees and maintenance.

There is another unwelcome consequence of HE on a mass scale, which has been less remarked on but which is directly relevant to the attractiveness of TVET to individuals. HE is widely regarded as a positional good irrespective of the knowledge and skills that are actually accredited by an HE qualification (Hirsch, 1976). It is of positional value in both education and labour markets, so in the latter a HE qualification, even if it does not give access to employment which requires the skills and knowledge

acquired during that particular individual's HE course, can nevertheless give access to scarce employment which in theory requires a lower level of qualification. HE thus becomes attractive, not because of its intrinsic or even vocational merit but because of its role as a filter into the sub-graduate labour market.

The borders between TVET and HVET are increasingly porous, and are in some respects arbitrary. One way of addressing the problem of oversupply of HE accreditation is to increase the supply of vocationally oriented HE at bachelor or sub-bachelor level. Care needs to be taken however, because if such qualifications are only sought as a positional good, then neither individuals nor society are likely to gain. VHE, which is related to labour market demand, can however potentially combine the employment relevance (and hence earning power) of TVET with the positional attractiveness of an HE qualification. It is therefore desirable to ensure that such routes are related to types of economic activity that have a genuine need for a VHE qualification.

The need to address social inequalities that are exacerbated by rapid economic development

Rapid economic development, where it is accompanied by rapid urbanization and rural–urban drift, and particularly where it is accompanied by an initial phase of low-value-added export-oriented manufacturing, tends to result in new urban populations which have a poor supply of the financial, cultural and social capital necessary for full social participation. Such societies rely for their international competitiveness to a considerable extent on low wages for relatively unskilled labour. However, as other developing societies are drawn into this pattern, the comparative advantage that this can provide diminishes rapidly. At this stage movement up the value chain becomes important, but a state-supported infrastructure is needed to enable it.

TVET may become crucial in moving up the value chain, but only if a certain trajectory of economic development is adopted. This depends on first, technically enhanced manufacturing and service sectors, and second, an agricultural and rural craft sector that benefits from the increasing technical knowledge and the infrastructure provided by economic development (List, 1841, ch. 20). TVET will also be crucial in helping to address the ills that arise from extreme social inequality (Wilkinson and Picket, 2009; Wilkinson, 2005). Because these factors can lead to employment with

greater levels of remuneration than are available for unskilled and semi-skilled work, and can reduce the need for a large stratum of supervisory and lower management staff, they can result in wage differentials being reduced while at the same time providing employment that requires a degree of autonomy and discretion.

The attractiveness to individuals of TVET in this situation can also be enhanced by drawing on another feature of TVET in developed countries that rely on intermediate qualifications. TVET in countries such as Germany and France provides not only the underpinning technical knowledge related to employment skills, but also a continuing offer of general education. Not only does this have an integrative function which helps to lessen the 'esteem gap' between TVET and general education, it also helps to provide the flexibility that allows for occupational evolution and for individual transfer from one occupation to another (see Wolf, 2011, pp. 36–37 for evidence of occupational change in Britain and Germany). TVET has a particular advantage for developing countries that are moving rapidly up the value chain, by allowing for occupational change and mobility and by providing an infrastructure that can cope with these changes.

Added to these considerable advantages are those of providing a greater degree of satisfaction at work, higher levels of self-esteem arising from increased earnings and independence in the workplace, and increased investment by employers in an asset in which there are the 'sunk costs' associated with TVET. Such investments are more likely to be made in a context where there are robust occupational markets arising from a steady supply of qualified workers, and where poaching of scarce skilled employees is not a serious matter of concern for individual employers (Hanf, 2011; Culpepper, 1999, p. 45).

3.3 Why the problem?

The lack of relative attractiveness for TVET has deep roots in attitudes that have existed for millennia. Foremost amongst these is the traditional bias of the élites towards education for leisure, contemplation and aristocratic civic participation (e.g. Aristotle, 1988). The advent of mass education failed, in many societies, to shift the dominant élite perception from those strata who were new participants in education.

For some thinkers on the left, such as Gramsci, a classical education was seen as the birth right of the working class, and TVET as a means of enforcing their economic and political subordination (Gramsci, 1971). The view that TVET is a somewhat demeaning option is one still held by many sections of the population, including in many cases those who feel that they need to participate in it, though as a second best. In most countries such views have been relatively little challenged. Not many have produced thinkers such as John Dewey (1977) in the United States of America (USA), and Georg Kerchensteiner (1968) in Germany, who argued for the educational as well as the economic benefits of TVET.

The transition from an predominantly artisanal to an industrial economy based on a strong Taylorist fragmentation of the labour process tended to reinforce the view held by both governments and employers of TVET. It was seen as an instrumental means of adapting workers to new industrial processes rather than of continuing their education (see the debate between John Dewey [1977] and David Snedden [1977] for example). Only later, as the economic benefits of high-skill equilibrium (HSE) (Finegold, 1991; Mayhew and Keep, 1998) became more apparent, did TVET begin to take on a different aspect for these stakeholders.

4 Barriers to the attractiveness of TVET

The preceding discussion of the relative attractiveness of TVET to the main interested groups in a society gives some powerful clues to the barriers to participation in TVET. However, rather than deal with each of these groups case by case, it is best to consider first what are the most difficult obstacles to overcome in order to make TVET attractive.

4.1 Lack of demand from employers

We will start with the question of how an adequate demand for TVET can be generated. We will take the view that the supply of TVET cannot, by itself, generate sufficient

demand from employers. Failure of employers to demand TVET from their employees or prospective employees will, in turn, affect the demand for TVET from prospective employees. Whatever we think of human capital theory (HCT) as an exclusive account of the propensity to invest in TVET, it is nonetheless the case that individuals are less likely to do so if low or zero economic returns are known to be the result. In any event, were an individual to so invest, the inability to transform that investment into employment commensurate with the skills and qualifications achieved would tend to discourage other individuals from making such an investment.

What then are the principal barriers to employers investing in TVET? The most obvious of these is that there is inadequate return on investment. Employers are likely to invest in TVET if there is a positive economic return from doing so. However, it may well be the case that the business strategy of employers is not consistent with extensive investment in TVET. A common reason for this is the existence of low-skill equilibrium (LSE) in the economy (Finegold, 1991; Mayhew and Keep, 1998). In an economy run as an LSE the dominant pattern is production by low-wage employees, of low-specification, low-cost goods and services which are purchased by people who can only afford goods and services of this low quality. An equilibrium in this sense is a state of affairs any change to which would result in a loss of utility to at least one of the affected parties (Varoufakis and Hargraves-Heap, 2004). For employers to seek to exit an LSE would constitute a significant business risk.

Even if an employer could see a viable business strategy involving such an exit, the change in orientation is fraught with risk. The most obvious is that the investment made will not result in a profit, because, for example, rival employers poach the trained employees, offering them higher wages. They can afford to do this because they have not paid out for the cost of the TVET. This is a good example of a 'prisoner's dilemma' situation in which the dominant strategy for an employer is not to provide TVET (Lewis, 1969).

It is worth noting that a similar effect works on an international level when there is free movement of labour. If a country produces many individuals with high levels of TVET, and another country has a demand for them but an inadequate supply, there will be a tendency for individuals to migratee from the country where they have

trained to the country with high demand but a relatively low supply. Another kind of situation arises where employers are misinformed or lack correct information about the circumstances in which an investment in TVET will pay off. This kind of barrier is easier to remove than the other ones mentioned.

What can make TVET attractive to employers? A situation in which investment in TVET is supported by their business strategy is the most obvious case. The existence of an occupational labour market (OLM) in the relevant occupations helps considerably. An OLM ensures that there is an adequate supply of skilled labour which is relatively mobile within the occupation. The loss of a valued employee can be minimized through easy recruitment. It is important to point out however that unless there are appropriate institutional arrangements to prevent it, there remains a possibility that a single employer could fail to provide TVET but benefit from its rivals doing so. This situation would, inevitably lead to the disappearance of the OLM unless there was an exogenous supply of trained labour. OLMs are therefore usually supported by institutional arrangements. These are often voluntarily arrived at by employer associations, but they typically also need regulatory and resource underpinning by the state. Such arrangements include:

- State subsidy for the general education elements of TVET;
- A requirement for a levy-grant system, whereby all employers are required to fund TVET, and in return their employees or apprentices obtain the training should the employer request it;
- A licence to practise scheme which ensures, through accreditation and qualification, that only individuals with appropriate TVET can enter the labour market.

The last two features here are not popular with employers.

Some countries, such as Japan, rely heavily on internal labour markets (ILMs). In this system the individual employee pursues a career within a firm and receives appropriate vocational education and training for different functions (Ariga, Brunello and Ohkusa, 2000). In such cases employers can provide incentives to valued employees and can be more confident that investment in TVET will not be wasted.

4.2 Suspicion on the part of trade unions

Such suspicion is by no means universal. As was noted earlier, in countries with strong social partnership institutions and OLMs, trade unions are likely to show a deep commitment to high-quality TVET. However, there are two circumstances where the expansion of TVET may lead to suspicion. The first is where trade unions are organized on craft lines with informal apprenticeship arrangements (see for example Pemberton, 2001 on the situation in the United Kingdom). These could be disrupted by more formal kinds of TVET, which would undermine a union's ability to control entry into the trade. The second circumstance is where a trade that has traditionally relied on unskilled and unqualified labour is in a state of transition towards qualification or upskilling. Unless the situation is handled carefully it is quite possible that trade unions will consider the new arrangements to be a potential threat to the employment and conditions of their current members.

On the other hand, there are very good reasons for TVET to be attractive to trade unions under certain conditions. The need for good qualifications in an OLM can lend a degree of independence to employees relative to individual employers. Occupationally oriented trade unionism can benefit from a steady supply of qualified workers, who are relatively easy to organize along occupational divisions.

Critical to promotion of the attractiveness of TVET to trade unions is the development of social partnership arrangements in which practical problems of governance and implementation are addressed in a concerted way by employers, unions and governmental organizations. Some countries rely heavily on social partnership to ensure the running of their TVET systems, and in such arrangements trade unions play a central role. In Germany, for example, the unions tend to be sturdy defenders of the Berufsprinzip, or the idea that the economy is organized around OLMs depending on a qualified and accredited workforce (Streeck, 1992; Hanf, 2011).

4.3 Lack of government action

Governments almost always find TVET attractive at an abstract level, but they will weigh up the benefits and costs in an economic and social sense, as well as the political capital that needs to be expended in order to achieve certain objectives.

The asynchronicity of institutional and political timetables is a factor most likely to weigh heavily with governments tied to electoral cycles. As the nature and direction of TVET is quite strongly rooted in national culture and traditions, there are potential dangers associated with deviation from a 'path' or line of least resistance (see Green, 1990, for more discussion of this issue).

Many governments are committed to upskilling and to the 'knowledge economy', whether or not this is an assumption that is useful for policy-making (Wolf, 2011, pp.28–30). Governments also have at their disposal various instruments that enable them to exert a positive influence on supply. The most effective are perhaps subsidizing employer-provided TVET and providing TVET directly. Both of course are expensive. There is also the possibility that demand will not match supply, and the 'deadweight' problem, in which state-funded provision of TVET replaces rather than supplements employer-funded provision (Welters and Muysken, 2004).

Other key areas in which governments can make a crucial difference include enhancing the quality of TVET through ensuring there are high-quality curricula, qualified teachers, suitable investment in buildings and equipment, stable and comprehensive governance and a recognized and trusted qualification structure. For a useful discussion of this issue, see Watters (2009).

Governments need a broad economic strategy that will ensure transition from an LSE to an HSE. This does not sit well with the contemporary neoliberal economic orthodoxy, which favours a free market and minimal state intervention. However, it is worth pointing out that many developing (and some by now quite developed) economies have ignored economic orthodoxy by adopting a Listian strategy. This involves protecting nascent sectors of the economy through trade barriers while at the same time developing economic potential (productive powers) through investment and regulation.

The attractiveness of TVET to employers is probably the key to the attractiveness of TVET to individuals and to other sections of society. The stance of governments is, however, crucial to the stance of employers. To make TVET attractive in countries that still depend primarily on an LSE, it is crucial that governments succeed in co-opting individual employers and employer associations into a high-skill demand-based strategy for TVET. (For recent comments on the UK case, see Lanning and Lawton, 2012).

4.4 Lack of demand from potential TVET students and their families

A number of factors can lead to a lack of demand for places on TVET courses. The attitudes of potential TVET students and their families cannot however be considered in isolation from the attitudes of employers, governments and other players in the economy.

There is naturally a close relationship between employer demand for TVET qualifications and individual demand for TVET courses. Individuals might choose to enrol in TVET for more than one reason, particularly if the target TVET qualification is considered desirable for broader educational reasons, as well as useful in the labour market. But at the heart of the attractiveness of TVET to individuals is the question of whether it will lead to a well-paid job. This has an impact in turn on its attractiveness to parents, trade unions and governments; and it depends, of course, on whether employers are willing to pay a premium for TVET course graduates.

This is sometimes called a 'double demand' issue with VET: employer demand is needed to unlock individual demand, but individual demand also depends on a healthy OLM in the relevant area. When this exists, employers in turn are more motivated to invest in TVET.

Another issue of great importance for individuals and their families is the status of TVET courses and qualifications. When an activity is perceived to be of low status it is likely to be seen as unattractive. As was discussed in Section 3.1, some of the factors that contribute to the low perceived status of TVET have deep cultural and historical roots which may be difficult to deal with. We can, however, make some fairly confident observations about these issues. Remuneration and status are closely related, although the relationship is not a linear one. Generally speaking good remuneration for those who have taken part in TVET is more likely to increase its status and attractiveness than relatively poor remuneration (see Ashton and Green, 1996, ch.1; Becker, 1993, for discussions of HCT). So it is necessary to consider ways of countering both the cultural factors and the remuneration issues involved. It would be a step towards removing the lack of attractiveness of TVET to individuals if employers demanded more of it, but this is by no means a full solution.

A key factor for individuals and their families is the existence of alternatives to TVET. The most significant of these is the possibility of transition into HE, particularly in those countries, like the USA and the United Kingdom, where cohort participation in HE is well above 40 per cent. Governments often use HCT to emphasize the economic benefits to participants of the HE route, and this results in a comparative downgrading of the attractiveness of TVET. Direct entry into employment can also be attractive because of the immediate prospect of earning that it offers. HE, apprenticeship and college-based VET are all likely to mean that participants earn less (if anything) in the short term. A labour market that has relatively little demand for skills and qualifications is likely to make direct labour market entry a tempting option for many. Such a labour market is also likely to have a negative motivational effect on those still at school who have little or no interest in entering HE.

Finally there is the option of non-participation in education, TVET or employment. There is little evidence to suggest that this option is seen by many as attractive in itself, but it may appear less unattractive to some school-leavers than alternatives such as transition schemes into TVET and further study at school. Given the large numbers in many countries who are not in employment, education or training (NEET), this is not an option for young people that can be ignored by governments, many of which are at a loss over how to cope with it.

As was noted earlier, both Adam Smith and John Stuart Mill recognized the detrimental effect on the desire for education of immediately available remunerated labour. They proposed sanctions on individuals (Smith) or on their parents (Mill) in order to increase the relative appeal of continued education.

4.5 The attitudes of schools

Schools in many countries have traditionally had an academic ethos. Transition to employment is not a major preoccupation of their staff, nor indeed is it considered to be a major part of their mission. (See Williams, 2007 for an illuminating discussion of this traditional view of schooling.) In those countries where mass secondary education leads, not to higher education, but to the labour market, the emphasis has tended to be on providing as good a secondary education as possible before

the pupils enter general labour markets as unskilled or semi-skilled labour. Those who are destined for an apprenticeship are generally able to make arrangements for employment without too much help from their school.

Schools' knowledge of the labour market for their pupils and their ability to provide specific links to employers have tended, in many countries, to be limited, although this is not the case in many European countries, where careers advice is very well developed (see e.g. Tritscher-Archan and Nowak, 2011 on Austria). Careers departments often lack the expertise to provide the kind of detailed advice and connections that an individual pupil might need in order to gain an apprenticeship or the appropriate kind of course at a college (Watters, 2009, s. 3.7). The increasing difficulty of this transition in developed countries has been exacerbated by the tendency of some countries (such as the United Kingdom) to run down general careers provision and concentrate on the needs of those with academic difficulties (CEDEFOP, 2011).

This has not been such a problem for countries where sections of the secondary school system have a strong labour market orientation. Germany and France for example have vocationally oriented schools, in Germany at lower as well as upper secondary level. In these countries TVET has a dual value (as general education and for the labour market), and the school leaving certificate tends to be a requirement for enrolment on a TVET programme, providing both schools and pupils with an incentive to prepare for appropriate programmes. But this type of schooling is by no means universal, and there is debate over whether the lower secondary phase in particular should be unitary. However, given that entry into TVET increasingly relies on a threshold of academic success, it could be a critical role for schools to make clear the close connections between academic success and entry into TVET and on into employment.

5 Strategies for increasing the attractiveness of TVET

Now we have discussed obstacles to making TVET attractive, it is appropriate to look at ways in which decision-making might be reconfigured to take its attractiveness to various stakeholders into account. Attempts to do so will necessarily have to address the question 'attractiveness to whom?'

5.1 Decision-making on TVET

The general thrust of research into the attractiveness of TVET suggests that there are two critical loci for decision-making on VET: government and employers. Without the full engagement of each and their extended collaboration it is difficult to make decisions that can be put to good effect.

Recent work by the Organisation for Economic Co-operation and Development (OECD) (2011) suggests that governments need to take the initiative in putting into effect such decision-making procedures. This is best done by establishing durable structures that engage employers and other social partners such as trade unions and regional government (e.g. OECD, 2011, p. 31 on England and Wales). Such structures should be capable of operating at regional and local as well as at national level, and should make joint decision-making and implementation a regular and frequent, rather than an occasional matter. Governments need to establish an institutional, and if necessary a regulatory, framework in which such decision-making can take place and be effective. Such joint decision-making and the joint carrying through of decisions jointly arrived at should promote mutual trust and consensus-building, even if it may be necessary for the state on occasions to promote and initiate regulatory measures where it is not possible to achieve consensus (OECD, 2011, p. 31). Governments should also consider setting up a central body to commission and conduct research into TVET (such as the German Federal Institute for Vocational Education and Training, BIBB) in order to facilitate informed decision-making. Governments also have an

important role in making sure that subnational institutional structures are not so heterogeneous that they prevent effective decision implementation at national level.

There is no one model for such state-sponsored social partnership arrangements, but they can be found in different forms in a range of European countries. They are particularly important for apprenticeship-based systems like the dual system in Germany, where detailed coordination and supervision as well as high-level decision-making are vital to the successful functioning of TVET.

5.2 The aims of education

There is understandably much concern about making employability an aim of a public education system, for fear of diminishing the educational offer. While this concern is understandable, it is not impossible to allay it. One way of addressing the issue is the French one of making explicit the intention to develop young people as individuals, workers and citizens (Méhaut, 2011). This intention is then to be realized in all programmes of education, whether academic or vocational. It follows therefore that in France, TVET programmes have a responsibility to develop individual and civic capabilities as well as those skills and abilities directly relevant to employment. This may seem a trivial matter, but the fact that it is stated that TVET has a significant educational element which extends beyond the immediate demands of the workplace makes TVET an educational activity, and this requirement has to be embodied in the aims, curriculum, pedagogy and assessment arrangements of TVET programmes.

Of course such aims need to be realized in practice as well as in theory, and TVET qualifications need also to be recognized within the education system for progression purposes. But this is unlikely to happen without the first step, which is one of political leadership. A general formulation of this kind has the advantage of legitimizing vocational aims, without at the same time suggesting that there are different classes of citizens, some with an educational destiny and others with a training destiny.

5.3 An active state?

Such intentions must be followed through with the provision of qualifications with a genuine dual value, both in the labour market and in the education system. The following policy steps probably need to be taken to achieve this:

- Permeability of qualifications, including firm progression routes through accreditation of prior experiential learning (APEL)/initial vocational education and training (IVET) through to continuing vocational education and training (CVET) and to HE. By 'permeability' is meant the ability of a qualification to provide, through the individual attributes of the holder, progression to more advanced qualifications.
- Recognition of the importance of theoretical, general and civic knowledge and ability within the aims and curricula of TVET programmes. This probably needs to be done by making them assessable elements in TVET programmes.

Such measures need legislation and regulation. However the potential role of the state does not rest there, particularly if a significant reason that TVET is not attractive to individuals is that is not particularly attractive to employers either. The state's role is more complex in this area, and may include the development of an economic policy that includes the provision of TVET in order to move up the value chain or to establish a HSE. The government might also, even if these objectives are not recognized, need to attend to the rural economy and to ensure not only that young people in rural areas have access to TVET, but that they are offered the same quality of provision as urban populations. Rapid economic development can threaten neglect of the rural economy and lead to an underestimation of its potential for development. Environmental sustainability depends to a large extent on the continuing viability of rural economies.

It is also necessary to take proper account of those sections of the economy where informal TVET has been the dominant mode of entry into employment, through either informal participation or traditional apprenticeship. Traditional rural crafts, manufacturing, fisheries and agriculture are all likely to fall into this category. Changes in rural life make the stable, if often rudimentary, arrangements of the past increasingly untenable. Governments need also to consider whether TVET for rural

communities should build systematically on advances in scientific understanding in order to develop productivity and efficiency without at the same time compromising the stability of existing systems.

Governments are advised to set up social partnership arrangements along the lines suggested above. Where necessary, such measures may also need to be supplemented by forms of regulation such as the institution of a levy-grant system and licences to practise for a range of occupations. It will also be necessary to set up financing arrangements so that there is an equitable division of responsibilities between employers and the state for different elements of TVET. It seems reasonable, for example, for the state to pay for the civic and individual elements of TVET and employers to pay for the technical and directly vocational elements (see Wolf, 2011, p. 123 on the employer contribution to apprenticeship funding).

In apprenticeship systems there is a need for a sliding scale of remuneration that recognizes the gradually increasing productivity of the apprentice, in order that financial responsibility can be distributed equitably between the individual learner and the employer. In non-apprenticeship systems this will need to be done through the taxation system (Foreman-Peck, 2004).

There is little doubt that the role of the state is crucial in providing the normative, regulative and financial framework for TVET to become attractive. There is little doubt also that although many countries accept this by the conscious promotion of what List called a country's 'productive powers', many others, particularly those where neoliberal views predominate, will find this a much more challenging prospect.

The state has a role not just to instigate change, but also to ensure continuity. TVET is unlikely to become attractive to employers, individuals and parents if it consists of complex, unstable and ever-changing structures that are difficult to understand. Stable governance and the provision of clear well-understood routes and qualifications are all critical to ensuring long-term attractiveness. In addition, it is desirable for the structures to exist at arms' length from the government, as they then become relatively immune to short-term political needs. As was suggested earlier in this paper, social partnership arrangements tend to promote such stability while also giving important and permanent elements in the society a determining role in running the system.

5.4 The role of parents, families and communities

The state is not omnipotent; it does not have the power to change perceptions on its own. However, the kinds of structural reforms suggested, together with the use of well-established methods of information dissemination, can do a great deal to begin to alter entrenched perceptions about the value of TVET, particularly if the information really does reflect substantial change. It will be important that reform of TVET structures is also accompanied by changes in the labour market, such as financial recognition of qualifications, the opening up of opportunities across occupations, and the development of progression routes. But these, as argued, need to be based on attention to structural issues in the first instance.

These considerations also apply to schools and associated forms of careers advice and guidance. Unless there are staff in schools who are themselves properly educated about the state of TVET and the real opportunities on offer for young people, it will be difficult for them to play their full role in making it more attractive. There are a number of ways in which schools can make TVET more attractive without compromising their central role.

Practical subjects

It is important that schools do not lose sight of their role of providing a high-quality basic education for everyone. But it is also a consequence of the tripartite set of aims mentioned above that practical as well as academic objectives are pursued, both for individual and for vocational reasons. The argument here is not for 'prevocational education', but for something more broad. Subjects such as woodworking, metalworking and pottery provide opportunities for a more rounded development of the individual, while at the same time providing students with the skills, discipline and sensibility that will stand them in good stead in TVET and in the workplace. There is no reason why such subjects should not find a place on the secondary school curriculum. If teachers with relevant industrial experience can be found, then so much the better.

Education about the labour market

A significant element of what schools should do is to provide pupils with information about what kinds of employment are available, particularly in the locality, and what students will require in the way of qualifications in order to enter each field of employment. Such work should be a proper part of the role of specialist qualified teachers.

A proper careers service

Whether the careers service is mainly based in schools or outside them, advice as well as information about the labour market and its requirements needs to be available to students and their parents from at least two years before compulsory schooling is completed. Specialist careers advisers should be expected to spend considerable periods out of school in order to carry out detailed first-hand research on the TVET, employment and career opportunities available.

It is important that this kind of service is also available to young people who have already left school and who are in or are seeking employment. Careful thought needs to be given to the organization of such services and the ways in which they maintain good links with schools, TVET institutions and employers.

These various considerations point unavoidably to the central role of governments in promoting the attractiveness of TVET to the other major stakeholders in the long term. It is most important, however, that this role is best to be understood as an enabling and at times as a regulatory one, rather than one that involves prolonged and direct intervention in economic activity, except where such intervention is a central part of the government's existing economic policy.

6 Recommendations for improving the attractiveness of TVET

There follows a summary of the most effective measures that can be taken in the short term to improve the attractiveness of TVET.

6.1 The wider use of APEL

APEL has an important role to play in encouraging individuals to gain accreditation for what they already know and are competent at. Such a measure is the more likely to be effective if it is coupled with access to qualifications that allow for progression in the labour market and in the educational system (Butterworth, 1992).

6.2 Greater permeability and dual value of qualification routes

What the French call the 'dual value' of qualifications (in education and the labour market) is further enhanced through the provision of routes to further qualification that are relevant for both the labour market and education. Germany, for example, has taken steps to promote permeability to higher education, and has long had routes that allow the holders of initial qualifications to progress within their occupation up to and including the Meister level, which includes expertise in both business practice and pedagogy (Hanf, 2011). In order to be permeable within the education system it is important that TVET qualifications contain a significant technical and general educational element. This in turn is likely to make them more attractive to individuals. Schools could have a significant role to play in emphasizing the importance of academic success for future access to high-quality TVET.

6.3 Apprentice schemes with a strong educational and personal development element

Apprenticeship has the potential to be attractive to young people because of the employment status of the apprentice and the realistic workplace conditions that it presupposes. By itself, however, it cannot provide either dual value or a broad occupational capacity. It is best located within an educational as well as an employment framework through an integrated and articulated programme combining practical experience, technical expertise, general and civic education, and personal and social development, as in the dual apprenticeship systems of Germany and some other northern European countries. Although this type of provision is currently to be found primarily in developed countries, others on a development road could consider it, not just for their industrial sector but as a means of maintaining and integrating rural and craft economies into the society as it evolves.

A further virtue of the dual system is that it can be combined with study at the HE level, resulting in programmes that lead to qualifications at higher technician and technologist level. Such programmes can be found, albeit in small numbers, in the English Higher Apprenticeship framework.

6.4 Quality, including a stable institutional framework and widely recognized and respected qualifications

A good framework for TVET is likely to be compromised if the experience of learners and of employers is negative. The quality of qualifications, curriculum, pedagogy and assessment are all therefore of great importance. A good national framework, together with robust regional and local forms of oversight and accountability, is also important. It is highly desirable that TVET teachers are properly qualified and experienced, and work within a framework of clear standards. However, it also vital that the framework of TVET enjoys stability so that it can evolve along pathways familiar to participants, and so that routes and qualifications are recognized by all stakeholders (Watters, 2011). Governments must resist the temptation to change TVET structures for short-term political benefit, and should plan for robust and long-term stable structures. Last, but not least, qualifications should contain substantial

theoretical content to facilitate permeability and broad occupational capabilities (Wheelahan, 2010).

6.5 Improved guidance

This issue has already been mentioned, but it is easier to implement within a stable and established framework with procedures for ensuring judgements about quality, and means of making clear to the public and other stakeholders what the criteria are. Good provision within schools and good coordination between schools and enterprises are essential for guidance to work properly.

6.6 Image (including government campaigns)

No image-making will be able to rescue an inadequate TVET system. However, much can be done by governments and other stakeholders to show young people and their parents what benefits can be obtained from a high-quality TVET system. Governments also have a responsibility to educate employers about the potential benefits of investing in TVET, and taking part in state-assisted programmes such as dual apprenticeship. As remarked earlier, the image of TVET amongst employers is also inadequate.

Improving the attractiveness of TVET is a complex project. Particular attention needs to be paid to those factors that are most likely, if they are addressed, to improve other factors contributing to the attractiveness of TVET. The central role of governments in setting quality frameworks and engaging employers in increasing their ambitions has already been mentioned. Governments are not capable of improving TVET by themselves. They need employer commitment. However, pressure from employees and trade unions may also serve to reinforce the will of employers to improve TVET. Ideally, social partnership arrangements which also involve government are most likely to make progress. It is however essential that governments support TVET not only with rhetoric, but with a clearly understood commitment to action.

A commitment to developing stable, good-quality and easily understandable structures is vital. It may be that long-term cross-party consensus will be needed to

make this happen, and here social partnership can play a significant role. However, sometimes governments need to be courageous and take steps which may be unpopular with powerful sections of their societies. Moving from an LSE to a HSE may be helped by exhortation and subsidy, but ultimately it may involve making changes to the taxation and regulatory framework in which TVET operates. This is when governments who are serious about improving the attractiveness of TVET may have to prove their mettle.

Acronyms and abbreviations

APEL	accreditation of prior experiential learning
BIBB	Federal Institute for Vocational Education and Training, Germany
CVET	continuing vocational education and training
HCT	human capital theory
HE	higher education
HSE	high skill equilibrium
ILM	internal labour market
ISCED	International Standard Classification of Education
IVET	initial vocational education and training
LSE	low-skill equilibrium
NEET	not in employment, education or training
OECD	Organisation for Economic Co-operation and Development
OLM	occupational labour market

TVET	technical and vocational education and training
VHE	vocational higher education

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Chapter 4

Learning through practice: beyond informal and towards a framework for learning through practice

Stephen Billett

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1 Learning through work

The learning of occupations through work is a central, and perhaps the most salient, element of technical and vocational education and training (TVET). Across human history, learning through practice (for example, of the skills needed for work) has been the single most important process for developing occupational competence and it has served both societal and personal needs well. In Europe, for over a millennium prior to industrialization, the learning of occupations typically occurred in the family, or in small businesses which served and met the needs of their communities. Even earlier, similar processes were enacted in Mesopotamia, Hellenic Greece and Imperial China, with the latter offering the most enduring example of the salience of learning through practice across five millennia. However, since industrialization and the formation of modern nation-states, and with the introduction of mass schooling, vocational and higher education systems, the standing and outcomes of practice-based learning experiences have been denigrated.

Within educational discourse, learning in workplaces is often described as being an informal or ad hoc process, and its outcomes are seen as concrete and piecemeal. Yet, such characterizations are incorrect, imprecise and erroneous. Indeed, current governmental, societal and personal concerns about the applicability of what is learnt through educational provision are now warranting a reappraisal of the legitimacy and worth of learning through practice. The implications here extend to TVET institutions and programmes. Nevertheless, such reconsideration needs to be informed by accounts about the processes and outcomes of learning through practice in ways not premised upon or beholding to the dominant and unhelpful discourse of 'schooling'. Indeed, to counter the legacy of this discourse, there is now a need for a science of learning through practice to be advanced, if for no other reason than to re-legitimize this process of learning occupational capacities.

By drawing on theoretical advances and recent empirical work, this paper offers some bases for such an account, and shows how it is enacted through elements of the curriculum and pedagogic and personal epistemological practices. These considerations are well aligned to UNESCO's goals for TVET, about engaging

students and workers with changing work and societal imperatives, such as effective transition from school to work, developing occupational capacities, and sustaining and developing further those capacities across lengthening working lives.

The case here progresses through considerations of the contributions of practice experiences, how they might be considered, the potency and limitations of learning through work, and how these experiences can be conceptualized and advanced to secure robust or adaptive occupational learning. This account delineates and identifies premises for curriculum, pedagogy and personal epistemology that are likely to support effective learning through practice. That is, it considers how experiences for TVET students need to be organized (in other words a curriculum), enriched through engagement with others and effective learning experiences (i.e.in other words, pedagogy), and how learners need to engage to secure these outcomes (in their personal epistemologies). The paper concludes by outlining some of the key conceptual and procedural challenges that confront the development of a science of learning through practice. Finally, these ideas are taken forward to advise on how such considerations should inform policy national and global TVET policy agendas.

2 The contributions of learning through practice

Over time, learning through practice (in other words, learning in and through the circumstances of work) has made the most significant contribution to what is encompassed by TVET. In short, learning through practice (in work) stands as the most common, pervasive and salient provision of learning for occupations across human history. It has largely met the ongoing capacities required for sustaining the human needs for nutrition, shelter and health care. In these ways alone it has advanced cultural and economic development across human history and across seemingly all cultures (Billett, 2010). It certainly warrants a more worthy, informed, clearly defined and legitimate place within TVET, than being described as 'informal'. Hence, when

considering learning through work activities and in workplaces as part of the TVET provision, it is necessary to describe and characterise them precisely and accurately.

In comparison, the provisions of programs of intentional learning in vocational and higher education institutions are relatively recent. In an era of mass and comprehensive education, there is an understandable tendency to forget that the most common, pervasive and salient means for developing individuals' capacities for secure economic independence and contributing to societal and cultural needs are learnt in practice. Indeed, the discourse of schooling often obscures a consideration of learning outside of educational institutions. In European and Scandinavian countries, the advent of industrialization and the formation of modern nation-states prompted the need for a mass provision of education for occupations, because of the disruption to a system of skill development in home or family businesses that had then lasted at least a millennium (Greinhart, 2002). In China, for instance, almost two millennia before the era of Henry Ford, highly developed, organized and regulated processes of production and services met the needs of the country's vast population. These processes were all premised upon the development of specific occupational tasks within family or family-owned small enterprises or in community-based state-organized enterprises (Barbieri-Low, 2007; Gowlland, 2012). Similar processes are reported as occurring in ancient Mesopotamia (Finch and Crunkilton, 1992) and Greece (Lodge, 1947).

Moreover, even today this approach to occupational development remains a key element of TVET. It is enacted explicitly through apprenticeship-type arrangements, and is also how workers learn at work throughout across their lengthening working lives (Dymock et al., 2009). In contemporary apprenticeship models being enacted in western countries, the practice-based component is usually of far greater duration than the time apprentices are in educational institutions (Deissinger, 2002; Deissinger and Hellwig, 2005). Few would argue that only the college or school-based components of apprenticeships generate the knowledge required for skilled work, or that work settings are merely sites to apply and practise what has been learnt in educational settings. There is also growing evidence of the potency of practice-based experiences for learning occupational capacities across the range of kinds and categories of work (Billett, 2010; Cooke, Irby and O'Brien, 2010). Therefore,

more than being an artefact of the past, learning through practice is probably still the preeminent form of the initial and ongoing development of individuals' skills across a range of nations and cultures.

Evidence suggests that the authentic occupational activities individuals engage in work settings, and their interactions during them, generate both situation-specific and more broadly applicable occupational knowledge (procedures, concepts and dispositions) (Billett, 1994). That is, these experiences are not restricted to learning the occupational capacities needed in particular workplace settings, but also skills that can also be applied elsewhere. Through engaging in work activities, individuals can secure the conceptual, procedural and dispositional occupational knowledge required for their work, including capacities that are adaptable to other circumstances where that occupation is practised (Billett, 2001b). These outcomes are important, as governmental and public concerns about the efficacy of educational programmes mean it is now a common requirement that practice-based experiences be included in these programmes (DEST, 2002; DUUS, 2008).

The knowledge learnt in those programmes does not always adapt (or transfer) well to the world of practice. As a result, workplace learning experiences are now seen as being essential to develop the kinds of skills required for entry into, and competent performance in, students' selected occupations.

Beyond this current interest, the important of learning through practice to contemporary TVET is founded on at least three other concerns. Firstly, for many occupations there are limited or no institutionalized TVET provision (examples are coal mining and care of the elderly). For these occupations, workplaces remain the principal, and potentially the only site, through which to learn work-related capacities. Hence, the contributions of practice settings remain central to workers' initial development of occupational capacities.

Secondly, beyond the initial preparation of occupational capacities, which is the focus of many TVET resources and programmes, there is a need for the ongoing learning required to maintain employability and progress throughout people's working lives. For most workers, learning across their working lives is likely to be based on learning through their everyday work, engaging in new tasks at work, and working with others (Billett, 2001b).This on-going learning through practice is inevitable, and it is

important to sustain employability. It is inevitable because workers of all kinds are required to address new tasks and requirements and be able to respond effectively to them (Billett, 1994). This ongoing learning is increasingly important because of the constant changes in requirements for effective occupational practice, and because increasing numbers of people change occupations in the course of their working lives (Billett, 2006; Noon and Blyton, 1977).

Thirdly, there are growing concerns globally about older workers sustaining their employability across their working lives. To maintain their employability, they need to update their skills regularly, and much of this learning needs to occur in work settings. So, as TVET provisions are seeking to find ways of addressing older workers' requirements to sustain their employability, considerations of learning through practice may well emerge as being the most relevant and pertinent kinds of experience for these workers.

In sum, the provision of learning through work is central to TVET. In large part, the goals for, access to and opportunities for securing the kinds of learning that are the focus of TVET policies and practices can be realized through practice-based learning experiences. Moreover, as noted, there is now renewed interest in these kinds of experiences for both initial occupational preparation and ongoing development across individuals' working lives. So as well as being essential for young people entering working life, and in preparation for their selected occupations at all levels of tertiary education, these experiences are central to the ongoing learning that will sustain their employability, permit them to transfer to new forms of work, and also sustain them across lengthening working lives.

3 Going beyond 'informal'

When referring to and describing learning through practice, it is helpful to use conceptions that describe its contributions and limitations on its own terms, and not those from the discourse of schooling. Despite their ongoing contributions to individuals' learning, practice-based experiences are often considered from the

perspective of what occurs in educational institutions and programs. This emphasis leads to learning through work being seen in restrictive and even negative ways, which weakens its standing and limits its potential. Perhaps the most common terms used to describe this kind of learning are 'informal' (Eraut, 2004; Marsick and Watkins, 1990) and 'non-formal' (Smith and Clayton, 2009). Both terms are deeply unhelpful in understanding learning through work. They are imprecise and erroneous (Billett, 2002), and they fail to do justice to, legitimate or advance a form of learning support that is central to TVET's goals and practices. Indeed, there are at least three bases on which we can criticize the use of the term 'informal' (Billett, 2002).

Firstly, to describe something by what is not (that is, informal or non-formal activity is seen primarily in contrast within educational institutions) is unhelpful in characterizing and appraising it effectively. In the field of education, 'formal' is a term associated with what happens in educational institutions and their programmes and settings. It suggests a preference for such settings, which tends to shape judgements about learning experiences. In reality, it is not helpful to privilege uncritically the process and outcomes of programmes that take place in educational institutions. This does little to provide an informed view about the worth of different kinds of setting for learning, such as workplaces. Certainly, such terms and perspectives fail to capture the qualities of learning through practice, and as a result, this kind of discourse cannot generate adequate advice about how it might best be enacted.

Secondly, it is not the case that most workplace learning lacks structure and organization (i.e. is realized through ad hoc experiences). Rather, the norms and practices of the workplace shape the experiences (that is, the activities and interactions) that take place within them. This structuring is central to the potential of workplaces as learning environments. This includes how these norms and practices serve to mediate opportunities for learning, and to whom. So, far from being informal, the formalities of workplace settings are central to understanding them as learning environments, to assessing their effectiveness, and to determining how their potential can be realized.

Thirdly, when an account of learning potential focuses on physical and social settings (in this context, the contrast between workplaces and – educational settings), this tends to underplay the role of the student. It is important to give full weight to the

contributions that individuals make to their own learning, through the capacities, interests, subjectivities and internationalities they possess and exercise. Although the schooling discourse often unhelpfully positions learners as students, and perceives learning processes as being a form of transmission of knowledge information, this is hardly accurate. Indeed, it is quite inappropriate in considering learning processes of all kinds.

Consequently, given its significant contribution to TVET's goals and practices, it is necessary to develop a far more fully elaborated account of how learning through practice occurs. A simple characterization of such learning as informal is neither adequate nor helpful. Instead, there is a need to know about learning processes in the circumstances of work, and how they can be enhanced to help meet the needs of young and older individuals: when initially learning an occupation, in sustaining their employability, and/or developing and sustaining a sense of vocation across their working lives. The central proposal of this paper is that TVET warrants a science of learning through practice, and that such a science would assist it in realizing these goals. Some beginnings of this task are set out here.

4 The potentials and limitations of learning through practice

As was noted earlier, public, governmental and scientific interests in learning through practice activities (in the course of work) and in practice settings (such as workplaces) have grown recently in response to at least three distinct concerns.

Firstly, concerns are often expressed by global agencies such as the Organisation for Economic Co-operation and Development (OECD), governments, employers and professional associations about the applicability and/or adaptability of what is learnt in educational institutions. A common call is for workplace experiences to make up a greater component of programmes that are preparing students for occupational outcomes.

Secondly, there is a growing dissatisfaction with accounts of learning that emphasize cognitive processes, as they fail to account for social contributions to both learning and the utilization of what is learnt in settings other than where it is learnt. Hence, it seems crucial to acknowledge the worth and utilize contributions of work and work settings.

Thirdly, the need to account for situated contributions to cognition and performance requirements means it is important to consider the circumstances where individuals engage in occupational activities and interactions. Here, these concerns are used to discuss how practice-based learning experiences and settings can contribute.

4.1 Learning through practice and in practice settings

Contemporary accounts of human learning are opening up considerations of the experiences that promote learning both in and outside educational institutions. These accounts emphasize the ongoing process of interactions between individuals, and between individuals and their social and physical worlds generally, and they do not make qualitative distinctions between particular settings for learning, or necessarily privilege one setting over another. Instead, the focus is on the kinds of activity and interaction that these settings afford, and how individuals engage in them. It is this that shapes what is learnt, not that the location is labelled as a school, workplace, home, college or university. Certainly, some environments afford particular activities and interactions that make them potentially richer learning environments than others, for specific kinds of outcome. Moreover, rich or adaptable learning arises as much from experiences in practice settings as from those in educational settings (Rogoff, 1995; Rogoff and Gauvain, 1984; Rogoff and Lave, 1984). Although it is accepted that learning is a process largely premised on individuals' active construal and construction of what they experience, including their mediation of experiences afforded by the social and physical worlds, the social world makes key contributions to what is mediated. This is perhaps never truer than when the learning is of culturally and socially derived knowledge, such as is the case when people are preparing for specific occupations, and of the particular factors shaping performance requirements in specific workplace settings (Billett, 2001a).

There is nothing particularly new here. These contributions have long been identified in early psychological accounts, and in cultural and social anthropology, and were advanced in the late 1960s and 1970s through the ecological psychology and cognitive anthropology movements. Also, many early psychology accounts, including those of Janet (1930), Claparede (Piaget and Inhelder, 1973) and Baldwin (1894), emphasized the importance of influences upon human cognition from beyond the person. (That is, individuals are susceptible to social suggestion in the form of norms, practices and codes.) They saw the importance too of individuals' response to these contributions. Baldwin (1898), for instance, concluded that how individuals respond to suggestions from the social world is selective, and premised on their negotiation with that world as it is projected to them and perceived in terms of their needs and wants. Hence, the learning potentials of environments, activities and activities are not given and fixed; they are constructed by individuals.

The kinds of activity that individuals engage in, and the circumstances of their engagement, shape their learning in particular ways. Rogoff and Lave (1984) captured the contributions to cognition of purposeful everyday activities in social settings, by suggesting along similar lines that 'activity structures cognition'. By this statement they referred to the socially derived activities in which individuals engage which shape how they think, act and learn. Anthropological studies also identify some of the pedagogic qualities and curriculum practices used in situations outside of educational institutions that are generative of crucial socially and culturally generated knowledge (Coy, 1989; Hutchins, 1993; Marchand, 2008; Pelissier, 1991). The cognitive literature also provides some guidance here in terms of human cognitive processes, including the fact that legacies arise from human beings engaging in goal-directed activities (Anderson, 1993). That is – to also draw on cultural psychology – when individuals enact tasks they engage their cognitive resources and experience (Valsiner and van der Veer, 2000) to make sense of what they experience and how they need to achieve their goals.

So when individuals engage in authentic work tasks, they are learning through practice, as they construe and construct the capacities to undertake the activities and interactions arising from what they experience (Valsiner, 2000). Hence, individuals do more than just complete tasks: intra-psychological change (in other words, learning) arises. It is through this engagement in goal-directed activities and interactions in

authentic instances of work that individuals learn these capacities. However, these environments, and the activities, interventions and learning that arise from them, have both strengths and limitations.

4.2 Strengths of learning in practice settings

A programme of empirical research across a range of industry sectors (Billett, 2001b), identified four key strengths in the potential for securing occupational capacities through authentic experiences (such as learning through work):

- Engagement in work tasks;
- Indirect guidance provided by the setting;
- Practice within that setting; and
- The close guidance of other workers and experts.

Let me elaborate briefly on each of these strengths.

Firstly, workplaces provide activities and interactions which are authentic in terms of the knowledge to be learnt for work that is undertaken in those settings. Their social and physical settings offer contributions that are directly aligned with the activities to be undertaken. They can comprise genuine, not substitute or disembedded, artefacts, informed interlocutors and situational pertinent social forms, goals and activities that can likely ground cognition (Barsalou, 2008) and lead to the kinds of learning of capacities required for performance in that setting. That is, the activities and interactions have a cognitive legacy associated with the knowledge required for work.

Secondly, engagement in authentic settings and activities shapes and supports occupational learning in a range of ways. It provides access to understanding the situational requirements for performance, including the situated culture of practising in which occupational performance is grounded. Moreover, through their provision of clues and cues that assist individuals to identify both the goals for learning and the means by which activities progress and outcomes (i.e. learning) these activities and settings also support (i.e. mediate) learning. That is workplace examples, the practices of other workers provide clues and cues for proceeding. Learners also

benefit from the direct guidance of expert co-workers who can assist learning when discovery alone is insufficient (Billett, 2000; Brown and Palinscar, 1989; Rogoff, 1995). Further, the ability to observe skilled practitioners as models and opportunities to engage in joint work with them can extend the learning beyond what could be learnt through discovery. Moreover, opportunities to repeat and rehearse activities assist in procedural and conceptual development. Practice is generative of honed procedures (Anderson, 1982) and of securing conceptual associations and links (Roth and Roychoudhury, 1993).

Thirdly, there are situational factors shaping performance requirements that cannot be understood or responded to effectively without actual experience of these requirements (Billett, 2001a). The richness of these experiences also assists the process of grounding cognition and how individuals process what they experience (Barsalou, 2008). Individuals need to come to know those situational specific requirements through access to them, comprehending the requirements and monitoring how their approximations at workplace tasks realize those goals (Billett, 2001c). These aspects need to be experienced and learnt, because most likely they cannot be taught.

Fourthly, authentic activities are reported by workers of all kinds and across sectors to be highly engaging and worthy of effort. Individuals are generally keen to perform well in them (Billett, 2001a). It is through such engagements that effective (that is, well-grounded, compiled, linked) learning is most likely to arise through effortful engagement. No amount of invitational qualities or support will constitute an effective learning environment unless individuals elect to engage enthusiastically in learning related activities.

There are also a range of limitations associated with learning through work, which need to be understood and included in any informed account. These limitations need to be considered, and action taken to reduce their impact, in any efforts to improve learning in the workplace.

4.3 Limitations of learning through practice

Many of the limitations of learning through practice work against rich and adaptable learning of the kind that workers, workplaces, governments and global agencies are

seeking. From a series of studies investigating learning through work across a range of occupations and industry sectors (Billett, 2001b), these are among the limitations that were identified as being associated with both outcomes and processes of learning:

- Learning that is inappropriate (outcomes);
- Access to activities and guidance (processes);
- Understanding the goals for workplace performance (outcomes);
- Reluctance of experts to provide guidance (processes);
- Absence of expert guidance (processes);
- Developing understanding in the workplace (outcomes); and
- The reluctance of workers to participate (processes).

These limitations can be categorized into those associated with outcomes and processes and both classes are now briefly discussed.

Limitation of learning outcomes

These studies (Billett, 2001b) identified inappropriate and unhelpful work-related knowledge that was learnt through workplace experiences. Inappropriate learning included the learning of practices that are substandard or prone to cause error, including unhelpful or dangerous shortcuts that restrict the effectiveness of individuals' skills.

Of course, there are diverse views about what constitute effective work practices and appropriate or inappropriate learning. For instance, in coal mines, workers learnt the skills of negotiating effectively against supervisors to secure additional benefits. From the workers' prospective, this learning is quite appropriate. Supervisors or employers, however, did not appreciate this kind of learning and viewed it as being quite inappropriate. Some practices were identified as being potentially dangerous or 'bad' practices.

Many workers reported in these studies that they had learnt how to do work tasks but did not understand why they were doing them. This lack of understanding limited how these workers went about their work tasks and the types of goals they achieved.

For instance, again using the example of coal mining, few workers understood the process that removes foreign bodies and non-coal material after it has been mined. If workers had a better understanding of the need to remove that material, they might be more selective in their mining activities and reduce the demands and requirements for the process. Similarly, in a food processing plant, some workers were not aware of the processes that occurred further along the production process than the points at which they worked. This was partly because of the physical divides in the workplace for health and safety purposes. These factors worked against some production workers understanding fully their work goals. More fundamentally, many concepts underpinning effective work, such as hygiene, force, power, structural vectors, and the internal workings of machines and other materials that workers engage with (such as hair structure), were not observable or otherwise accessible in everyday work, and therefore were not learnt.

Whereas some forms of knowledge are readily accessible in workplaces because the activity can be observed, experienced and engaged with, this is not the case for all of the kinds of knowledge required for workplace practices. It is noteworthy here that, increasingly, the workings of technology and processes that underpin many contemporary forms of work are not easily accessible. The workings of contemporary motor vehicles, lathes and computer applications may well be hidden from view and not open to easy means of experiencing. Sometimes this learning is crucial, and this is particularly so when there is a need for workers to address new situations. Most graphically, it was found that the nuclear power plant operators at Three Mile Island were unaware of the plant's processes to the degree that when it began to malfunction they lacked the understanding and skills to respond effectively (United States Nuclear Regulatory Commission, 2004).

In these ways, although important learning outcomes can arise through practice experience, this learning also has its limitations. These include inappropriate or unhelpful learning, not understanding what needs to be achieved for effective work performance, and a lack of a requisite level of understanding about work-related activities and requirements.

Limitations in the process of learning

There are also limitations in learning progresses within practice settings. Many informants reported that workplace factors restricted their opportunities to practise or extend knowledge. That is, they reported being constrained in what tasks and interactions they were able to engage in, and from securing new learning, or interactions to develop further, refine and hone what they knew (Billett, 2001b). The combination of access to activities that are new to individuals and opportunities to practise is important for building skilful knowledge. Therefore, when workplace factors inhibit access there will be limits on what is learnt by workers.

Of course, it is not possible to provide all workers with the kinds of activities and interaction that they desire to access. The lack of opportunity might arise because of limitations in the numbers of workers who need to learn those particular activities. There can also be practical constraints associated with access to equipment that needs primarily to be devoted to production, ahead of providing for workers who might wish to learn about it. Workplaces are often highly contested environments, and opportunities to engage in particular activities and interactions might be constrained by competing workplace interests. These constraints can be a product of occupational delineation, professional or union membership, or just sour workplace relationships.

Associated with these constraints is a lack of workplace support and guidance that can assist individuals to learn new tasks and activities effectively (when they will not learn all that is necessary through discovery alone). Sometimes experts and other workers are reluctant to share their knowledge for fear of being displaced by those whom they assist. There might be an absence of experts or experienced workers available to provide guidance and support, possibly because with changing workplace requirements that expertise has not been developed. Yet, as there are perhaps an increasing range of activities that individuals will not be able to learn through discovery and experimentation alone, the role of guidance by more expert and experienced partners is likely to be central to the quality of learning for these kinds of activities and task. Hence, without access to such guidance, learning through practice may be limited and constrained.

In sum, limitations in the ability to access and secure practice within particular activities, secure guidance from more experienced workers, and engage effectively with such guidance, are likely to constrain the potential of practice settings as sites of initial and ongoing occupational learning.

Now we have outlined both potential contributions and limitations of learning through practice, it is necessary to consider how these contributions can be fully utilized and the limitations variously redressed, eliminated or minimized.

5 Informing TVET policy and practice

As has been outlined above, despite its limitations, learning through practice continues to make a significant contribution to the initial and ongoing development of occupational competence. Moreover, the urgency to more fully utilize these learning environments is increasing in line with the demand for TVET graduates to move smoothly into occupational roles, and as ongoing changes in working life demand more effective and ongoing support for occupational learning and further development. This approach to learning support is well aligned with the global goals for TVET associated with assisting students (and other learners) to make effective transitions from school to work and working life, develop their capacities for their selected occupation, and then sustain and develop further capacity across what is likely to be a long working life.

Overall, it is proposed that these kinds of experiences should be readily available and accessible to a whole range of individuals, including those who are currently working and those able to engage in workplaces for different purposes. They can often be provided without any requirement for public funding. Moreover, these experiences can be highly accessible (to anybody who is working, or who can access workplaces); they are responsive to the circumstances in which they are enacted (for example, specific workplace requirements); there is the potential for them to be widely and equitably accessed, albeit in different ways, by a wide range of learners (such as

students, novices, apprentices, experienced and older workers); and they are often directly aligned with workplace activities. These kinds of experience are often seen as effective by those who participate in them. As a result they provide attractive and potentially potent learning experiences, particularly for students in TVET institutions such as community-type colleges, schools and vocational colleges. For such students, work experiences offer the prospect of augmenting and extending their learning in the educational institutions.

Insofar as these experiences engage employers and workers in the process of learning, they extend the scope of participation and the conception of TVET provision. These learning experiences can also potentially extend throughout the working life, so their purpose goes beyond assisting young people to make an effective transition from school to adult and working life. Indeed, they can be an effective means of engaging mature or older workers in sustaining their employability across their (typically now, longer than before) working life.

Work experience is a sustainable activity, because it is part of the everyday work activities and interactions that individuals engage in and learn through when they work to produce goods and services. Finally, these kinds of experiences can be inherently sustainable insofar as they often, although not always, occur in circumstances where environmental sustainability is regulated and legislated. It follows from all of this that a more comprehensive consideration of, and engagement with, practice learning experiences might well be central to achieving the kinds of goal that are the purpose of TVET.

In summary, practice-based learning experiences offer much for TVET. They can contribute to global goals for the advancement of human learning, societal progress and cultural development, and they are particularly useful for those who are not in a position to undertake full-time study in an educational institution, or where one is not available. Learning through practice potentially offers a highly accessible, responsive, equitable, efficient, accountable, innovative, engaging lifelong provision of learning experience, which is sustainable insofar as it can often be carried out alongside the usual work done in public and private-sector workplaces.

However, all this potential needs to be realized, and this requires appropriate policy and practice. As such, learning through practice warrants serious consideration.

Discussion about it needs to be termed and framed in ways that do justice to its contributions, and make it more likely that its potential to support TVET globally will be met. As a result, it is important to shelve the term 'informal learning'. Instead, the discussion needs to focus on the contributions that learning through practice can make to the TVET project, and how it might be enacted to maximize those contributions. This paper now offers a framework for how learning might best progress through practice, which might help to achieve this outcome.

6 A comprehensive framework for understanding and promoting learning through practice

As the earlier sections of this paper have tried to show, learning through practice has made a very worthwhile contribution to TVET, although it is not always readily recognized as doing so, and it should continue to so in future. Yet, given the quality of the contribution it can make, and also the limitations discussed in Section 4.3, it is evident that if the TVET sector is to more fully realize and utilize the contributions of learning through practice, it needs a more nuanced set of understandings and practices associated with this form of learning support. In short, we need a theory or even a science of learning through practice, to guide its effective organization, enactment and the evaluation of such experiences. This theory should also assist in legitimizing this form of learning support. There are four distinct reasons for promoting such a science at this time.

Firstly, such is the complexity of and range of factors influencing and contributing to an effective provision of learning through practice, that it is necessary for these elements to be acknowledged. There is a need to provide a comprehensive account of the purposes of the learning activity, the means by which its processes are enacted,

and how various actors need to engage with them. To capture all of these elements an overall and comprehensive framing is required.

Secondly, the various elements that are likely to contribute to and form such a framework include consideration of educational purposes, curriculum provisions, pedagogic practices, the actions of those within practice settings, and also the epistemological acts of those who are positioned as learners and as guides for learning. These elements have interdependent relations with each other, and as such, need to be seen as components of a total account. Consequently, a schema is required that captures, orders and positions these interrelated elements, so that those who support and learn can proceed with some confidence.

Thirdly, educational science remains a relatively new field, and to a large extent its focus to date has been on learning in educational institutions. Therefore, a framework is required that speaks directly to the issues associated with learning through practice provisions.

Fourthly, and building on this basis, when learning takes place through practice rather than in education institutions it is probably more important that there exists a legitimating and robust framework for it. Educational institutions are held in relatively high social esteem, and are seen in ways quite different from how learning in practice settings is characterized (typically as, for instance, informal, ad hoc or non-formal). To promote the legitimacy of learning through practice, it needs to be seen as having the same worth and standing as learning that takes place in educational institutions. Indeed, to overcome the societal bias towards dedicated educational institutions in 'schooled societies' – those where schooling is the common experience - it is necessary to promote learning through practice by informing and legitimating it. It is for these reasons that a comprehensive framework of learning through practice is now warranted.

7 Framework for informing learning through practice: curriculum, pedagogy and personal epistemology

There are many considerations to be taken into account in promoting learning experiences through practice. Not the least of these are understanding how to effectively provide and integrate students' experiences in work as they initially learn the capacities required to engage in and practise their selected occupation in TVET settings, and also how the ongoing development of older workers' employability might be realized. These considerations can be seen as being organized under three broad sets of educational purpose. That is, those associated with:

- The transition from school to working life;
- Initial occupational preparation; and
- On-going development across working life.

In sum, the utility of practice-based learning can be seen as being relevant to all of the phases of learning that comprise the TVET project. These meta-purposes are now briefly set out in terms of practices which might be conducted by tertiary and vocational educators, institutions and allied agencies.

Transitions from school to working life can be enhanced by:

- Informing decisions about career selection through practice-based experiences;
- Orienting students to the world of work; and
- Enabling students to experience work in their preferred occupations.

Initial preparation of occupational competence may be enhanced through practice-based experiences by:

- The effective organization, sequencing and duration of experiences in practice settings;

- Being clear about the purposes behind any set of experiences;
- Preparing learners/students/workers to be effective agents promoting their own learning;
- The effective integration of practice-based experiences into educational programmes;
- Considerations of how most effectively to assess and certify these experiences; and
- Engaging students in pedagogic activities before, during and after experiences in practice settings to aid the integration of these experiences with those in the rest of their educational programme.

Ongoing development across working life may be enhanced by:

- Learning across working life (it is not practicable to keep sending workers back to educational settings for full-time training, and it is probably not necessary, except when they are learning a new occupation);
- Practice-based learning experiences that are fully supported, especially when what is to be learnt is novel for the learners; and
- Securing older workers' on-going engagement and participation in work and sustaining their employability.

It follows from such broad statements of purposes and the specific goals aligned with each one that a comprehensive exploratory framework for learning through practice is likely to require at least four key elements:

- The kinds of purpose that practice-based learning can be directed towards;
- A practice-based curriculum;
- Pedagogic practices; and
- The personal epistemologies of those who learn and engage as teachers or mentors, or otherwise support the learning through practice-based arrangements.

The form and character of each of these elements is now briefly elaborated.

7.1 The purposes of practice-based learning

As outlined above, there are distinct educational purposes to which practice-based learning experiences might be addressed across individuals' lives. In brief, these are associated with informing young people about work, working life and helping them to choose a preferred occupation; assisting them in securing occupational competence so they can effectively enter the workforce in their selected occupation; and continuing learning across lengthening working lives.

To commence with the first of these three broad purposes, school students complain that their decision-making about post-school destinations and preferred occupations is often uninformed, as they do not know sufficient about what particular occupations are actually like in practice (Billett and Ovens, 2007). Practice-based experiences can orientate students to their selected occupation, and inform their decision-making about and preparation for working life, while they are still at school, college or university. Students and novices might be given experiences in settings where their selected occupation is practised, to expose them to that occupation in practice. These experiences are likely to be helpful in assisting them to understand about the occupation and how it is practised, and what capacities they need to develop to practise it.

Students' own paid part-time work is one source of this learning. It can assist students to consider, critically appraise and compare experiences of work and working life. Moreover, it is perhaps most likely that the development of knowledge that is adaptable to other situations (that is, transferable occupational knowledge) will arise from an awareness of the differences between occupations, in terms of purposes, practices and required outcomes. This learning can be facilitated by students sharing their experiences with each other. That is, rather than assuming that knowledge will transfer from one situation to another, conceptions and procedures which are founded in diverse instances of practice may well provide the kinds of foundation that are most central to robust (and adaptable) learning.

Then, for novices or students to develop the kinds of rich understandings and well-honed procedures needed to move smoothly into practice and be effective in their selected occupation, they need the opportunity to engage in authentic instances of activities and interactions, through which they can deploy, extend, refine and

hone their procedural capacities, such as skills. If they are provided with sufficient opportunities, such as are afforded in apprenticeship and work placement activities, they can develop associations amongst concepts and practices that will permit effective evaluation and enactment of the particular occupation. Exposure to instances of authentic practice experiences can be used to achieve these kinds of important educational purpose associated with transitions into work and occupations. There are also purposes for ongoing learning throughout working life associated with sustaining employability through engagement in practice-based experiences. These include how these experiences might assist individuals to change occupations, develop specialisms, and continue to confront the changing requirements of occupations and workplaces.

These purposes are quite distinct, and each one requires particular kinds of experience if it is to be realized. The kinds and duration of experiences required to understand an occupational practice, or versions of it, are quite different from those needed to develop the conceptual and procedural capacities required for effective practice in that occupation. Purposes associated with maintaining employability across a long working life also require different kinds of experience and support. Consequently, a framework for learning through practice needs to account for how these different kinds of purpose might be realized through the enactment of particular kinds of experiences in practice settings. This then leads to consideration of a practice-based curriculum.

7.2 A practice-based curriculum

Here the focus is on curriculum as the framework for the organization of the experiences that learners participate in and learn through. Such a conception is analogous to the original meaning of the word curriculum: in Latin it refers to 'a path to follow', 'the track to run' or 'the course of life'. This conception is well aligned to learning through practice, as anthropological studies have identified that this is the way learning experiences were organized long before the advent of educational settings, as well as its having continued as a major form of learning thereafter.

To put this differently, there is a sequence of activities that individuals (such as novices) need to engage with and progress along, which are supportive of learning

processes and outcomes. In her classical study of tailoring apprentices, Lave (1990) described the curriculum she identified as a pathway of work activities in which the apprentices progressively engaged and along which they progressed. Most of their learning occurred through engaging in and learning a sequence of tailoring activities, largely without the direct guidance of more expert partners. Moreover, given the importance of the learners' agency in this approach, considerations of personal epistemologies seem to sit well with considerations of augmenting a practice-based curriculum and pedagogy.

Firstly, the apprentices engaged in activities that allowed them to recognize the components of the garments they would come to make, and the quality of work undertaken by more expert tailors. This established some of the key goals for learning associated with tailoring work. The learning arose through a process of observation and initially working on those garments (for instance, performing finishing tasks). Then, the apprentices were able to engage in the construction of quite simple garments (that is, children's underwear) where mistakes could be tolerated because there would be no great consequences. Next, apprentices progressed through manufacturing other kinds of garment such as adults' underwear, before going on to make garments with greater skill requirements such as shirts, then jackets, and ultimately ceremonial dress.

The organizational principle was movement from activities in which errors could be tolerated, through to those where mistakes came at a high price (for instance, because they might ruin a large and expensive piece of material). The sequencing of these activities was structured to progressively engage novices in increasingly demanding activities, each requiring incrementally greater levels of skill. Similar pathways have been identified in studies of hairdressers (Billett, 2003), in food production (Billett, 2011), building (Marchand, 2008) and porcelain making (Singleton, 1989).

Consequently, it is probably helpful to consider a practice-based curriculum in terms of the sequencing of workplace activities (the jobs, tasks and interactions) to provide a pathway for novices to first understand the requirements for the work and workplace, then progressively have the opportunity to develop the kinds of capacities required to fulfil those requirements. This may well include apprentices coming to realize that it is their responsibility to initiate and direct their learning. Therefore, developing

the learning curriculum requires an identification of the sequence of activities that novices need to engage in to progress towards full and effective participation (Billett, 2011). Moreover, there is also a need to identify the kinds of knowledge that are not likely to be learnt through individuals' personal process of discovery along this pathway of activities. These kinds of knowledge will require particular pedagogic interventions to secure their initial learning and appropriate level of development.

7.3 Pedagogic practices

Pedagogic practices can be seen as those that enrich individuals' learning in ways which participation in social practices alone is not able to achieve. There are two kinds of pedagogic practice that are most central for learning effectively in practice settings. The first is direct guidance by experts, who can use particular strategies to support the learning of particular kinds of knowledge. Secondly, there are workplace activities that are inherently pedagogically rich.

Rogoff (1995), in presenting the concept of guided participation as a pedagogical practice, provides examples of accounts that acknowledge how the potential of learning through authentic settings and activities can be enriched through interaction with a more experienced worker. In guided participation, a more experienced co-worker assists the development of the novice through interpersonal engagement, including joint problem-solving activities and direct guidance and instruction (for instance modelling, coaching and scaffolding). Beyond engaging in direct activities with novices that permit opportunities for observing and learning about how more experienced workers think and act, this concept extends to using particular instructional strategies. Specific instructional strategies can be helpful in developing particular kinds of 'hard to learn' workplace knowledge. For instance, modelling, coaching and scaffolding can assist the development of procedural capacities (in other words, learning how to perform tasks effectively). This assistance includes providing opportunities for novices to practise, refine and hone those procedures.

Strategies such as questioning, explanation, and visual representations of different kinds can be used to promote learners' conceptual development (conveying factual knowledge, propositions, associations and causal factors). There are also strategies

such as observing and listening to effective practitioners that can be helpful in assisting the development of dispositions (attitudes and values) associated with a particular occupation and circumstance of practice. All these kinds of pedagogic practice can be used by more experienced practitioners or workers as part of everyday work activity to assist the learning of those who are less expert or experienced.

Second, some work activities are inherently pedagogically rich, and provide particularly useful opportunities for individuals to learn. An example is the handovers that occur between nursing shifts in hospitals. The nurses on the outgoing shift normally brief those on the incoming shift about the patients they will need to nurse, their conditions, their current treatment, how they are responding to the treatment, and the prognosis for their future. This activity involves description, identifying connections and causal associations, assessing progress and making predictions about how the interrelated factors might impact the outcomes and interventions. Those involved need to consider their conceptions of patients, treatments, selection between the options for treatments and conditions, appraising the various options and possibilities, and making judgements about which approach is most likely to be effective. Importantly, in practice settings learners at different levels of development can gain from involvement in this kind of activity. Novices can begin to understand something of the language and discourse, and identify terms and concepts as they are being used. More advanced learners can begin to make associations between the characteristics of patients, their treatment and their response to it, preparing them for making assessments and decisions in the future. Still more advanced learners can develop a deeper understanding of the causal factors that play out together, and in time come to engage in conversations with other practitioners about the progress of the patients, and prognoses for their future.

As this example shows, pedagogic practices that are either enacted by more experienced practitioners or shown through workplace activities have the potential to enhance and enrich the learner's experience in practice settings. Together, these pedagogic practices stand to support the effectiveness of practice settings as learning environments and enrich the learning of those who participate in them.

7.4 Personal epistemologies

Personal epistemologies comprise the ways that individuals engage in activities and interactions, construe, construct and learn from those experiences (Billett, 2009; Brownlee and Berthelsen, 2006; Smith, 2005). Such epistemologies have dimensions of personal intention, intensity of engagement, and existing capacities that shape individuals' participation in activities and interactions and their learning from them. As noted above, the utility of learning through practice depends to a large extent on the degree to which the students actively engage in the process of learning through practice-based activities and interactions. How they engage with what they are offered in terms of a pathway of experiences and pedagogical practices depends on each individual's personal epistemology.

This has an impact on key aspects of the learning process such as how individuals elect to engage in everyday activities, observing and listening, engaging in practice, and interacting with more experienced co-workers. Hence, personal epistemologies stand as key bases for learning through practice, not least because in settings where individuals are not constantly being guided and coached by a teacher, it is up to them as individuals to construe and construct the knowledge required for the work.

Another important aspect of this issue is the personal epistemologies of those who assist and support the learning: teachers, guides and mentors. Their values and actions are central to the kinds of assistance and support they afford learners.

Now we have outlined the practice-related issues that are required to support learning through practice, it is necessary to identify how these might inform TVET policy.

8 Policy issues related to learning through practice

The policy considerations here extend to making workplaces effective learning environments through the organization and sequencing of experiences, and determining how to enrich these experiences through specific pedagogic practices and pedagogically rich workplace activities. It is also necessary to consider the kinds, duration and sequencing of practice-based experiences in educational courses, and the experiences provided in educational institutions prior to, during and after students' workplace experience.

The TVET policy must also cover older workers who need to be retrained to ensure their continuing employability. As was noted above, the needs of these learners are often particularly suited to practice settings (Dymock et al., 2009). However, these workers may well resist being invited to engage in training programs because they believe themselves to be already competent, do not want to be seen as students, and indeed often see it as more appropriate for them to contribute to others' learning in a guidance capacity.

It is unlikely that this approach to assisting learning will be fully effective unless practice-based learning is legitimized and understood more fully, its potential contributions are elaborated in greater detail, and the means by which it is put into practice are more solidly informed. Some of the key policy focuses for realizing its potential are:

- Supporting and legitimating the standing of learning through practice (in other words, overcoming the negative connotations from the schooling discourse);
- Supporting the development of approaches that give access to and enrich learning through work (work practices, workplace curriculum and pedagogies);
- Supporting approaches to assessment for practice-based learning and its certification, ensuring that it is seen as equal in standing to learning in educational institutions;

- Supporting young people's access to occupational practice so that they can make informed choices about their careers; and
- Preparing TVET educators, and helping them acquire the capacities to understand and support learning through work.

These aspects are now considered in a little more detail.

8.1 Supporting and legitimating the standing of learning through practice

As we have seen, learning through practice is extremely important for achieving governmental, societal, workplace and personal goals, but it is often undervalued by the wider society, and seen as an informal activity that lacks the legitimacy of learning in school or college. There is a need to change this societal sentiment. Governments, workplaces and individuals are far more likely to take learning experiences seriously and choose to invest in them if they are seen as being worthwhile, legitimate and potent, rather than weak and unimportant.

The key policy focus here is to champion these kinds of important settings for learning across working lives. Support needs to come from government bodies, professional associations and educational systems. Possible approaches include public education about the benefits of learning through practice, and advance frameworks and mechanisms that will support that learning and also enhance the way it is assessed and certified. Other policy levers might include funding support or tax concessions for enterprises that invest in supporting employee development within the workplace.

It is unlikely that a single initiative will be sufficient to change the perception of workplace learning. A number of activities will need to be pursued in combination, including initiatives aimed at changing society's view, providing mechanisms to enable and recognize workplace learning, and incentives for employers. Professional and other occupational associations (such as trade unions) will need to play a role in supporting and championing practice-based experience, and publicizing the role it can play in both initial learning and ongoing professional development. For example, they might specify that a certain amount or type of practice-based experience is necessary prior to professional qualification.

Educational bodies also have an important role to play. This is likely to require new ways of thinking and acting from educators, because much existing practice is closely associated with classroom-based provision, or distance learning (online or text-based) along many of the same lines.

8.2 Supporting the development of approaches that give access to and enrich learning through work

Following from this, there is likely to be a need to develop a range of approaches to supporting learning in practice settings, and to appraising its worth. Often the learning activity can be integrated with everyday work: there is no reason to try to duplicate the methods of classroom-type learning in the workplace setting. In particular, there is a need to develop an understanding of how practice-based learning experiences should be sequenced. This applies both to initial learning about an occupation, and to ongoing development of employees.

These are the curriculum considerations. Pedagogically, there is a need to identify a range of strategies that can be used to augment learning in the workplace and address particular workplace requirements. For instance, as was noted earlier, often some aspects of work-related knowledge are not readily accessible. A process might be hard to see and access because it is abstract, remote or hidden, as is often the case where advanced technology is used. In these cases it is necessary to find ways of making visible to the learners the production or electronic flow processes.

Specific pedagogic strategies might also be needed to help students learn about intricate procedures, ones that are particularly demanding, and ones when there might be some danger to learners if they do not undertake a task correctly. The aim here is to assist workers to learn to use particular kinds of tools or technologies in ways which develop their competence without any risk of harm to the individual, other people or the production process.

There is also a need to address the development of understanding. This often comes from explicit interventions. In other words, the learner needs specifically to be invited to think about the consequences of a particular action, or perhaps to consider other contexts in which they might apply a technique they have learnt. The

suggestion here is not for formal instruction on the classroom-type model. Normal workplace occasions can be used for this purpose: perhaps a discussion over lunch, or during a production meeting, times when workers naturally share information and understanding. Time-honoured strategies such as modelling, demonstrating, coaching and fading, that are the withdrawal of support, also have place in assisting realising this learning.

In all of this activity, there is a need to consider how particular groups of learners can best be supported. For instance, older workers who are less familiar with electronic technology may need a different kind of support from younger workers who use computers and related technology more easily. In contrast, younger learners who do not have substantive workplace experience might need greater support in developing some types of competence than do workers who have extensive experience.

8.3 Support approaches to assessment and certification for practice-based learning

There is also a need to develop approaches and mechanisms for assessing and certifying practice-based learning. In the workplace itself, there is typically a kind of continual assessment of learners: those guiding them will naturally make judgements about the quality of work done and the capacities of those doing it. These processes now need to be extended through mechanisms that can lead to formal certification of the knowledge acquired.

Again, it would be a mistake to use the models developed for use in educational institutions. Assessment processes need to meet standards of validity and reliability, but this must be achieved in a way that acknowledges the specific characteristics of the learning process. So the aim is to develop methods and approaches to assess competence in ways that are fair and valid, and to certify that the learner has acquired the knowledge and skills in a way that carries the same standing as do qualifications from educational institutions. Many countries, particularly those with advanced industrial economies, have now developed national qualification schemes and systems that are not restricted to the types of learning acquired in educational institutions. This is not a difficult requirement to fulfil, but it does call for support

from government, endorsement from professional and occupational associations, and effort to make the assessment and certification an integrated part of the vocational educational system.

8.4 Supporting young people to make informed choices about their preferred careers

As noted earlier, it is important that young people make career choices that are appropriate for them, and they can do so more readily if they have some experience of workplaces and the activities that take place in them. In many countries there is a high – and sometimes a growing – dropout rate during the process of qualifying for a job or profession. This carries a significant cost: to the individual, to the potential employer that has invested in their training, and to society as a whole. Activities that succeed in reducing the attrition rate may well prove to be cost-effective. Consequently, it is desirable for governments, professional and occupational bodies, and employers to work together to find ways of giving young people (and older workers who are changing career) a good sense of what a job will be like in practice.

8.5 Helping TVET educators to acquire the capacity to understand and support practice-based learning

Much of the conventional theory about vocational education derives from classroom-based educational provision, and this is the type of TVET with which many educators are most familiar. When they have developed competences and built their career in this environment, it can be a challenge to engage them in supporting workplace-based and practice-oriented learning.

Therefore, existing vocational educators are likely to need professional development to familiarize them with the demands of this rather different type of learning, and similarly, it needs to be included in the training of new generations of vocational educators. Both groups need to be guided to appreciate how learning through practice differs from teaching in an educational institution. They need to understand how a curriculum can be developed for practice-based learning, and what pedagogical practices are likely to be appropriate in this context. Related issues

include assessment and certification of practice-based learning, and the means and mechanisms to capture knowledge learnt in these settings.

In many – perhaps most – countries, many vocational educators come from an industrial background, and have a good understanding of the broader working environment. Often they are aware of, and sympathetic to, the learning potential of experiences in practice settings. As with the policy suggestions above, a concerted effort involving government bodies, professional or occupational agencies, and educational bodies is likely to prove best at supporting this particular initiative.

Taken together, the suggestions made here comprise a nested set of the policy imperatives that are likely to be needed to assist with the broad take-up of supporting, legitimating and recognizing learning in the circumstances of practice.

9 Learning through practice: In prospect

In summary and conclusion, it has been proposed here that practice-based learning experiences are central to the TVET project. However, to maximize their potential across all phases of this project (that is: identifying an occupation, preparation to take up that occupation, and ongoing development across working life) there need to be a set of policies that promote workplace learning and help to bring about a change in the current perceptions of it.

Such policies should promote an understanding of the worth of practice-based learning, of how these experiences can be fully utilized, how they can be enriched through appropriate pedagogic interventions and practices, and how to ensure they are engaged with effectively by workers, students or learners.

The overall goal of promoting the TVET project needs to be achieved through the kinds of policy and practice objectives set out above. Each of these objectives needs to be advanced on an informed basis by practitioners who understand the potentials and limitations of learning through practice, and how it can best be used to meet the objectives of TVET.

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Chapter 5

Work-based learning: Why? How?

Richard Sweet

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1 Introduction

It is a fascinating exercise, for those who work in the education industry, to sit down with a group of workers – any group of workers – and ask them to list, first, the most important or useful knowledge and skills they use at work, and second, where they learned them. Almost without exception one of the most frequent answers to the second question will be at work, rather than in an educational institution. Of course in answering this question many people forget that the basic skills of literacy and numeracy that are the foundations for later formal learning, and the foundations of much that is learned at work, were acquired largely in the classroom. But even so, the regularity of this finding is a good reason for being cautious about any tendency to equate knowledge, skill and competence with formal education, or to regard educational qualifications as an adequate signal of knowledge, skill and competence. It is an exercise that gives you a healthy respect for the workplace as a venue for the acquisition of powerful knowledge and skill.

The first part of this paper looks at some reasons for believing that work-based learning matters, at some of the reasons that it seems a good idea to try to encourage it, and at some of its benefits for individuals, enterprises and governments. The second part of the paper looks at some of the more practical issues that arise when we try to encourage work-based learning. Do countries need to be wealthy in order to have well-organized work-based learning systems? How can this learning be stimulated? What approaches to it are useful? How can its quality be ensured? Should it be linked to the formal education and training system, and if so how? And what are some of the particular challenges that arise in trying to extend and improve it in developing economies? The paper's approach is largely practical, evidence-based and policy-focused. The theory of work-based learning, on which there is a very large literature, is not a major focus.

2 Why work-based learning matters

Work-based learning is a subset of experience-based learning. However within the somewhat narrower confines of vocational education and training, work-based learning refers to learning that occurs through undertaking real work, through the production of real goods and services, whether this work is paid or unpaid. It should be clearly distinguished from learning that takes place in enterprise-based training workshops and training classrooms. The latter, which can be referred to as enterprise-based training, is not work-based learning, but simply classroom-based learning that takes place in an enterprise rather than in an educational institution.[1]

The case for work-based learning is commonly made in terms of the benefits that it can provide for vocational education and training. However before this paper looks at the link between vocational education and training and work-based learning, four other arguments for it are discussed: its contribution to enterprise productivity and innovation; its value as a form of learning, regardless of its links to vocational education and training; its value in improving youth transitions; and its importance in career development. The evidence for these arguments is not only interesting in its own right, but highly relevant to questions about the relationship between work-based learning and vocational education and training.

2.1 Work-based learning can raise enterprise productivity and innovation

An important starting point in looking at work-based learning is the contribution that it can make to the productivity of firms and to innovation in enterprises. The internal organization of firms, the structure and organization of work, employee relations and wage structures can all interact to promote learning-rich work, and

[1] Simulated work environments such as the training firms that are an integral part of vocational education for commercial and business occupations in Austrian vocational schools and colleges (Tritscher-Archan, 2009) are a borderline case between the two. Similar arrangements are also common in the Slovak Republic: see the Slovak Centre for Training Firms, www.siov.sk/slovenske-centrum-cvicnych-firiem/9429s

hence to raise productivity and innovation. Much of the literature on this topic comes from studies of Japanese corporations, and has little if anything to do with formal vocational education and training. For example Sako (1994) and Dore and Sako (1998) shows that a reliance on on-the-job training, small-group quality circles, in-house training courses and internal promotion are central to the productivity of Japanese corporations, as these are seen as the only way to cultivate and retain workers capable of enhancing plant-wide performance.

Itoh (1994) shows that incentive structures, pay structures and methods of work organization within Japanese corporations interact in a way that is designed to promote firm-specific human capital and to promote the acquisition and retention within the enterprise of productive knowledge. Itoh points out that long-term employment relationships are more prevalent in Japanese enterprises than elsewhere; wages rise at regular intervals to reflect the acquisition of skills and are not attached to particular jobs; Japanese workers tend to experience a wider range of closely related jobs than do those in a Western firm; job demarcation is more ambiguous and fluid; and more effective responsibility is delegated to the lower tiers of the organizational hierarchy. A wide range of studies show that learning-rich work can be cultivated deliberately through the use by firms of techniques such job rotation, task variety, task breadth, mentoring, and supervision by experts (see for example Eliasson and Ryan, 1987; Koike, 1986, 2002). This is supported by a research tradition which shows the ways in which learning-rich work environments can contribute to innovation within enterprises (Deitmer, 2011; Toner, 2011).

The Japanese approach to the relationship between work-based learning and enterprise productivity has little to do with formal vocational education and training. On the other hand the German dual system of apprenticeship is a major element of that country's formal vocational education and training system, and learning within the enterprise is an integral and essential element of it. An important group of studies conducted by the UK-based National Institute of Economic and Social Research (NIESR) during the 1980s showed that some of the distinctive features of the German dual system, and of German firms' approach to learning and skill development within the workplace, helped to explain the higher productivity of German firms compared with closely matched English firms in industries such as metal working, hospitality, retailing and construction. The NIESR studies not only showed that there is a link

between the level of skill development within German apprenticeships and enterprise productivity, but also that the breadth and quality of the skills plays a central role in enterprise productivity through influencing the ways in which work is able to be organized, compared with firms with a lower and narrower skills base.

The nature of the skills in German firms was shown to result in workers being able to operate with greater autonomy and less supervision than in comparable English firms, in workers taking greater responsibility for the quality of their work, and in labour being able to be used more flexibly. For example more broadly trained German hotel workers were able to be used for front-of-house tasks, food service, food preparation and room service, whereas English hotel workers with a narrower range of skills could not be deployed as flexibly, thus leading to a higher cost structure in English hotels (Prais et al., 1989).

Similar messages emerged from studies of semi-skilled workers who were not products of the dual system, but whose skills had been developed within the enterprise. For example the greater attention to quality among German workers in metal-working plants resulted in their cleaning their machines more frequently, thus reducing breakdown rates (Daly et al., 1985). In wood furniture manufacturing, regarded at the time as a relatively low-skilled industry in England, the superior skills of German production workers that had been developed through learning in the workplace enabled more sophisticated automated machinery to be used, allowed smaller production runs with more frequent machine resetting and thus lower inventory levels and more customized production, and resulted in fewer breakdowns (Steedman and Wagner, 1987).

2.2 Work-based learning is a powerful form of pedagogy

Work-based learning is a form of experiential learning, along with learning from experience in other settings such as the home, the community or recreational pursuits. The basic principles of experiential learning set out by Dewey (1938) infuse not only work-based learning, but also areas such as adult learning, service learning[2] and outdoor education (Billet, 2001; Boud et al., 1985; Dehnbostel, 2008a, 2008b;

[2] See, for example: Service Learning Australia, www.servicelearning.org.au/, National Service Learning Clearinghouse, www.servicelearning.org/

McCulloch et al., 2010; OECD-KRIVET, 2004). For Dewey, learning was primarily an activity that arises from the personal experience of grappling with a problem (and thus not all experience results in learning, a conclusion which, as we shall see below, has implications for the development of practical techniques to improve the quality of work-based learning within vocational education and training). His view of learning contrasted with the practice of the time of students passively receiving information that has been packaged by teachers or in textbooks. He argued against the isolation of the school (and by implication other educational institutions) from the world outside it, and argued that the incorporation of students' experience and learning outside of the school was a powerful way to motivate them and to engage them in learning.

Work-based learning is used in vocational education and training to develop basic work habits, occupational identity, and specific occupational competences. However because of its attractiveness as a powerful form of learning, it can also be used for a wider range of educational purposes. For example it is used as a way to motivate disadvantaged, disengaged and failing students by giving them the opportunity to experience success through applied learning in practical settings, and the opportunity to come in contact with adult mentors and role models (Business-School Connections Roundtable, 2011). Work-based learning can be used in general education to develop problem-solving skills and learning skills: for example through allowing learning to be organized around joint accomplishment of tasks, so that elements of a skill take on meaning in the context of the whole, and by allowing competence to build step by step (Ainley, 1996; Resnick, 1987). Finnish research (Lasonen, 2005) has shown that it can teach entrepreneurship, promote maturity, and help to develop generic skills such as initiative and problem-solving. It can be used as a way of improving basic literacy and numeracy by helping students to understand the real-world application of basic skills (PhillipsKPA, 2010): in Denmark's vocational education system students learn theory, such as mathematical rules, through solving practical workplace tasks (Aarkrog, 2008–09). It can be used to teach higher-order cognitive skills in disciplines such as physics, for example in the industrial high school located in the Asea-Brown-Boveri factory in Västerås in Sweden (Sweet, 1995).

In Hong Kong's senior secondary school system, applied learning that allows students to gain real-life workplace experience is one of eight key learning areas[3], and is compulsory for all students. The rationale for this is that applied, contextual learning from real workplace experience is a fundamental method of helping students to develop learning skills, and that learning these skills occurs best through real-life experiences that have actual effects (OECD, 2011, p. 102). Work-based learning is not confined to secondary and vocational education, but is widely used in higher education for the teaching of complex knowledge and skills: for example it is widely used in medical education (Swanwick, 2010).[4]

2.3 Work-based learning can improve individuals' career development

The career development literature shows that experience of and in work can be a valuable way for young people to sharpen and clarify their career plans. Good career education programmes incorporate systematic experience of and learning from work, using techniques such as work shadowing, research projects about the nature of work, work visits, and carrying out real work tasks. The benefits of this type of work-based learning for career decision-making are amplified when participants have the opportunity to reflect on their experience and share it with others (Guile and Griffiths, 2001; OECD, 2004; Watts, 1996), a finding that parallels lessons about effective work-based learning that can be found in the vocational education literature.

The literature also shows that, for existing employees, work that is learning-rich benefits their career development. A recent study (Brown et al., 2010) shows that:

- People in learning-rich work environments are more likely to be positively disposed towards learning and to take a positive approach to their future career development;

3 Another is Other Learning Experiences, which includes service learning, workplace visits and overseas experience.

4 For example the University of Manchester offers postgraduate qualifications in work-based medical education. See www.medicine.manchester.ac.uk/postgraduate/cpd/workbasedmedicaleducation/

- Lack of engagement with learning and development at work increases the likelihood of downward career drift;
- There is a strong link between working in a learning-rich work environment and willingness to engage in formal vocational education and training; and
- Having the skills to know how to learn at work is important in stimulating people to be positive about their own career development and to be positive about engaging in continuing formal vocational education and training.

2.4 Work-based learning can lead to better youth transitions

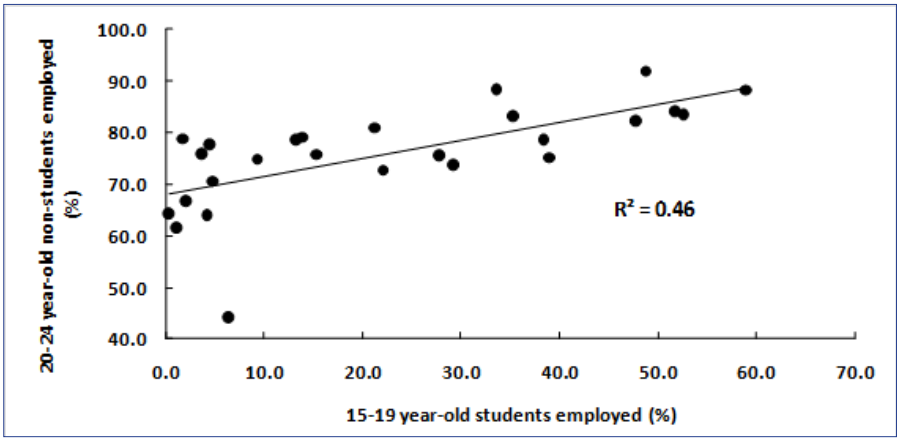
The Organisation for Economic Co-operation and Development (OECD) (2000) refers to widespread opportunities for young people to combine learning and work as one of the key features of successful transition systems. Work and formal study can be combined in a number of ways: through formal work-study programmes such as apprenticeships, cooperative education and alternance; or through students having part-time jobs after school and at weekends that do not have a formal connection to their programme of study, and where the learning that takes place is incidental to the students' formal education. For OECD countries, Figure 1 and Table 1 show that there is a strong correlation between combining work and learning, in whatever form, as a student, and the probability of finding work after leaving education. In countries where large numbers of teenagers combine learning with work, such as the Netherlands, Switzerland, Denmark, Iceland and Australia, employment rates among young adults who have left education tend to be appreciably higher than in countries such as France, Hungary, Portugal, Belgium and Italy where very few students also work, whether in apprenticeship-type arrangements or in after-school jobs. Nearly half of the variation among countries in the employment rates of 20–24-year-olds who have left education can be accounted for by rates of employment among 15–19-year-old students.

Supporting evidence is found in longitudinal studies in which employment rates among young people who worked while they studied are compared with employment rates among young people who did not. Significantly higher employment rates among those who combined work and study are generally evident, even when the

effect of other background factors is controlled for (Lucas and Lamont, 1998; Stern, 1997; Vickers et al., 2003).

The strong impact that combining work and study has upon transition outcomes is likely to be due to a number of factors. These include the occupational skills that are developed in apprenticeship programmes, and the labour market value of the qualifications that these programmes lead to;[5] the basic working habits and skills that students develop through part-time work; the signals that part-time work gives employers about young people when they apply for jobs; and the connections that are developed between individual students and individual firms that assist recruitment.

Figure 1. Percentage of 15-19 year-old students employed and percentage of 20-24 year-old non-students employed, OECD countries, 2008



Source: OECD (2010) Education at a Glance, Paris, Table C3.2a.

2.5 Work-based learning can raise the quality of vocational education and training

The arguments in favour of work-based learning within vocational education and training are largely based on the superior quality and relevance of the skills that are

5 While the balance of evidence favours the advantages of apprenticeship over either full-time vocational schooling or labour market programmes in achieving good labour market outcomes for youth, this advantage is by no means universal. Under some circumstances its value can be low: under some circumstances the value of alternatives can be high (Ryan, 1998).

developed through involvement of the learner in the production of real goods and services, arguments that receives solid support from the literature on the pedagogy of work-based learning that was outlined above. It is difficult, if not impossible, to replicate the real demands of daily production, or the cycle of production over a period of time, in a classroom or workshop, and neither can these settings easily replicate the social context of work that arises from interacting with workmates and from dealing with customers and suppliers. Workshops and classrooms cannot easily replicate the context in which skills need to be applied.

Additional arguments in favour of work-based learning within vocational education and training are that it can be a way of more closely involving employers in vocational education and training, thus increasing their confidence in the system, and of increasing the link between learners and the labour market in order to improve their chances of employment after they complete their training. There is also an economic argument for the use of work-based learning within vocational education and training, in that transferring the cost of achieving learning outcomes from publicly funded educational institutions to enterprises results in a reduction in public expenditure and a capacity to use a given level of funds more effectively to achieve wider participation in education and training. And learning that uses plant and equipment on employer premises not only results in it being more up to date with current industry practices, thus leading to skills with greater relevance, but also reduces the cost to the public purse that would result if educational institutions had to purchase the equipment.

Work-based learning can take many forms within vocational education and training. At one extreme are informal apprenticeship-type arrangements, which involve no complementary classroom-based or institutional learning, in which there is no formalized curriculum or set of required outcomes for the learning that occurs in the workplace, and which result in no recognized occupational qualification, but which nevertheless are a well-recognized method of skill formation that remains important as a source of skills in many developing economies. They are discussed further in Section 3.4.

At the other extreme are highly formalized and well-known apprenticeship arrangements such as those found in Switzerland, Germany, Denmark and Austria, in

which the learner has the legal status of a paid employee rather than of an unpaid student, required learning outcomes over the period of the apprenticeship are divided between the workplace and an educational institution, the learning that takes place in the workplace is highly structured and formally assessed, a formal contract of employment and training exists between the employer and the apprentice, the award of a recognized qualification at the end of the apprenticeship depends upon successfully meeting the learning requirements of both the workplace and the educational institution, and employer and employee organizations play a major role in managing the system and in its quality assurance (Smith, 2010).

Between these two extremes there are a number of variants. On the one hand there are arrangements such as alternance programmes in the French tradition and structured work placements that are used within Sweden's upper secondary school vocational programmes. In these the learner is legally a student rather than an employee, and hence the time in the workplace is unpaid. However as in apprenticeships the learner's time alternates between the educational institution and the workplace,[6] and the time in the workplace forms part of the formal curriculum, with agreed learning outcomes needing to be achieved by the student, and the assessment of these forming part of the requirements for the awarding of a recognized vocational qualification.

Train and place programmes are another model. In these, a period of institutional training precedes a period of employment, without the two alternating. This type of arrangement is the most common model used in China's upper secondary vocational schools (Zhao, 2011). And it is used within Norway's 2+2 apprenticeship programmes, with only the later on-the-job part of the programme being covered by a training contract (Kuczera et al., 2008).

There are also less formalized arrangements such as internships and the cooperative education programmes that are common in North America, in which students are required to spend time in a workplace as part of their programme, but in which there might be a minimal relationship between the nature of the workplace and the content of the student's course, with no formal contractual relationship, the formal

6 Although typically with the greater proportion of the total time spent in the educational institution, unlike apprenticeships where the greater proportion of the time is typically spent in the enterprise.

teaching and learning requirements of the time spent in the workplace can be either minimal or non-existent, and any learning that does occur is not assessed (Stern et al., 1997).

The different forms of workplace learning and experience differ in the demands that they make on the firm, and in the distribution of costs and benefits between the firm and the learner. At one extreme are programmes that involve quite short periods in the workplace, which focus more upon generic employability skills. At the other extreme are programmes such as apprenticeships in which the young person is carefully recruited by the firm and spends an extended period in the firm, and in which the skills taught expand beyond general employability to encompass those that are specific to the occupation, the industry and the firm itself. In the first case the capacity of the firm to capture benefits from the programme will be minimal, and altruism and a sense of community responsibility are more likely to be the major reasons for participation (Bailey et al., 1999). As programmes move along the scale towards the second extreme, the capacity of the firm to capture benefits will increase. As these benefits increase, employer participation is more likely to be a function of the amount of productivity contributed by the young person in relation to training costs, and the benefits to the firm of being able to recruit the young person at the end of the programme (OECD, 2000).

3 Making work-based learning work

3.1 Work-based learning and levels of national economic and social development

Most of the literature on work-based learning comes from developed (OECD) economies rather than from the developing world; and most of the well-known models that connect work-based learning to formal vocational education and training such as apprenticeship, alternance and the recognition of prior learning,

have their origins in developed economies. An obvious question is whether an advanced stage of economic and social development and a high-skills economy are necessary for the existence of well-organized systems of work-based learning connecting vocational education and training systems to enterprises. The most likely answer is that, within limits, both opportunities and constraints are more a function of the nature and quality of the institutional arrangements that connect vocational education and enterprises, of culture and of politics, than they are of the stage of a country's economic and social development.

There are many examples of highly developed economies that have quite weak formal systems of work-based learning; there are many developing economies, particularly middle-income economies, where such systems are quite strong; and in many highly developed economies well-organized arrangements for work-based learning can be found in relatively low-skilled occupations and industries.

Among OECD economies, large and well-developed apprenticeship systems that account for the majority of each cohort of youth exist only in Switzerland and Germany, and apprenticeship systems that account for between a quarter and a half of youth exist only in Austria, Denmark, Norway and the Netherlands. In countries such as France and Sweden, unpaid alternance-type arrangements account for a reasonably large proportion of youth, and in Australia, Ireland and the United Kingdom there are small to medium-sized apprenticeship arrangements for youth. OECD countries that largely lack apprenticeship-type arrangements for youth include Canada and the United States; Chile and Mexico; Israel; Japan and Korea; the Czech Republic, Hungary and Poland; and Italy, Portugal and Spain (OECD, 2000; Sweet, 2009, 2010).

In the OECD's 2006 PISA survey, school principals were asked 'In your school, about how many (15 year-old) students ... receive some training within local businesses as part of school activities during the normal school year (e.g. apprenticeships)?' On average, over the forty-nine countries that responded, only 17 per cent said that more than half of 15-year-old students received training in local businesses (Table 2). Of the forty-nine countries, twenty-nine are classified as very high on the 2010 United Nations Development Programme (UNDP) Human Development Index (HDI), seventeen as high, and three as medium. While all of the countries in which high

proportions of 15-year-olds were reported to receive training in local businesses (Finland, Denmark, the United Kingdom, Sweden and Germany) are classified as highly developed, there were also many highly developed economies where it is almost unknown for students to receive such training (Hong Kong, Qatar, Portugal, Hungary and Ireland). And in one of the three medium HDI countries (Thailand), the proportion of 15-year-olds trained in local businesses exceeded the proportion in nineteen of the twenty-nine highly developed economies (OECD, 2006; UNDP, n.d.).

Table 2. School principals reporting that half or more of 15 year-olds receive training with local businesses, 2006 (%)

Very high HDI countries	Per cent	High HDI countries	Per cent	Medium HDI countries	Per cent
Finland	96	Croatia	42	Thailand	15
Denmark	87	Russia	21	Indonesia	7
United Kingdom	85	Romania	18	Kyrgyzstan	2
Sweden	79	Montenegro	16		
Germany	77	Serbia	14		
Austria	42	Bulgaria	10		
Netherlands	37	Azerbaijan	9		
Switzerland	18	Jordan	8		
Norway	16	Colombia	5		
Slovak Republic	15	Argentina	5		
Czech Republic	14	Turkey	4		
Luxembourg	12	Mexico	4		
Iceland	11	Brazil	4		
Slovenia	10	Chile	2		
Australia	9	Uruguay	1		
Canada	6	Latvia	0		
Japan	5	Lithuania	0		
Italy	5				
Israel	4				
Belgium	3				
Korea	3				

United States	2				
New Zealand	2				
Estonia	1				
Ireland	1				
Hungary	1				
Portugal	1				
Qatar	1				
Hong Kong	0				

Sources: OECD PISA database and UNDP.

In many highly developed economies, apprenticeship-type arrangements can be found associated with relatively low-skilled occupations. For example in the United Kingdom, two-thirds of all apprenticeships in 2009–10 were only at Level 2 of the national qualifications framework (NQF), and were in relatively low-skilled occupations and industries such as customer service, retailing and hospitality (Marsh, 2011). In Australia in 2009 13per cent of all apprenticeships were at the two lowest levels of the NQF, and 22 per cent were in either sales work or labouring (NCVER, 2009). In the German dual system, sales occupations have for many years been among the largest apprenticeship categories (BIBB, 2011).

Many examples, some long-standing, can be found of well-organized apprenticeship-type arrangements in countries that do not have high levels of gross domestic product (GDP). The examples below are drawn from the Middle East and North Africa, and from the Asia-Pacific region.

The Middle East and North Africa

In **Algeria** there is a long tradition of apprenticeship, with a legislative basis that stems from the 1970s and well-developed systems for financing apprenticeship through an apprenticeship tax and a national apprenticeship development fund. Apprenticeships are available in over 300 classifications and at five levels of qualification, ranging from semi-skilled to advanced technician. Apprenticeships represent over 40 per cent of all vocational education places for young people, and the government has an ambitious goal of increasing this to 70 per cent, with a corresponding reduction in full-time vocational school places.

In **Egypt** apprenticeship remains small, representing perhaps 2 per cent of secondary vocational and technical education students, but modern forms of apprenticeship date back to the 1950s.

In **Morocco** regulated apprenticeships were established in the 1940s, were strengthened in the 1990s, are available in over 120 trades, and represent an important government strategy for addressing youth unemployment, with an ambitious goal of more than doubling the number of apprenticeship places by 2015.

In **Tunisia** apprenticeship and alternance have had a legislative basis since the late 1950s. Reformed apprenticeship programmes in which one day a week is spent in a training centre and the remaining days in the workplace represent around 11 per cent of all vocational training places for young people, and alternance programmes, which are offered from craft to technician level, represent around 75 per cent of vocational education participants.

In **Turkey** enterprise-based practical training is a formal requirement for all vocational school students (who represent around 37 per cent of all secondary school students), and is organized on the basis of three days of enterprise placements and two days of classroom training each week. Formal apprenticeship programmes were introduced as a way of obtaining a vocational qualification through 1977 legislation, and currently cover 36 occupational fields and 131 branches (Sweet, 2009).

The Asia-Pacific region

In **Fiji** apprenticeships are administered by the National Apprenticeship Training Department of the Training and Productivity Authority of Fiji (TPAF). The National Apprenticeship Training Advisory Committee governs the apprenticeship system, and sets the standards for training. Apprentices are indentured under a form of contract conforming to an Apprenticeship Order under the TPAF Act 20. The contract is between the employer, the apprentice, and the director general of TPAF, and apprenticeships last from between three and five years. Off-the-job training as part of the apprenticeship is provided by the Fiji National University, normally on a block release basis. Trade apprenticeships are offered in 23 occupational categories and technician apprenticeships in five. The National Apprenticeship Training Department is responsible for ensuring the quality and standard of practical training in accordance

with prescribed on-the-job training guides. Inspections and consultations are carried out at least three times a year on all apprentices at the job site. Successful apprentices are awarded a Craft or Technician Certificate of Apprenticeship by TPAF, as well as an appropriate award by the Fiji National University if they have successfully completed their off-the-job training programme.[7]

In the **Philippines** the formal apprenticeship system is quite small, with only around 1,000 apprentices in 2009, but it is well developed, with a strong institutional underpinning. It is regulated by Title II of the Philippine Labour Code. Enterprises wishing to employ apprentices and institutions that provide the off-the-job training component need to be accredited; the training content is based upon national competency standards developed jointly with industry, and graduates receive a nationally recognized award under the Philippines NQF.[8]

In **Sri Lanka** the Tertiary and Vocational Education Act No. 20 of 1990 provides a legislative basis for apprenticeships, and coordination and regulation of apprenticeships is the responsibility of the National Apprentice and Industrial Training Authority. Apprenticeship training is based on training standards/training orders that are developed by sector-specific national advisory committees. While most apprenticeships are undertaken in an alternance mode in which employment periods and training periods are interspersed, some are also provided through a train-and-place model in which apprentices undertake an initial period of institution-based training followed by an on-the-job employment and training period. The Authority also organizes in-plant training of students undertaking degree- and diploma-level programmes in areas such as engineering and information technology. Regardless of the training mode, all trainees under such arrangements are expected to sign a contract of apprenticeship, and are called apprentices, irrespective of educational background. Apprenticeships in Sri Lanka have wide occupational and industry coverage (for example in the service sector and information technology as well as the traditional trades) and are available in 146 separate occupations. Apprentices who complete the training period specified in the training orders are required to sit a final

7 See Training and Productivity Authority of Fiji: www.tpaf.ac.fj and ADB (2008).

8 See Philippines Technical Education and Skills Development Authority www.tesda.gov.ph/ and World Bank (2010).

trade test that includes both trade theory and a practical assessment, and successful candidates are awarded a skill proficiency certificate.[9]

3.2 Institutional and organizational frameworks for raising quality in work-based learning

A number of organizational and institutional strategies can be adopted to help ensure that work-based learning is an attractive option for learners and for enterprises, and that time that is spent in the workplace results in learning. In apprenticeship training, the most important of these is an appropriately set training wage. If set too low, it will discourage people for applying to be trained; if set too high, it will encourage employers to use apprentices for relatively unskilled productive labour, and discourage them from spending time training them (Dionisius et al., 2008; Dustmann and Schoenberg, 2008).

It is also important for apprenticeship-type arrangements to be supported by appropriate legal and regulatory frameworks, including provision for contracts of employment and training between the apprentice and the employer. In the Middle East and North Africa, for example, the absence of such provisions is a factor preventing the scaling up of promising regional pilot programmes so that they have mass and national application (Sweet, 2009). Other institutional and organizational preconditions for effective apprenticeship systems include appropriate financing systems, qualification and certification arrangements including regulated links between occupations and qualifications, and well-established governance arrangements at the sectoral level, including institutional cooperation between employers, governments and trade unions to set the agreed learning outcomes for the on- and off-the-job components of apprenticeships and their link to training standards and qualifications, and local quality assurance arrangements for training young people within firms and for linking firms with off-the-job educational institutions (see for example Ryan, 2000).

Outside of apprenticeship arrangements, achieving effective student learning through workplace experience can be impeded by the organization of the school, by

[9] See ADB (2011) and the Sri Lankan National Apprentice and Industrial Training Authority www.naita.slt.lk/.

the absence of appropriate central policies to support workplace experience, and by insufficient resources for programme monitoring and quality control. Box 1 illustrates these using the experience of the United States during the mid to late 1990s. A recent review in Chile (Kis and Field, 2009) has shown that in many cases these types of organizational factor act as an impediment to effective work-based learning in upper secondary vocational education programmes. In Chile, vocational education students receive a secondary school leaving certificate after four years of study. However they must complete between 480 and 960 hours of workplace training to receive a vocational certificate. Typically, this takes place after students graduate from high school, with only a very small proportion of students alternating periods in the workplace with classroom study. And so work-based learning is not integrated into the curriculum, but is seen as an application of what was previously learned in the classroom. Because completing the workplace training means that students have to delay entry to tertiary education by a year, perhaps half do not complete it. And as supervising the work-based learning is not part of teachers' normal work load, but must be done as an additional duty, teacher visits to workplaces to check the quality of the training are limited. Practical tools such as training plans that can help the firms to train students are often absent.

Box 1: Work-based learning in the United States and the 1994 School to Work Opportunities Act

The 1994 School to Work Opportunities Act in the United States provided funding of close to US$1 billion to improve school to work outcomes, including through the introduction and expansion of youth apprenticeships linked to high schools and through closer employer involvement in providing work-based learning opportunities for high-school students. Experience showed that achieving effective student learning through workplace experience was often impeded by the organization of the school, by the absence of appropriate central policies to support workplace experience, and by insufficient resources for programme monitoring and quality control. Much of the workplace experience that occurred took place only out of normal school hours (on weekends, during vacation periods and in the evenings after

school). It let students observe and experience work for very short periods, often as little as one day or half a day at a time. Extended and carefully structured involvement with work that allowed experience to be translated into learning was much rarer. The main reasons for this were the rigidity of high schools' timetables, a fear that students would miss out on 'real' (in other words, classroom) learning if they were not in school, and resistance by teachers and other key personnel in schools such as counsellors.

Source: OECD (1999).

Many similar challenges can currently be observed in China. The relatively underdeveloped apprenticeship system that had existed since the late 1950s was abandoned during the Cultural Revolution, and a 1985 decision of the Central Committee of the Communist Party effectively side-lined it by laying down the principle that training should precede employment (Guo and Lamb, 2010). Since then the dominant paradigm in upper-secondary-level vocational education in China has been the train and place model, in which one to two years of work placement in an enterprise follow two years that are spent in a vocational school (Han, 2009; Zhao, 2011).

Improving arrangements for schools and enterprises to cooperate, and extending and improving the quality of the work-based components of vocational education, are high priorities for China's vocational education and training policy makers (Zhao, 2011): they are prominent in China's 2010–2020 National Plan for Medium and Long-term Education Reform and Development (Government of China, 2010). While the central government has adopted a number of policies to support these goals, practical legal and administrative frameworks to support them, particularly at the regional level, are often lacking. At the national level a school–enterprise cooperation mechanism has yet to be established, and a wide range of separate projects and administrative measures have been adopted at the regional level and by industry sectors. Industry sector organizations remain underdeveloped, and this has impeded the introduction of more effective school–enterprise cooperation. The first regional law to promote school–enterprise cooperation was adopted by the city of Ninbo only as recently as 2008. Many models are currently being experimented

with, but quality assurance remains a significant challenge (Ho, 2011; Kuczera and Field, 2010).

3.3 Pedagogical options for achieving quality in work-based learning

Dewey (1938) pointed out that not all experience is educative, and by implication not all workplace experience results in learning. And so a key challenge for improving the quality of work-based learning is to find practical methods of translating experience into learning. For example case studies by Stasz and Kaganoff (1997) of high-school programmes in the United States that involved work-based learning showed that they varied widely in the amount of real student learning that took place. This variation was largely influenced by the quantity and nature of the targeted training provided within the firm, and in turn this was a function of the way that programmes were organized.

Within the workplace there many ways to increase the extent to which work is learning-rich. Many of these techniques are by now well understood from the theory of and research on work-based learning. They include encouraging people to reflect on their experience; guidance by other workers and by experts; using mentors; demonstration and practice; simulation; task rotation and task variety; project work; and providing workers with problems to be solved (Billett, 2001; Boud et al., 1985; Dehnbostel, 2008a). Some of these techniques can fairly readily be integrated with the normal cycle of work and production. Crucial to many is the role of workplace supervisors, and their realization that developing the knowledge, skills and expertise of workers is part of their normal job (Dehnbostel, 2008a). Where this is not part of the workplace culture, developing work-based learning can prove difficult: this was, for example, a significant barrier to attempts to develop an apprenticeship system in Korea in the 1980s (Jeong, 1995). Other techniques to develop learning-rich workplaces such as quality circles (Eliasson and Ryan, 1987) and learning islands (Dehnbostel, 2008b) require a more structured intervention.

Many of the methods that can promote and improve the quality of work-based learning can be initiated by enterprises themselves, but this is often harder for small

and medium-sized enterprises. In these cases the assistance of external organizations can be very valuable. Such assistance can take the form of coaching and training for in-firm supervisors, and the development of simple competency lists and learning guides. In the dual systems in German-speaking countries, for example, employers' chambers provide practical assistance to firms to help them develop training plans for apprentices. In the Netherlands, regional centres of expertise are responsible for coaching the in-company mentors who train apprentices (Heida, 2007). In Norway, local training offices, funded by the pooling of government training subsidies to small and medium-sized enterprises, play a similar role (Michelsen and Host, 2002). With appropriate working conditions and industrial agreements, many of these roles are able to be performed by teachers in vocational schools and colleges, particularly when they are responsible for visiting and supervising students who are on work placements.

The opportunity to learn at work is highly dependent on the day-to-day scheduling of normal work tasks and the cycle of production over the day, week and year. Where the nature of an enterprise's products and services limits the opportunities to develop knowledge and skills that are part of a formal training curriculum, cooperative arrangements between enterprises, or between enterprises and other learning venues, can be put in place to ensure that broad-based learning takes place. The regional centres in the Netherlands and in Norway referred to above are an example of such mechanisms, allowing apprentices whose employer cannot provide particular forms of experience to spend time in other firms to compensate. The inter-firm training centres that are commonly found as part of the German dual system (Walden, 2008) are another example, although in these cases training in workshops or similar venues is often used as a substitute for work-based learning.

3.4 Recognizing informal learning

In much of the developing world, informal unregulated apprenticeships in which all of the learning is work-based, there is no requirement for associated off-the-job training to be undertaken, and the acquisition of competence is not recognized through the award of formal qualifications, are the dominant mode of skill formation

for many occupations. This model continues to be important in much of the Middle East and in sub-Saharan Africa. The economic importance of such informal work-based learning should not be dismissed lightly. For example the Asian Development Bank (2004) points out that in Pakistan the traditional informal apprenticeship system known as ustad shagird remains an important source of skills. At the time Pakistan was the world's largest exporter of surgical instruments, and the industry was underpinned by an elaborate system of subcontracting among large and small enterprises. These possessed a pool of skills and metal-working knowledge based on a system of skill diffusion through informal apprenticeship, with the ustad or master craftsman transferring skills to young apprentices. And in Kenya the informal sector is reported to be the preferred destination for automotive repair and maintenance for 90 per cent of vehicle owners (Rukariah, 2011).

In a study of informal apprenticeships in Malawi, Aggarwal et al. (2010) point out that many employers, particularly those in the informal sector and in smaller enterprises, regard the skills of graduates of the informal apprenticeship system as being higher than those of graduates from the formal vocational education system, largely because of their superior practical skills, and that the employment rates for graduates of informal apprenticeships are high. However a study of informal apprenticeship in Tanzania (Nübler et al., 2009) has found that average income is higher for skilled workers whose informal apprenticeship was combined with formal or non-formal training, than for workers with only informal apprenticeship.

Nor should the training methods used in informal apprenticeships be dismissed lightly. The study of informal apprenticeships in Tanzania by Nübler et al. (2009) shows that the methods used in enterprises match much of what is known about good practice in work-based learning: demonstration, observation, practice and feedback, underpinned by a training plan and competence standards, even if both are unwritten. The authors point out that informal quality assurance mechanisms exist based upon the local reputation of master craftspeople, and that this helps to ensure that apprentices are attracted to reputable master craftspeople and discouraged from applying to employers with poor reputations as trainers and as skilled workers.

Supplementing informal apprenticeship training with training off the job, even if this is not in a formal contractual relationship, can be an important way to improve

its quality. So can assessment and recognition of the skills acquired through informal apprenticeship, so that they can better be linked into the formal vocational qualifications system, allowing for greater skills portability and for better career advancement (de Largentaye, 2009). A number of examples exist of formal trade testing and skill recognition systems that permit such a link to be made between informal apprenticeships and formal TVET.

- In **Fiji** the TPAF has a Trade Testing Department that is responsible for establishing national occupational skills standards for certification in all the important trades. The occupational skill standards were originally set up through International Labour Organization (ILO)/UNDP programmes in 1977, and are periodically reviewed to ensure that they are up to date with current practices and technological developments. This is done in consultation with representatives of employers, trade unions and relevant government bodies. The standards are used as the basis of trade tests that are conducted both for individuals and for enterprises, and on the basis of which trade test certificates are awarded that confer formal recognition as a tradesperson in Fiji. Trade test certificates are awarded at three levels: Class III, junior tradesman; Class II, qualified tradesman; and Class I, advanced or supervisor. To sit for the Class III certificate, candidates must have had a minimum of two years' full-time relevant work experience in the industry. Candidates for the Class II certificate must have had both a minimum of four years' full-time relevant work experience in the industry and attained a TPAF Class III trade test certificate (see www.tpaf.ac.fj/index.php and ADB, 2008).
- In **Korea** the awarding of National Technical Qualifications (NTQs), the country's principal vocational qualifications, is based on a highly developed national assessment and certification system which carries no requirement for completion of a course of education and training. Technical qualifications are available at five levels ranging from craftsman to professional engineer, although three-quarters of all qualifications are awarded the lowest level. Although candidates can help to prepare for the tests upon which qualifications are awarded by taking courses offered by a very wide range of public and private organizations, the curriculum of the main vocational qualifications offered by upper secondary vocational schools and junior colleges is generally not

aligned to the requirements of the NTQs. Qualifications are generally awarded as the result of passing a written and practical examination or test, but for all except the lowest level there are additional requirements before being able to apply for assessment, most commonly associated with a specified period of work experience. The content that underpins the tests is based upon national competency standards, and these are regularly updated. The certification tests are standardized across the country; are independently conducted according to clearly prescribed conditions, with registered testing supervisors; and the criteria for passing them are standardized and transparent. HRD Korea, the Korea Chamber of Commerce and Industry, and the Korea Institute of Nuclear Safety are delegated to develop and conduct the tests, which are supervised by the Ministry of Labour (HRD Korea, 2009; Kang, 2002; Kim, 2005; Nah et al., 2011).

- In the **Philippine**s there is a well-established although relatively small apprenticeship system which was first introduced in the mid-1980s. Alongside it there is a national skill assessment and certification system for middle-level occupations which is based on agreed national competency standards, and which allows for the formal recognition of informally acquired competence. Assessments are carried out by a national network of registered assessors in accredited assessment centres, and can lead to a nationally recognized vocational qualification. The web site of the Philippines Technical Education and Skills Development Authority maintains registries of accredited assessors, accredited assessment centres, and certified workers (see www.tesda.gov.ph/ and World Bank, (2010).
- **South Africa's** Skills Development Amendment Act No. 3166 of 2008 provides for artisan status to be granted to those who have successfully completed trade tests undertaken by an accredited trade test centre. It also provides for trade certificates to be granted through completion of a relevant learnership, satisfying the requirements of a relevant apprenticeship, certification of prior learning, and the completion of any other learning programme (this includes prescribed work experience) (Republic of South Africa, 2008).

- In **Sri Lanka** a national trade testing programme tests and certifies the skills of craftspeople who have gained their skills through informal means. The programme was initiated in 1984 with funding from the World Bank, initially in the construction industry, which continues to account for around 80 per cent of candidates. The Sri Lankan National Apprentice and Industrial Training Authority (NAITA) has a legal mandate to operate the programme, and it maintains the standards that are the basis of the testing. To date national trade tests have been developed for about fifty-three trades. Anyone with at least one year's experience in the chosen trade can apply to sit a trade test. Tests are conducted at four levels: Grade 3, semi-skilled; Grade 2, skilled; Grade 1, highly skilled; and certificate of competency. No formal training is required, no paper qualifications are required, and there is no age limit for applicants. In addition to conducting tests, the NAITA conducts bridging courses to allow workers to upgrade their skills prior to taking a test (see www.naita.slt.lk/Ntt.html and ADB, 2011).

These examples point to some key institutional requirements for effective arrangements to link informal work-based learning to the formal assessment and certification of competence. They include the existence of agreed occupational competency standards, a legislative or regulatory mandate for assessment and certification, mechanisms for the accreditation of assessors and/or assessment centres, support from employer groups and trade unions and the availability of opportunities for individuals to take part in skill upgrading courses prior to being assessed.

4 Conclusion

While the arguments in favour of work-based learning extend beyond vocational education and training, within vocational education and training there are a number of reasons for policy-makers and practitioners to try to introduce, extend

or improve it. First, it is a powerful form of pedagogy that can be used to develop basic work habits, occupational identity and specific occupational competences. It can motivate disadvantaged, disengaged and failing students, develop generic skills such as initiative and problem- solving, and teach entrepreneurship. It can improve students' labour market outcomes through the links that it creates between them and employers, which in turn assist recruitment, as well as through the superior quality and relevance of skills that are developed through involvement of the learner in the production of real goods and services in the workplace. The institutional arrangements that need to be put in place to support extended, high-quality work-based learning systems can be a way of more closely involving employers in vocational education and training, thus increasing their confidence in the system and raising its quality.

There are also economic arguments for the use of work-based learning within vocational education and training. Transferring the cost of achieving learning outcomes from publicly funded educational institutions to enterprises reduces public expenditure and allows a given level of funds to be used more effectively to achieve wider participation in education and training. And learning that uses plant and equipment on employer premises not only results in it being more up to date with current industry practices, thus leading to skills with greater relevance, but also reduces the cost to the public purse that would result if educational institutions had to purchase the equipment.

Work-based learning can take many forms within vocational education and training. These range from informal apprenticeship-type arrangements at one extreme to formalized apprenticeship arrangements at the other. Between these two extremes there are a number of variants. These include alternance programmes and structured work placements, in which the learner is legally a student rather than an employee, and hence the time in the workplace is unpaid. Train and place programmes, internships and cooperative education are other variations. The various forms of workplace learning and experience differ in the demands that they make upon the firm and in the distribution of costs and benefits between the firm and the learner. At one extreme are programmes that involve quite short periods in the workplace, and which focus more upon generic employability skills. At the other extreme are

programmes such as apprenticeships in which the young person is carefully recruited by the firm, and spends an extended period in the firm, and in which the skills taught expand beyond general employability to encompass those that are specific to the occupation, the industry and the firm itself. As programmes move along the scale towards the second extreme, the capacity of the firm to capture benefits from work-based learning programmes will increase.

Very few countries have large and well-developed apprenticeship systems that account for the majority of each cohort of youth. This might be taken to suggest that an advanced stage of economic and social development and a high-skills economy are necessary for the existence of well-organized systems of work-based learning connecting vocational education and training systems to enterprises. However within limits the extent and quality of work-based learning within vocational education and training systems appears to be more a function of the nature and quality of the institutional arrangements that connect vocational education and enterprises, of culture and of politics than of the stage of a country's economic and social development. There are many examples of highly developed economies such as Canada, Japan, Korea and the United States that have quite weak formal systems of work-based learning. And there are many developing economies, particularly middle-income economies, where such systems are quite strong. Examples are Turkey, Fiji and Sri Lanka.

A number of organizational and institutional strategies can help to ensure that work-based learning is an attractive option for learners and for enterprises, and that time that is spent in the workplace results in learning. Within apprenticeship training these include an appropriately set training wage, appropriate legal and regulatory frameworks, financing systems, qualification and certification arrangements including regulated links between occupations and qualifications, well-established governance arrangements at the sectoral level, and local quality assurance arrangements. Outside of apprenticeship arrangements, effective student learning through workplace experience requires supportive organizational arrangements within the school (for example timetables, teacher working conditions), appropriate central policies to support workplace experience, and sufficient resources for programme monitoring and quality control.

Practical methods to help increase the extent to which work is learning-rich include encouraging people to reflect upon their experience, guidance by other workers and by experts, using mentors, demonstration and practice, simulation, task rotation and task variety, project work, and providing workers with problems to be solved. Workplace supervisors who understand that developing the knowledge, skills and expertise of workers is part of their normal job are crucial to many of these techniques.

Introducing and using such techniques can be more difficult for small and medium-sized enterprises than for large enterprises. In these cases the assistance of external organizations such as can be found in the Netherlands and Norway can be very valuable. Such assistance can take the form of coaching and training for in-firm supervisors, and the development of simple competency lists and learning guides. In addition, cooperative arrangements between enterprises, or between enterprises and other learning venues, can be put in place to help improve the quality of work-based learning. With appropriate working conditions and industrial agreements, many of these roles are able to be performed by teachers in vocational schools and colleges, particularly when they are responsible for visiting and supervising students who are on work placements.

Where informal apprenticeships are a significant part of a country's skill formation arrangements, there are some key institutional requirements for effective arrangements to link informal work-based learning to the formal assessment and certification of competence. These include the existence of agreed occupational competency standards, a legislative or regulatory mandate for assessment and certification, mechanisms for the accreditation of assessors and/or assessment centres, support from employer groups and trade unions, and the availability of opportunities for individuals to take part in skill-upgrading courses prior to being assessed.

Acronyms and abbreviations

GDP	gross domestic product
HDI	Human Development Index
ILO	International Labour Organization
NAITA	National Apprentice and Industrial Training Authority (Sri Lanka)
NCRVE	National Centre for Research in Vocational Education (USA)
NCVER	National Centre for Vocational Education Research (Australia)
NIESR	National Institute of Economic and Social Research (UK)
NQF	national qualifications framework
NTQ	national technical qualifications
OECD	Organisation for Economic Co-operation and Development
TPAF	Training and Productivity Authority of Fiji
UNDP	United Nations Development Programme

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Chapter 6

Why improved formal teaching and learning are important in technical and vocational education and training (TVET)

Jeanne Gamble

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1 Introduction

The nature of the relationship between education and the economy has always been contentious, but not so in the case of technical and vocational education (TVET). Here the general maxim is that the closer the relation between TVET institutions and actual workplace practices, the greater the relevance of TVET curricula and the better the chances of graduates of becoming employable. This assumption has had a significant impact on considerations about the nature of knowledge transmitted in TVET curricula, as well as on the qualifications required of TVET lecturers, instructors and trainers. However, current debates on education and training as a 'universal good' and especially the pressing need for access and equity on the one hand and higher-order excellence and innovation on the other, are necessitating a reconsideration of long-held assumptions about both the nature and quality of TVET.

The argument of this paper is that access and equity are not necessarily at the one end of a continuum of learning and occupational progression, with higher-order excellence and innovation at the other end. These two constructs also do not stand in a dichotomous relation, with the one achieved at the expense of the other, as cynics might claim. Both are crucial for human development and for building a country's economic base, and yet the relationship between them is more complex than is often acknowledged. It is for this reason that the paper makes the claim that, contrary to the common wisdom that proximity of curricula to the workplace is the 'golden wand' of successful TVET, improved formal teaching and learning are as important in TVET as they are in all other educational domains.

The paper starts with a brief review of some of the debates about the changing nature and scope of TVET and its institutionalization. This provides a context for considering why knowledge differentiation rather than generic versions of skill needs to be the basis of TVET curricula. Within this frame the paper then considers the idea of vocational pedagogy, to argue that formal teaching and learning in TVET institutions need to be strengthened if there really is to be a meaningful relation between various TVET objectives.

2 The changing nature of TVET

TVET is an ambiguous term which contains within it both a higher and lower end of an educational hierarchy. From a British perspective, Wolf argues that vocational education:

> Does not mean a medical or veterinary degree; or a post-graduate law school course; or taking one's accountancy examinations while working for one of the big City accounting firms. It does not even mean nursing or teacher training. 'Vocational education', instead refers to courses for young people which are offered as a lower-prestige alternative to academic secondary schooling and which lead to manual craft and, more recently, secretarial jobs. 'Technical education' slots into the hierarchy above vocational and below academic; and leads in theory, to the technician jobs which increased in number during the twentieth century.
>
> (Wolf, 2002, p. 58)

The three-tier distinction between vocational, technical and academic education remains firmly in place in most countries but at the same time it is claimed that the so-called knowledge economy now requires all students to develop higher-order skills of reasoning, conceptual problem-solving and communication, leading to what Wolf, (2011, p. 20) describes as a more or less universal 'aspiration to higher education'. This requirement is expressed as:

> The ability to analyse complex issues, to identify the core problem and the means of solving it, to synthesize and integrate disparate elements, to clarify values, to make effective use of numerical and other information, to work co-operatively and constructively with others and, above all, perhaps, to communicate clearly both orally and in writing.
>
> (as cited in Ball, 1985, p. 232)

Somewhere near the middle of the hierarchy we could insert a more overtly vocational prescription for what is required in the world of work of the future. Australian research argues that work-ready students should have:

- The knowledge and skills they need for work;
- Adequate language, literacy and numeracy skills, and foundations skills;
- 'Green' skills needed for a sustainable economy and society;
- Technological skills;
- Employability skills; and
- The knowledge and skills they need for further learning (Wheelahan and Moodie, 2010, p. 15).

At the bottom end, the youth labour market that is premised on a direct transition from school to work has all but collapsed in the last decades (Young, 2008). It is argued that the rearrangement of labour market entry by higher levels of technology, and shifts from manufacturing to service industries, have led to a decrease in apprenticeships, traditionally a highly effective route into stable employment for young people in many countries (Kraak, 2008; Wolf, 2011). It is also argued that entry into existing apprenticeships increasingly requires higher general academic qualifications, which are more often available to middle-class than to less advantaged youth (Kupfer, 2009).

Even though there has been an increase in the provision of lower-level vocational qualifications that ostensibly offer access to job and career pathways, these are often described as dead-ends that lead many young people in advanced industrialized countries to 'churn' or 'swirl' between education and short-term or casual jobs in an attempt to find educational opportunities that offer real chances of academic progress or a stable, paid job, and often finding neither (Grubb, 2006; Wolf, 2011). In less economically advanced countries the detrimental impact of poverty on educational outcomes remains a critical challenge which, when linked to high unemployment and limited economic growth, provides young people in these countries with even fewer opportunities for work or further study (Van der Berg, 2011).

It is thus not surprising that the figures for young people neither in employment nor in education and training (NEETs, as they are called) are on the rise in all countries, at least in part because employers tend to favour older applicants with higher-level qualifications, in a context of rising unemployment. The Organisation for Economic Co-operation and Development (OECD) (2010) reports, for instance that, by mid-2010, in the twenty-six countries for which information was available, 12.5 per cent of youth aged 15–24 were NEET, up from 10.8 per cent in 2008. This represents 16.7 million young people, of whom 6.7 million were seeking work at the time and 10 million had given up looking. In a country such as South Africa, where links to the developed world, through aspects of an advanced economy, coexist with the majority of people having access only to the most basic infrastructure, coupled with a huge income gap between those who live in poverty and those who live in affluence, the figure for the 18–24 NEET group is calculated as approximately 2.8 million. This results in a dismaying figure of 42 per cent of the approximately 6.8 million young people in this age cohort being neither in employment nor in education and training (Cloete, 2009).

Almost conversely, both the economic 'pull' of higher-level qualifications and the 'push' into education as a result of a lack of jobs are contributing to massification trends in higher education (Wolf 2011). In this scenario 'access and equity in education' and 'education for higher-order excellence and innovation' become the ends of a supposed continuum in which the space between the two ends is often rather hazy in terms of delivery potential. Educational systems endeavour to achieve both purposes through institutional differentiation, so we need to consider where TVET fits into a differentiated education and training system.

3 TVET institutionalized

TVET is linked to a wide range of physical institutions, such as secondary and in some cases even primary schools, public and private further and higher education,

and training colleges and universities of both a general and specialist nature. It is thus helpful to examine current debates around institutional differentiation to determine whether it is possible to isolate distinctive features of TVET at the level of educational institution, or whether its distinctiveness lies at the level of programme or course.

Differentiation is described as the process through which new entities in a system emerge. Diversity is the accompanying term which denotes the variety of entities in a system at a particular time (Van Vught, 2007, p. 1). Arguments in favour of diversified systems point out, among other issues, that such systems open up access to students from different educational backgrounds, allow for multiple entry and exit points, respond more effectively to labour markets, and permit the crucial combination of mass and elite higher education on which all countries depend (Birnbaum, as cited in Van Vught, 2007, pp. 5–6). However, there are also studies that argue that, instead of differentiation, higher-education systems are in reality characterized by dedifferentiation and decreasing levels of diversity through 'academic drift', which creates a tendency towards uniformity (Grubb, 2006; Van Vught, 2007).

Codling and Meek's (2006) study of universities in Australia and New Zealand points to 'mission stretch'. This refers to two distinct if related processes, academic drift and vocational drift, which result not in institutional diversity, but rather in institutional convergence. Their study shows that, when these trends are generalized, the traditional universities are exhibiting vocational drift by adopting more applied missions, developing active partnerships with industry and the new professions, offering more overtly vocational qualifications, generating more applied research funded by industry, and becoming more enabling in their admission policies to encourage non-traditional learners. Universities of technology are exhibiting academic drift by appointing more university-trained and experienced academic staff, adjusting their organizational cultures to be more academic, shifting enrolment patterns to include more school leavers, broadening and increasing their research focus, and adopting much of the symbolism and nomenclature of the traditional university (Codling and Meek, 2006, p. 41).

The tendency towards institutional convergence is often reinforced by a requirement of central governments that diversified systems be coordinated according to a single set of criteria (Bleiklie, 2003). Convergence may well be advanced by the role that

national qualifications frameworks (NQFs) are playing in the reform initiatives of many countries towards greater transparency, coherence and permeability between education and training subsystems and the removal of barriers between TVET and higher education (CEDEFOP, 2010). There are also well-documented critiques of this logic (Allais, 2010). The ranking of higher education institutions according to a single set of indicators is a further contributing factor.

Referring to developments in both Europe and the United States, Scott (2006) brings a historical perspective to the debates when he argues that institutional stratification was the major mechanism that produced stable state-mandated differentiation in the twentieth century; in other words, the building-up of layers of institutions with distinctive missions. In the twenty-first century, an increased emphasis on the 'market' is producing far more volatile patterns of differentiation. This happens through mergers and acquisitions; strategic alliances and network relations between institutions; and perhaps most commonly, through different forms of internal differentiation. In the policy trajectories of developing countries such as South Africa, Kraak (2001) similarly draws a distinction between a 'hard-stratified' route of institutional differentiation and a 'soft-stratified' route of programme differentiation.

While many of the above debates refer mainly to the university sector, we see similar internal differentiation developments in the college sector. Grubb (2006) provides an overview of the 'active transfer programs' in the United States, between community colleges that offer associate degrees which can replace the first two years of four-year degree courses offered by second-tier universities (often called state colleges or regional universities). In certain instances, universities themselves offer these associate degrees, while in other instances colleges offer baccalaureate degrees, which were traditionally in the university domain.

Green and Lucas (1999) describe a blurring of boundaries between further and higher education in the United Kingdom. In South Africa, Stumpf and colleagues (2009) offer proposals for increasing the mandate of further education and training (FET) colleges through universities franchising colleges to offer certain higher-education programmes on their behalf, or through colleges being able to offer certain higher-education programmes in their own right.

4 Knowledge differentiation

The 'soft-stratified' route of programme differentiation is no less complex. Apprenticeship, for centuries the main source of formal vocational training for crafts and trades (Wolf, 2002, p. 58), was the forerunner of formal TVET programmes. TVET, in its turn, took on different forms which coincided with the timing and pace of industrialization in different countries (Deissinger, 1994; Green, 1995). Referring specifically to nineteenth-century England, Green argues for instance that:

> Technical education had been cast in a mould that subsequent legislation would find hard to break. Growing up as an extension of the apprenticeship system and reliant on employer initiatives, it developed in a fragmented and improvised manner: perennially low in status, conservatively rooted in workshop practice and hostile to theoretical knowledge, publicly funded technical education became normatively part-time and institutionally marooned between the workplace and mainstream education. A century later we have still not overcome the deep divisions between theory and practice and between academic knowledge and vocational learning which were first entrenched in these nineteenth-century institutional structures. Nor, would it seem have we quite outgrown the voluntarist reflex which gave rise to them.
>
> (Green, 1995, p. 139)

Much of what Green describes as indicative of nineteenth-century technical education remains today. What has changed in the twenty-first century, however, is the relationship between theoretical knowledge and work.

> The knowledge society means that each occupation and its attendant knowledge base will increasingly be under pressure to augment its quantum of conceptual knowledge, to become at least partly mental. This is because generalisable innovation relies on conceptual knowledge ... and it is this kind of innovation that the global economy prizes most at all levels of the division of labour.
>
> (Muller, 2009, p. 16)

A conceptual knowledge base may be the new requirement for TVET, but technical, vocational and professional education always face 'both ways' (Barnett, 2006); towards the non-empirical world of ideas and concepts as well as towards the empirical world of practice and experience. In these educational fields the curriculum thus always transmits knowledge-based practice, even though this relationship is often obscured by the reduction of all types of knowledge to skill sets. Such reductionism is characteristic of the ideological shifts towards outcomes-based education that are favoured by progressivists in schools as well as by advocates of NQFs (Allais, 2006; Muller, 2001). In 'skills' approaches, knowledge becomes invisible and fundamental epistemological issues are ignored. Young (2006) goes so far as to argue that this has happened throughout the history of TVET.

At the level of programme differentiation, the epistemic logic of the curriculum, which refers to 'requirements for teaching and learning posed by the form of the knowledge to be transmitted' (Gamble, 2004a, p. 176), requires consideration of the knowledge base on which qualifications are premised. In order to do so, we briefly consider the work of a number of theorists in this field.

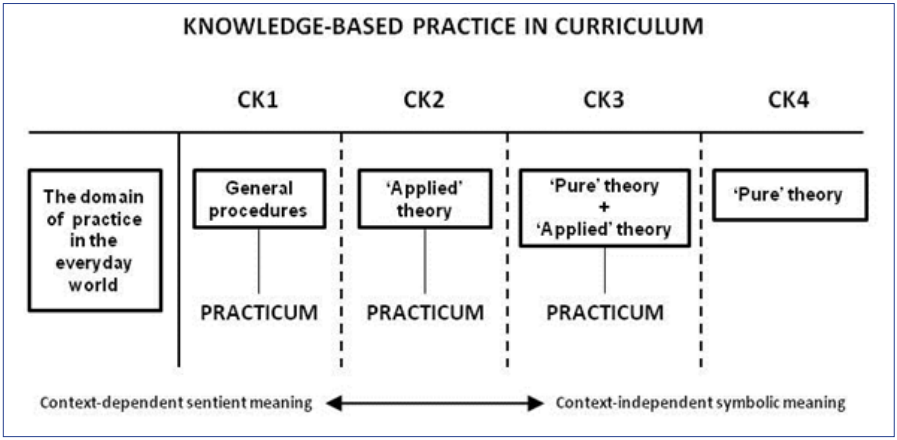
Bernstein (1996, 2000) distinguishes between three forms of knowledge which, according to their focus and social organization, provide the basis for performance-based curricula and pedagogies. He refers to these forms of knowledge as 'singulars', or what is commonly known as disciplinary knowledge, such as physics, chemistry, history, economics and psychology; 'regions', where disciplines combine to respond to a particular field of external practice, most commonly in professional fields such as engineering, medicine and architecture; and generic modes, produced by a functional analysis of 'what is taken to be the underlying features necessary to the performance of a skill, task, practice or even an area of work' (Bernstein, 2000, p. 53). Beck and Young (2005) argue that it is this last category, which they term 'genericism', that is driving curricula in many fields ever closer to the concreteness of 'the world', or what Sohn-Rethel (1978) refers to as a 'context of human action' where meanings derive from concrete events or experiences that have actually happened in a specific time and place. This means, by definition, that curricula also tend to be driven farther away from a 'context of thought' (Sohn-Rethel's corresponding term), where meanings exist only in abstract or symbolic form, independent of the time–space context of their production.

Schein (1972) identifies three separate but related elements of the knowledge base of various professions, which are related to Bernstein's concept of disciplinary regions. He argues that all professional practice rests on an underlying disciplinary base, in which the disciplines may be more or less convergent. Anatomy, biochemistry, physics and mathematics are convergent disciplines in medicine, for instance, while professional fields such as social work or teaching rest on more divergent disciplines such as various branches of psychology, history, philosophy, anthropology and sociology. A professional field also has an applied theoretical component, from which many of the day-to-day diagnostic procedures and problem solutions are derived. Third, a professional field has a skills and attitudinal component (the 'practicum' or 'work-integrated learning' component of the curriculum). These three components vary in terms of their form, sequence and timing, but they are all present in some form in the curricula of professional fields.

Using the above vocabulary, the schematic diagram (Figure 1) shows various types of relation between a knowledge base and a form of practicum in curriculum. The various forms of curriculum knowledge (CK) are labelled CK1 to CK4, to signal that a particular curricular type should not be associated with a particular kind of institution, or with a particular professional, technical or occupational field of practice. To do so would be misleading, as we have already noted the permeability that currently exists between the types of programmes offered by different institutions. Fields of practice also have stronger or weaker disciplinary foundations which predispose them to a certain type of curriculum. Moreover, any one field of practice contains a range of professional, paraprofessional, technical, skilled and semi-skilled occupations, which bring the forms CK1 to CK3 into play at different levels of specialization. It is only in type CK4, usually associated with academic schooling and with formative undergraduate and academic postgraduate studies, where the conceptual base of the curriculum operates on its own without direct reference to a form of empirical practice.

What the four types have in common is that the knowledge base in each operates at a higher level of generality than the specificity of a particular instantiation of practice in the everyday world of professions and occupations.

Figure 1. Curriculum types in the knowledge-practice curriculum



Source: Gamble (2011).

The dotted lines between the different curriculum types indicate that there is no natural progression between curriculum types. A student who achieves success in CK1 is not necessarily going to achieve success in CK2, CK3 or CK4. Neither is it a foregone conclusion that success in CK4 means that students will automatically achieve success when they cross over to a practice-oriented curriculum. Educational progression from one curriculum type to the next is thus not just a question of formal institutional access; it is crucially dependent on epistemological access. As Morrow put it succinctly:

> Formal access is a matter of access to the institutions of learning, and it depends on factors such as admission rules, personal finances and so on; epistemological access, on the other hand, is access to knowledge. While formal access is important ... epistemological access is what the game is about.
>
> (Morrow, 2007, p. 2)

To show the differences between knowledge bases, we turn to some examples of NQF-based qualifications. The knowledge base of a CK1 curriculum type can be illustrated by an extract from a vocational qualification in Clothing, Textiles, Footwear and

Leather (CTFL) Mechanician Processes, registered as a certificate on the South African NQF (at level 4). Exit level outcomes include the following:

Table 1. A qualification with a general procedural knowledge base, at NQF level 4

On achieving this qualification, a learner is able to:
• Monitor the use of raw materials, lubricants and chemicals when maintaining machines and equipment, interpreting data, evaluating information, keeping records and solving under and over use problems related to materials. • Maintain and use a range of hand or power tools understanding the technology related to such tools and adapting to situations that occur during maintenance and repair procedures. • Record quality matters and maintain a quality system as it applies to maintenance recognising areas of poor quality and then communicating action to rectify areas of poor quality. • Monitor waste and record waste related statistics.

Source: http://regqs.saqa.org.za/index.php. This is an extract from a full unit standard

In this qualification the 'monitoring', 'maintaining' and 'recording' activities are of a procedural nature, and they take their sequential or stepwise logic from the empirical domain of actual workplace practice. External 'adequacy-to-context' (Muller, 2009, p. 216) is the main selection principle, and there is a close relation between the general procedures stated in the qualification and specific everyday practice. The knowledge component is not stated explicitly but is assumed to be embedded in the competence to be achieved. As Allais argues in her critique of this type of curriculum logic:

> The emphasis is on competence statements in the learning outcomes; knowledge is relegated to a category called 'essential embedded knowledge', which is supposed to mean knowledge that underpins the particular competence that has been specified in the learning outcome. Knowledge cannot, in this approach, be the starting point; the 'essential embedded knowledge' is derived from the outcome', and not stipulated as part of a

> body of knowledge worth mastering .... Learning programmes should not be designed based on the internal requirements or logic of a knowledge area; instead knowledge areas should be selected on the basis that they can lead to the competence in question, or that they 'underpin' it.
>
> (Allais, 2006, p. 25)

When we move to CK2, CK3 and CK4, the knowledge bases look very different. Table 2 compares extracts from two South African curricula in physical science which were developed prior to the introduction of the South African NQF but were deemed to be equivalent at NQF level 4. Physical Science Higher Grade (Curriculum A) is the culmination of three years of study in a senior secondary school. Engineering Science N3 (Curriculum B) refers to an eleven-week (or trimester) technical/vocational course offered by a South African FET college as part of the apprenticeship system. The example makes it clear how distinctions between 'pure' and 'applied' theory are achieved through differences in selection and sequencing of content, level of cognitive demand in examination questions and time allocated to instruction.

Table 2. Comparison of content coverage in two NQF level 4 science courses

PHYSICS	
Curriculum A. Physical Science (Higher Grade)	Curriculum B. Engineering Science N3
Bodies in Motion: Newton's 1st law of motion, Newton's 2nd law of motion, Newton's 3rd law of motion	Bodies in Motion: Newton's 2nd law of motion
Newton's Law of Universal gravitation, projectile motion (up and down)	
Concept of friction	Friction: Static & kinetic friction, horizontal and inclined planes
	Moments: Turning moment for constant motion, levers and lamina, beams
(Heat: specific heat capacity, transfer of heat covered in Grade 10)	Heat: specific heat capacity, transfer of heat, heat value of a fuel, efficiency, expansion and steam
	Hydraulics: hydraulic presses, work done against a pressure
Electrostatics: electricity at rest, force between charges, electric fields, quantization of charge	
CHEMISTRY	

Curriculum A. Physical Science (HG)	Curriculum B. Engineering Science N3
(Covered in Grade 10)	Elements: constituents of matter, periodic table, metals and non-metals, structure of the atom
Reaction rates and chemical equilibrium, energy of reactions, dynamic equilibrium, equilibrium constant, change of state of equilibrium, equilibrium in solutions, some industrial and other applications	
Acids and bases: dissociation of water, pH (quantitative), models for acid and base, acid-base titrations	
Redox reactions: definition in terms of gain or loss of electrons, identifying oxidising and reducing agents	Redox reactions (brief introduction) and corrosion
Electrochemical cells: copper-zinc cell, electrolysis and electroplating	Electron transfer: formation of ions, brief definition of electrolysis and electroplating
Half-cell potentials: table of redox half-reactions and applications, selection of reference electrode, calculations of potential difference	
Organic chemistry: definition, structure, nomenclature, hydrocarbons, alkyl-halides, alcohols, carboxylic acids	

[This is an extract from the full table presented in Umalusi, 2006, 53 – 55.]

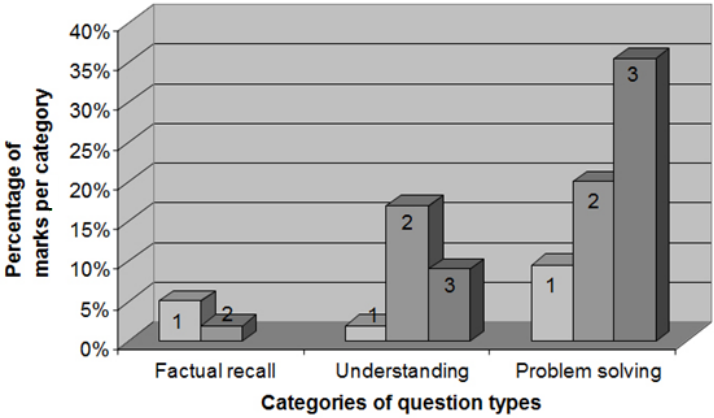
Both types of curriculum in Table 2 are 'theoretical', but Curriculum A represents what could be called 'pure' theory, selected and arranged in terms of an internal 'adequacy-of-sequence' logic (Muller, 2009, p. 219) which has a certain necessary congruence with the vertical spine of the parent discipline (Muller, 2009, p. 16); in this case the parent disciplines are physics and chemistry.

Curriculum B also represents conceptual knowledge, but the selection and sequencing of knowledge are driven purposively and pragmatically by a direct relation to aspects of engineering practice ('applied' theory). In Curriculum B certain content areas are omitted entirely. Where there is content similarity with Curriculum A, there are notable differences in both depth and range. Curriculum B, however, covers a greater number of specifically industrial applications. The sub-report (undated) on research comparing these curricula on which the overall report is based (Umalusi, 2006), warns that the dearth of chemistry-related content in Curriculum B will catch up

with students should they attempt to study further in a science direction at higher education level.

The difference between the two types of curricula is even more pronounced in the categories and levels of cognitive challenge encoded in the examination questions (see Figure 2).

Figure 2: Curriculum A - Physics Higher Grade examination mark breakdown



Source, Umalusi (n.d., p. 6).>

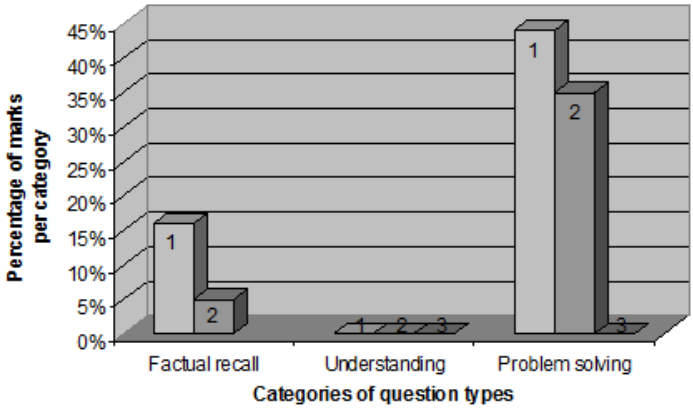
In Curriculum A, 82 per cent of the questions required medium and challenging levels of understanding and problem solving, with only 7 per cent of questions requiring simple or medium factual recall.

When we turn to Curriculum B the situation looks entirely different: see Figure 3.

The N3 Engineering Science examination contained no questions which probed understanding of concepts or principles. All questions fell into either the factual recall or problem-solving categories. The examination contained no questions in the problem-solving category at level 3 (the challenging level). The exam mostly tested application of procedures (level 1). Of the examination marks, 60 per cent

were allocated to questions at cognitive level 1 (simple), with the remaining 40 per cent at level 2 (medium).[1]

Figure 3. Curriculum B - N3 Engineering Science examination mark breakdown



Source, Umalusi (n.d., p. 6).

These three examples were chosen not because they are representative of types of curricula in all countries, but because they mark out the curriculum terrain we commonly describe as TVET. In terms of the typology presented earlier, they illustrate what is possibly the knowledge base of lower and middle-level vocational education at the access and equity end, and at the other end, the technical and professional knowledge base required for further study that will lead to higher-order excellence and innovation. In terms of accreditation parity, all three curricula are pegged at level 4 of the South African NQF. What is clear, however, is that their knowledge bases inform practice in very different ways, so that one form of knowledge does

[1] When the author discussed this graph with college lecturers they conceded that many of the questions under 'problem-solving' actually belonged in the 'factual recall' category, in that the problem-solving questions referenced rehearsed solutions which students had practised many times in class. The examination thus appears to call for novel problem-solving but the responses given are routinized and procedural in nature.

not automatically lay the foundation for the next level, in terms of the CK1 to CK4 knowledge types shown in Figure 1.

This is the dilemma of teaching and learning in TVET; a dilemma that is masked by the ubiquitous 'skills' discourse.

5 What then is vocational pedagogy?

'Learning by doing' is characteristically the way in which vocational pedagogy is described, but such a simplistic understanding obscures the fact that there is no one definitive notion of vocational pedagogy, just as there is no one idealized notion of a TVET teacher (Wheelahan, 2010).

In order to think about TVET teaching, we again need to turn to the master–apprentice relationship,[2] which provided apprentices with an opportunity to work under the close supervision of an artisan or journeyman, in all facets of a trade, as the first prototype for what could be called a vocational pedagogy. It is also this pedagogy that is often described as a 'mystery' (Donnelly, 1993, pp. 42–43) or a 'secret' (Singleton, 1989, p. 29), to indicate a modelling pedagogy without discursive elaboration. A good example is Nielsen and Kvale's (1997, p. 134) description of a master car mechanic in North Jutland who was known for two things: that his apprentices became the best car mechanics in the region and that he hardly ever said a word to them. Gamble's (2004b) study of craft pedagogy in cabinet-making describes the 'teaching' observed as a largely unpedagogized form of modelling which takes its logic from the relation between purposeful activity and its organization (work), materials and tools (as originally described by Marx, 1865–6/1976, p. 284). It is this interrelationship that constitutes the context of specialization, both at the point of production in the workplace itself and at the point of in-job craft reproduction practices. Artisans hold the knowledge of their trade as an integral part of a collective craft identity, so that initiation into a craft or trade is as much a social identity formation process as it is a process of building technical capability.

2 The terms 'master' and 'journeyman' are used here in a non-gender-specific way.

The history of industrial development shows how, in the late nineteenth century when technology started to draw more strongly on general scientific principles (Layton, 1984), a knowledge base that was deemed a 'mystery' was no longer considered adequate for the preparation of artisans. Increased mechanization resulted in a more specialized technical division of labour which often deprived apprentices of exposure to all aspects of a trade. In order to establish a basis for understanding the scientific basis of technology, it became necessary to introduce mathematics and science into the apprenticeship curriculum, especially for the engineering trades. From this time onwards we find traditional work-based apprenticeships shifting to a 'theory–practice' combination, with technical institutions, as the forerunner of technical colleges, offering theoretical instruction in mathematics and science on a day- or block-release basis or through evening classes to apprentices indentured under formal contracts of apprenticeship. Referring to the United Kingdom, Young (2006) terms this a knowledge-based or discipline-based approach to vocational preparation. It was assumed that a scientifically grounded knowledge base would enable apprentices to engage in the kind of problem-solving required by more advanced levels of technology, in combination with tacit knowledge and competence that could only be acquired through practical work. The French trade schools of the nineteenth century offered a combination of theoretical and practical training, as it was not assumed that years of serving as an apprentice, very often doing the same thing over and over, was an adequate proxy for systematic practical training (Green, 1995, p. 137).

We therefore see a shift from the master-artisan as trainer at the point of production, to a combination of teacher in a classroom and instructor in a college-based workshop.

While these systems continue in many countries, especially in technical education, in an increasing number of countries there has been a shift to competency-based modular training (CBMT), or what Young (2006) terms a standards-based or outcomes-based approach to vocational qualifications. Standards-based vocational preparation is premised on a detailed specification of learning outcomes. Learning materials include practical exercises as well as interim competency tests. Trainees work at their own pace, and when trainees are confident that they have reached the required standard, they approach the assessor for assessment, which proceeds

on a 'competent'/'not yet competent' basis (Gamble, 2000, p. 30). In a CBMT system the role of the technical trainer changes from instructor to coach or facilitator of learning and, most importantly, to assessor.

While standard-based curriculum approaches consistently favour 'learning as outcome' over 'learning as content', they simultaneously foreground 'learning as process' and a deeper understanding of individual and group learning. Theoretical justification for the elision of two seemingly dichotomous educational positions was found, among other places, in the influential work of Lave and Wenger (1991), who emphasized a 'learning curriculum' over a 'teaching curriculum'. A learning curriculum is described as 'a field of learning resources in everyday practice viewed from the perspective of learners' (1991, p. 97). The focus is on 'situated activity' within a 'community of practice' (Lave, 1993). The workplace is regarded as the prime site of learning, but the role of the 'master as pedagogue' is 'decentered' (Lave and Wenger, 1991, p. 94). The work of Engestrom and Vygotsky, under the broad banner of sociocultural activity theory, was also used to argue for a refocusing of attention on learning within active processes of knowledge construction, in an attempt to broaden the narrow focus of standards-based approaches to learning (Guile and Young, 1998, 1999).

Over time, initial endorsement of the potential of social practice theories began to give way to a questioning of the implications of radical shifts to a 'learning curriculum'. While generally recognizing the value of learner-centred approaches, Fuller and Unwin (1998, p. 159), for instance, raised concerns about the downplaying of the teacher's role. Young (2000) similarly criticized the model of curriculum that results when all knowledge is treated as embedded in specific contexts. In Young's view, such a model privileges the meanings that people create for themselves and ignores the fact that many of the meanings that need to be acquired have already been 'pre-constructed' elsewhere (Young, 2000, p. 10). In later work, Young (2002, 2006, 2008) has argued consistently for the continued importance of knowledge in curricula, and has cautioned designers of vocational programmes to 'take the question of knowledge seriously' (2008, p. 171).

Such critiques are a long way from our initial formulation of vocational pedagogy as 'learning by doing'. In TVET 'doing' will always retain centrality, but what we have seen

is that an adequate knowledge base on which rest 'doing', 'making', and 'creating', as different forms of practice (Gamble, 2009), has become a crucial curriculum requirement – hence the call for improved teaching and learning in TVET. It is within this complex understanding of what vocational pedagogy entails that we examine some of the implications for teacher competence.

6 Implications for teacher competence

Debates around teacher competence in TVET indicate trends towards greater professionalization of the teaching cadre (Cort et al., 2004; Skills Commission, 2010; Young, 2008). It is argued that TVET teaching is becoming increasingly diverse and that workplace or industry experience, while a necessary and important criterion for VET teaching, is no longer sufficient on its own. The deepening of the knowledge base on which TVET teaching rests in terms of both content engagement and pedagogic engagement is the basis for moves towards increased professionalization.

In simple form, the basis of TVET teaching can be schematized as the interrelation between three foundational dimensions:

- Formal subject or technical knowledge,
- Pedagogic expertise,
- Practical workplace experience.

Despite moves towards professional standards in many countries, there is no uniform developmental trajectory to ensure that all three dimensiosn are in place and interconnected. We briefly review current developments.

6.1 Subject/technical knowledge base

There is a marked lack of international consensus about what counts as an entry-level academic or subject specialization qualification. In most countries there are different qualification pathways for the teachers of vocational subjects in TVET institutions, with the requirement of a bachelor's degree as the main distinguishing feature between the different tracks. Teachers of general subjects in TVET institutions tend to follow the same degree qualification pathway as teachers in academic schools. However, teachers of vocational subjects are not necessarily required to be qualified at degree or higher-diploma level in their subject specializations. A recent United Kingdom enquiry into teacher training in vocational education recognized that vocational lecturers have been, and continue to be, considered 'second class' in relation to school teachers, and this despite policy-makers now considering vocational teaching to be a 'core profession' in the knowledge society (Skills Commission, 2010, p. 8). The key conclusion of this enquiry points to the 'need to converge the two separate teacher training regimes that currently exist for teachers of academic subjects in schools and those of vocational subjects in further education and the post-compulsory sector' (2010, p. 9).

In contrast to this, a European Centre for the Development of Vocational Training (CEDEFOP) report, based on ten case studies which each describe a single 'case of good practice' in six different countries (Denmark, Finland, Italy, the Netherlands, Norway and Portugal), concluded that 'in many countries in Europe initial qualification as a vocational teacher requires a higher education degree followed by teacher training that is regulated at national level. In some countries a nationally-recognised vocational qualification is recognised in place of a higher education degree' (Cort et al., 2004, p. 23).

Compensation for unevenness of regulation of formal subject matter qualification requirements in vocational subjects is, to some extent, sought in an increasing requirement for some form of pedagogic qualification.

6.2 Pedagogic knowledge base

Specifications for the pedagogic knowledge base of TVET teaching are highly varied. Although acknowledging that, especially at instructor level, educational knowledge is lacking in terms of linking theoretical knowledge to operational expertise (CEDEFOP, 1990, pp. 7–8), the literature tends to be dominated by discussions about increasing role diversification and role expansion in terms of new sub-specializations such as learning needs analysis; the planning and management of learning systems at operational and strategic level; learning design; distance learning; multimedia teaching; counselling and specialized learning support; integrated communication technology (ICT); inclusive education; ecological awareness; evaluation, audit and quality assurance; labour market analysis; partnership creation and networking – to name but a few. In addition the target groups of TVET are growing increasingly diverse in language, age, employment status, educational background and learning preparedness, which similarly leads to educational role specialization (Cort et al., 2004; Grootings and Nielsen, 2005; ILO, 2010; Skills Commission 2010; Wheelahan and Moodie, 2010; Young and Guile, 1997,).

A range of entry teaching qualifications are described by the sources cited above, ranging from postgraduate teaching qualifications and associate degrees to various levels of certificates and diplomas. There is a tendency, especially in certain Anglophone countries, to base mandatory teaching entry requirements on low-level, standards-based qualifications in order to attract industry experts to VET teaching. In other countries, the initial entry bar is being raised. Cort and colleagues (2004, p. 40) note, for instance that in many European countries, reform of TVET systems is changing the ways in which teaching is organized, with the result that some teachers are no longer formally qualified to teach with their existing teaching qualifications.

Where VET teacher professionalization is taking place, initial entry into VET teaching is often undertaken by technical universities/universities of technology that can offer the technical subjects which will be taught; or, as in the United Kingdom, premised on university–college partnerships or on teacher development provision offered by colleges themselves. In both the latter instances specialist vocational pedagogy is the remit of colleges.

At academic universities, postgraduate study in education for TVET teachers and those who provide curriculum and academic leadership focuses on various forms of research, comparative policy analysis and deepening of theoretical bases for understanding curriculum and pedagogy. Moos and colleagues (2006) also argue that that the general 3+2+3 structure of higher education introduced by the Bologna process (that is, three years for a bachelor's degree, two additional years for a Master's degree and three years for a Ph.D.) has facilitated the integration of TVET teacher education into the general system of education in many countries.

6.3 Practical workplace experience

'Loss of qualification' as a result of remoteness from the workplace is an ongoing lament in the literature consulted. This relates both to those who acquired their specialism through tertiary education and those who entered VET with considerable prior work experience but who eventually became out of touch because they did not have regular contact with the world of work. Regular contact between TVET institutions and workplaces, 'twinning' arrangements, involving industry and unions more closely in defining teachers' future roles, work placements, internships and practical training periods in companies are among the recommendations most frequently cited.

6.4 Is this 'good enough'?

Of the above three components of expertise, practical workplace experience continues to dominate as the central tenet of the TVET teacher's repertoire, and it is perhaps a retrospective yearning for operational expertise gained at the point of production in work itself as the basis for vocational teaching and learning, that foregrounds the need for practical workplace experience. In this regard, the spectre of the 'master-artisan as pedagogue' who 'initiated apprentices into the theory and practice and other mysteries associated with a particular occupation' (Aldrich, 1999, p. 15) clearly still looms large over our understanding of TVET teacher competence. There is, however, one big difference. While it was noted earlier that craft pedagogy is largely unpedagogized and transmitted through modelling

practices rather than through instruction informed explicitly by educational theories, we see in contemporary prescriptions for TVET teaching what could almost be termed as an over-compensation for the tacit modelling aspect of craft pedagogy. This is evidenced by an insistence that workplace experience should be amplified by the use of 'cutting-edge' technology and every available form of educational innovation in teaching methods.

In addition, the drive towards the corporatization of TVET-oriented institutions through management by quality assurance indicators undoubtedly promotes 'generic' forms of teaching that can be captured by a single set of indicators across all subject areas. Under these conditions, references to systematic scientific knowledge being the basis of teacher competence are more often about parity of esteem and remuneration between vocational and academic teachers than about qualifications being viewed as binding on all teaching, whether at the 'access' or the 'innovation' end of TVET objectives.

This is not to say that there is not a concern about improving teaching through professionalization based on formal teaching qualifications. Learner diversity in contemporary TVET institutions is clearly a long way from the homogeneous relations of socialization into craft of days gone by, and teaching is recognized as crucial for enhancing learning for all students. The theoretical justification for this emanates from different versions of progressivist and constructivist learning theory, prompted by a 'practice to theory' rationale (Bird, 2010; Mjelde, 1997; and, as described by Egan, 2002).

The problem is that there is simply no easy fit between formal systematic, scientific knowledge and practical activity. Teachers would dearly like it to be so, since it would make the job of teaching principled knowledge much easier, and mathematics and science would not pose the challenges that they do – for all students, not only for those who enter formal learning with an educational disadvantage. Unfortunately, as Layton argues, 'the "problems" which people construct from their experiences do not map neatly onto existing scientific disciplines and pedagogical organisation of knowledge'(1993, p. 11). For Pye it is the 'prepared mind' that is able to 'abstract a class of result from particular objects and to see the analogies between results' (1978, 60). A decentring of the teacher may provide us with a semblance of democratic,

learner-centred, experientially driven, outcomes-based pedagogy, but it evades the knowledge question. Without access to knowledge in all types of TVET curricula, the ideal of a learning progression continuum that leads to career advancement and mobility will remain elusive.

When the knowledge question is taken seriously we would do well to consider Shulman's (1986) theorization of the knowledge base of teaching. Taking content knowledge in teaching as one domain,[3] Shulman describes it in terms of the categories of subject matter content knowledge, pedagogical content knowledge and curricular knowledge, thereby positioning subject matter knowledge as the central axle around which all other forms of teacher knowledge revolve. Pedagogic content knowledge refers to ways of formulating and representing the subject to make it comprehensible to others. A further distinction is made between lateral curricular knowledge, which involves being familiar with the curriculum materials being studied by students in other subjects they are studying at the same time, and vertical curricular knowledge, which refers to familiarity with the curricular materials taught in the same subject in preceding and later years in school (Shulman, 1986, 10).

When TVET teachers understand their subjects or fields of expertise in general procedural terms, they teach procedurally. When they understand their subject or field of expertise as based on its disciplinary antecedents, its applied knowledge base and its repertoire of skills and dispositions, they teach in the manner attributed to the established professions, as discussed by Schein earlier. Paradoxically, when they do so, their practice most likely resembles that of the old 'master-artisans as pedagogues'. The crucial difference is that their teaching expertise is no longer based on tacit or uncodified versions of practice, but on a codified, scientifically grounded knowledge base that informs practice.

There is enough evidence in different fields of educational practice for us to understand that learning does not happen in the absence of teacher expertise in what to teach and how to teach it (e.g. Hodson, 1992; Layton, 1984; Morais and Neves, 2001; Muller and Gamble, 2010; Schmittau, 2005). Strong formal teaching

3 Other domains mentioned are individual differences among students, generic methods of classroom organization and management, history and philosophy of education, and finance and administration (Shulman, 1986, p. 10).

and learning, aided by various educational technologies and premised on an up-to-date understanding of the vocational, technical and professional field of practice is what is 'good enough' for TVET. Nothing less will do to ensure that we fill in the 'hazy spaces' between equitable access and excellent innovation to achieve a continuum of learning progression that serves all young people and not just the 'privileged' few.

7 Conclusion

The argument put forward in this paper has been that a deepened understanding of knowledge differentiation in curricula necessitates a reconsideration of the competence base of TVET teaching, and by implication, of its capacity to bring about successful learning and further learning progression. TVET teachers need to have subject knowledge, and they need to know how to teach that subject and how to construct a curriculum. This has to be the 'core' of TVET and not the 'periphery'. But in order to replace educational knowledge as 'generic' with a stronger understanding of the relation between a particular form of knowledge and its pedagogy, we need to move away from the broad-brush ways in which we often use the terms 'knowledge' and 'practice' so that we grasp the constitutive effect that different forms of knowledge have on what counts as practice. Only then will we be able to conceptualize education in general and TVET in particular in ways that avoid 'low quality education as poverty trap' (Van der Berg, 2011) as the endpoint destination of many young people in different countries. And only then will we meet the knowledge demands of innovation and higher-order excellence.

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Chapter 7

Career guidance and orientation

A. G. Watts

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1 Introduction

This paper examines the relationship of career guidance and orientation to technical and vocational education and training (TVET). Section 2 examines the concept of career guidance and orientation, and defines its three main elements as being career information, career counselling and career education; it also defines 'career' in a broad and inclusive way, and suggests that the relevance of career guidance to TVET has been under-explored. Section 3 examines the policy rationale for attention to career guidance in general and in relation to TVET in particular, and suggests that it is relevant to some of the key policy issues in TVET, including moving to a demand-driven approach, enhancing its prominence and status, and relating it to occupational flexibility. Section 4 analyses the main conceptual elements of career guidance provision, including the growing role played by technology. Section 5 examines the main forms of current career guidance services – within educational institutions, within workplaces, and in the community – and the potential for developing national lifelong career guidance systems. Section 6 reviews current career guidance practices in relation to TVET, both pre-entry and within TVET programmes. Section 7 offers some brief reflections on impact evidence. Finally, Section 8 draws some conclusions, and comments on the role of UNESCO in supporting the development of career guidance in relation to TVET.

2 The concept of career guidance and orientation

Career guidance and orientation services have been defined both by the Organisation for Economic Co-operation and Development (OECD, 2004, p.19) and in a World Bank report (Watts and Fretwell, 2004, p.2) as:

Services intended to assist individuals, of any age and any point throughout their lives, to make educational, training and occupational choices and to manage their careers.

They include three main elements:

- Career information, covering information on courses, occupations and career paths. This includes labour market information. It may be provided in print form, but increasingly is web-based in nature.
- Career counselling, conducted on a one-to-one basis or in small groups, in which attention is focused on the distinctive career issues faced by individuals.
- Career education, as part of the educational curriculum, in which attention is paid to helping groups of individuals to develop the competences for managing their career development.

The term 'career guidance' is sometimes used to cover all of these; sometimes to cover the first two, which is one of the reasons for the term 'orientation' being added to the title of this paper (the other, less strictly defensible reason is that orientation is the French word for 'guidance').

The concept of career guidance needs to be distinguished clearly from two related but basically different processes: selection (making decisions about individuals) and promotion (attempting to persuade individuals to choose particular opportunities at the expense of others), both of which are primarily designed to meet the needs of opportunity providers (education and training institutions, and employers). Career guidance, by contrast, is concerned with helping individuals to choose between the full range of available opportunities, in relation to their distinctive abilities, interests and values.

In the past, a distinction has often been drawn between 'educational guidance', concerned with course choices, and 'vocational guidance', concerned with occupational choices. This was based on the view that educational choices preceded, or should be separated from, vocational choices. Such a view is now widely regarded as outdated. Changes in the world of work mean that more people now make several changes of career direction in the course of their lives, and have to learn new competences in order to do so. Increasingly therefore, learning and work are

intertwined, on a lifelong basis. Careers are commonly not 'chosen' at a single point in time, but 'constructed' through a series of interrelated learning and work choices made throughout life. This has led to a new paradigm in career guidance, designed to support lifelong career development (see Section 4).

The use of the term 'career' may be taken to imply that the relevance of such processes is confined mainly to relatively advantaged groups in high-income countries. This would be the case if 'career' was defined in its traditional sense, as progression up an ordered hierarchy in an occupation or profession. Increasingly, however, it is being defined in a much more inclusive way as the individual's lifelong progression in learning and in work (Watts, 1999). Such a definition is in principle applicable to all, in low- and middle-income as well as high-income countries, particularly if it is extended to cover informal as well as formal learning and work. It is in this sense that the term is used in this paper.

The policy significance attached to career guidance has been significantly elevated in the last decade through a series of linked policy reviews carried out by a variety of international organizations including the OECD (2004), the World Bank (Watts and Fretwell, 2004) and the European Commission and its agencies (Sultana, 2003, 2004; Sultana and Watts, 2006, 2007; Sweet, 2007; Zelloth, 2009). These have included systematic reviews covering fifty-five countries (for an overview, see Watts, 2008), and have been the basis for two policy manuals: one addressed mainly to high-income countries (OECD and EC, 2004); the other to middle- and low-income countries (ILO, 2006). The reviews were used by UNESCO as the basis for a review of career guidance in the Occupied Palestinian Territories (OPT) (Sultana, 2008). The present paper draws heavily on these reviews.

2.1 Relationship and relevance to TVET

The specific relevance of career guidance and orientation services to TVET was given some attention in the reviews outlined above, but has tended in general to be under-explored. Although UNESCO's Revised Recommendation concerning Technical and Vocational Education (UNESCO, 2001) included a section on guidance, a collection of papers published by UNESCO on guidance and counselling in relation to TVET

(Hiebert and Borgen, 2002) was mainly general in nature, and made little mention of the distinctive issues related to career guidance within TVET itself. Much the same was true of the section on guidance in a report by the European Centre for the Development of Vocational Training (CEDEFOP) (2009a) on vocational education and training (VET) in Europe.[1]

There has been a tendency to take the view that career guidance is largely irrelevant within TVET, on the grounds that entry to a vocational course implies that a career decision has already been made. But in the context of the changes in the world of work outlined in the preceding section, such a view is increasingly open to question. It has accordingly been strongly challenged in a recent OECD review of VET, where it is argued that career guidance is relevant to two of the key policy issues relating to the development of VET (Watts, 2009; OECD, 2010):

- Moving from a supply-driven to a demand-driven approach; and
- Addressing the relationship between TVET and occupational flexibility.

This paper attempts to build on this analysis and extend it to the wider range of countries represented in UNESCO. The two issues in question are discussed in Section 3.2.

The relationship of career guidance and orientation to TVET has been obfuscated by semantic confusions. This applies particularly to career education. Whereas the term 'careers education' in the United Kingdom focuses essentially on career decision-making, 'career education' in the United States of America (USA) has in the past extended this to include the development of specific vocational skills and of work habits and attitudes necessary for entering and keeping a job (Watts and Herr, 1976). More recently, the term commonly used in the USA to describe VET has been 'career and technical education', to reflect an orientation towards a career rather than a single occupation (OECD, 2010).

Conversely, the UNESCO Revised Recommendation (UNESCO, 2001) defined 'technical and vocational education' to include not only specific preparation for a particular occupation field but also more general preparation for the world of work as 'part of everyone's general education', including developing 'capacities for decision making'

1 TVET and VET are used broadly synonymously in this paper, in line with the usage in documents cited.

(pp. 7, 10) which can be interpreted as effectively subsuming career education within it. If however TVET is defined more narrowly, along the lines of the OECD definition of VET as 'education and training programmes designed for, and typically leading to, a particular job or type of job' (OECD, 2010, p. 26), and if career education is defined in the terms offered above, then it becomes more practicable and more fruitful to explore the relationship between the two.

TVET includes both education-based technical and vocational programmes (in schools, colleges and universities) and work-based learning programmes (including apprenticeships). It is worth noting that the changes that have taken place in the concept of career guidance, outlined at the start of this section, have been paralleled by similar changes in relation to the concept of TVET. It too has been viewed as a device to 'smooth the [initial] transition from education to employment' (UNESCO, 2011, p. 62), but is now increasingly conceived on an iterative lifelong basis, linked to the changes in the world of work. Thus while this paper at times refers specifically to the relationship of career guidance and orientation to TVET for young people, much of the discussion applies to adults as well.

3 Policy rationale

3.1 Policy rationale for career guidance and orientation in general

Career guidance and orientation is widely viewed as a public good as well as a private good. In other words, its benefits potentially accrue not only to the individual recipient of the services but also to the wider society. The policy rationales for attention to career guidance and orientation as a public good were defined by OECD (2004) as being threefold:

- Learning goals, including improving the efficiency of the education and training system and managing its interface with the labour market. If individuals make decisions about what they are to learn in a well-informed and well thought-

through way, linked to their interests, their capacities and their aspirations, investments in education and training systems are likely to yield higher returns.

- Labour market goals, including improving the match between supply and demand and managing adjustments to change. If people find jobs that use their potential and meet their own goals, they are likely to be more motivated and therefore more productive.
- Social equity goals, including supporting equal opportunities and promoting social inclusion. Career guidance services can raise the aspirations of disadvantaged groups and support them in gaining access to opportunities that might otherwise have been denied to them. (Informal guidance, by contrast, tends to reinforce existing social inequities.)

Box 1 lists some goals in each of these categories, as identified in a study of career guidance and orientation services in seven middle-income countries (Chile, the Philippines, Poland, Romania, Russia, South Africa and Turkey) carried out for the World Bank. Underpinning the rationale for investment in career guidance and orientation services is the notion that addressing such objectives through structural and institutional reforms is not sufficient. To lubricate and complement such reforms, attention also needs to be given to supporting the processes of individual decision-making through which they can be made effective. This is linked to the notion that national strategies for lifelong learning and human resource development need to be driven not only by governments and employers but also by individuals themselves (see e.g. EC, 2010).

Box 1. Some policy goals for career guidance and orientation services

Learning goals

- Supporting lifelong learning (for both youth and adults) and the development of human resources to support national and individual economic growth.
- Supporting a more flexible education and training system.

- Supporting a stronger but more flexible vocational orientation within the school system.
- Improving the efficiency of education and training systems by reducing dropout rates and increasing graduation rates.
- Strengthening linkages between education/training systems and the labour market.

Labour market goals

- Improving labour market efficiency.
- Reducing mismatch between supply and demand.
- Addressing skill shortages.
- Improving labour adaptability in response to market conditions, in terms of both geographical and occupational mobility.
- Reducing the extent and duration of unemployment.
- Minimizing individual dependency on income-support systems, as these are introduced.

Social equity goals

- Supporting equal opportunities in relation to education and employment.
- Addressing the needs of disadvantaged and marginalized groups.
- Supporting the social integration of ethnic minorities.
- Supporting female labour market participation.
- Addressing gender segmentation in the labour market.

Source: Watts and Fretwell (2004, pp. 6–7).

Some of the goals in Box 1 are addressed to particular target groups. Young people are often targeted, to support their initial transitions into the labour market. Particular attention may also be given to groups of the disadvantaged (in terms of social class,

gender or ethnicity) and to those who have dropped out of education, training or employment. In relation to adults, priority may be given to unemployed people or to other groups seeking to re-enter the labour market – migrants and refugees, for example, or women returning after child-rearing, or demobilized soldiers in post-conflict situations.

In general, in terms of international variations, career guidance services tend to be more highly developed, and given greater policy priority, in high-income than in middle- and low-income countries. The more formalized and more developed the economy, and the more opportunities it offers for social and geographical mobility, the more need there is for informal mechanisms for allocation of work roles to be supplemented by formal mechanisms, including career guidance services. But middle-income countries also face increasing challenges in these respects, to which investment in career guidance services may be seen as a response, as the World Bank study demonstrated. This is particularly the case in countries like some of those in the Mediterranean region, with high rates of growth being fuelled by structural reforms including economic liberalization, growth of international trade and foreign investment (Sweet, 2009; Sultana and Watts, 2007). In addition, the growth of career guidance services is related to the development of market economies and democratic political institutions, with their greater attention to individual volition, and so may be particularly relevant to countries in transition in these directions (Watts, 1996; Watts and Fretwell, 2004).

3.2 Policy rationale for career guidance and orientation in relation to TVET

Most of the goals mentioned in Section 3.1 are relevant to TVET. But the role of career guidance and orientation in strengthening the role of individuals in driving national strategies is of particular significance, supporting moves to make TVET more responsive and demand-driven.

The case for TVET is based on preparing learners for employment, thereby meeting labour market demand. But Grubb notes 'the persistent fear … that VET programs will lose contact with employers, that VET will be "supply-driven" or dominated by

the concerns of VET providers, rather than 'demand-driven' or dominated by the needs of employers' (2008, p. 30). In seeking closer articulation with labour markets, attention may accordingly be paid to planning approaches based on consultation with employers; but this is rarely effective in itself (OECD, 2010). It therefore tends to be replaced, or at least supplemented, by an approach based on responsiveness to learner preferences. The rationale for this offered by OECD (2010, pp.51–2) is threefold:

- 'Students are often good judges of their own skills and the characteristics that may make them better suited to one job than another – so taking account of their preferences leads to higher productivity.'
- 'Students know more about what they most enjoy doing, so that even when labour market outcomes are weaker, they are compensated in terms of their well-being.'
- 'It is counterproductive to coerce students into careers they do not want – the very high proportion of VET graduates in nearly all countries who change occupations after only a few years probably reflects some welcome career development, but it may also be the result of some misconceived career choices.'

In addition, Grubb (2008) notes that learners will want to read the labour market and to enter programmes with the best prospects of getting them into desirable employment in both the short and long term.

There is thus a strong policy case for effective career choices to assure the quality of these processes, by ensuring that learners' decision-making is well informed – in terms of both self-awareness and opportunity awareness – and well thought through. In these terms, career guidance and orientation acts as a further bridge between TVET programmes and the world of work, with the learner as an active agent in strengthening this relationship.

Investment in career guidance may also in some cases be justified as a means of increasing interest in TVET as opposed to general education. This emerged as an issue, for example, in the UNESCO review of career guidance in the OPT (see Box 2), where a key driver for the policy interest in career guidance was as a tool for directing more students towards vocational tracks, including female students in particular.

The review noted the need to keep 'a balance between directing/orienting on the one hand, and supporting personal decisions on the other'. Other policies were also needed to raise the profile and attractiveness of TVET (Sultana, 2008) – which career counselling could then 'lubricate' impartially at the level of personal decision-making.

Box 2. Career guidance in the OPT

A review of career guidance in the OPT was conducted for UNESCO by Professor Ronald G. Sultana (2008). Subtitled Mapping the Field and Ways Forward, it was based on a one-week study visit. The report aimed to map and examine current initiatives in the career guidance field in the OPT, to place them in the context of international initiatives in this field, and to explore ways to establish a career guidance system in the OPT. The report took careful account of the particular political and economic situation of the OPT, its damaging impact on the business and investment climate, and the limited employment opportunities available to Palestinians, which made any notion of 'occupational choice' seem a luxury.

Despite these problems, a number of noteworthy career guidance initiatives were identified, in relation to career information, career education, career counselling, employment counselling and job placement. Several of these were in the non-governmental sector. Examples included the 'Step Forward' programme of the Sharek Youth Forum, which included career counselling, educational guidance, interactive training workshops on writing curricula vitae and job-interview skills, on-the-job training opportunities and work experience, work simulation (such as a model court for law students), careers fairs, and training and support in setting up a business.

The report recommended a number of policy options, including the establishment of a National Task Force for Career Guidance.

Career guidance may also be linked to efforts to enhance the status of TVET by viewing it as a positive option rather than as a residual destination for those who have failed in general education. In some countries, in the Mediterranean region

for example, the education system has often been based on rigid tracking based on examination results, with less successful students being guided into TVET in order to limit student flows into higher education (Perez and Hakim, 2006). In seeking to open up such systems, and for instance to make it possible for students to move from vocational streams into higher education, the greater attention to student choice requires career guidance support.

The other major specific policy rationale for career guidance in relation to TVET is to support the relationship between TVET and occupational flexibility. The UNESCO Revised Recommendation stated that TVET should 'lead to the acquisition of broad knowledge and generic skills applicable to a number of occupations within a given field so that the individual is not limited in his/her choice of occupation and is able to transfer from one field to another during his/her working life' (UNESCO, 2001, p. 21). The effectiveness of attention to generic transferable skills is likely to be more effective if TVET programmes include career education components that give explicit attention to other occupations to which the skills and competences being acquired within the programme are transferable, so making the concept of transfer more transparent and tangible (Watts, 2009).

Such occupational flexibility can also be enhanced by national qualification frameworks (Bjørnåvold and Coles, 2008; Young, 2007). These are designed to relate qualifications in different sectors to one another, developing linkages and pathways with portable credits that allow students to move more flexibly from one sector of education and training to another. Such frameworks are being developed in around 100 countries (Bjørnåvold and Deij, 2009), including for example almost all countries of the South African Development Community (SADC) region (SADC and UNESCO, 2011). In South Africa, the South African Qualifications Authority has taken the lead in developing a national strategy for career guidance, on the grounds that learners need navigational support if such frameworks are to be used effectively (Walters et al., 2009) (see Box 3, on page 278).

4 Main elements of career guidance and orientation provision

It was suggested in Section 2 that career guidance and orientation services include three main elements: career information, career counselling and career education. To these three terms, the International Labour Organization (ILO) adds 'employment counselling' and 'job placement' (2006, p.1). Such terms are particularly valuable when considering the role of public employment services (PES) in relation to career guidance (e.g. Sultana and Watts, 2006; Borbély-Pecze and Watts, 2011). 'Job placement', however, is usually viewed as being separate from career guidance, while 'employment counselling' can be viewed as part of career counselling, even though it focuses mainly on immediate employment goals.

Closely related to career guidance are a range of other activities. These include tutoring, coaching and mentoring; portfolios and individual learning plans; interests inventories, psychometric tests and other online tools and resources; work experience (when used for exploratory rather than preparatory purposes), work shadowing, work simulations and work visits; taster programmes; and enterprise activities.

Career information is the core of all effective career guidance provision. It needs to include information on occupations, on learning opportunities, and on the relationships and pathways between the two. It also needs to include labour market information, on changing supply and demand in relation to different occupations. In many middle- and low-income countries, however, career information in general, and labour market information in particular, is very limited (see e.g. Sultana and Watts, 2007; Zelloth, 2009).

While information is essential for effective career decision-making, it is not sufficient. As noted by the OECD, 'public investment in information is of little value if its potential users are not able to access the information, to understand it and relate it to their personal needs, and to act upon it' (2004, p. 91). Moreover, as Grubb (2002) points out:

> In many respects the choices about schooling, work, and careers are not choices in the same sense that we think of the choices among shirts or fruit or financial services; they are much more difficult issues of identity, involving deeper issues of what a person is, what their values are, how they position themselves with respect to others and to social groups, what they think of as a worthy life – the many different elements defining who they are.
>
> (Grubb, 2002, p.11)

Information therefore needs to be supplemented by other career interventions if it is to be effective.

Traditionally, the dominant model of career guidance provision was based on talent-matching approaches: measuring individual abilities and matching them to the demands of different occupations. This has been challenged on a number of grounds. In particular, it has been argued (see Watts and Fretwell, 2004, p. 24) that:

- The matching process should be concerned not just with individuals' abilities and aptitudes, but also with their needs, values and interests.
- Career guidance should be concerned not only with matching of existing attributes, but also with self-development and growth.
- Emphasis should shift from discrete decisions made at particular points in time to the underlying and continuous process of career development through which individuals determine the course of their lives.
- The aim of career guidance should not be to deploy expertise to make decisions for people, but rather to help people make decisions for themselves.

Accordingly, there has been a shift to a new paradigm, based on three main components:

- Career guidance should be available throughout life, to support lifelong learning and career development.
- It should be viewed as a learning experience, encompassing a range of learning interventions.

- It should foster the individual's autonomy, helping them to develop the skills and knowledge they need in order to manage their career decisions and transitions.

This reflects a move from a psychological to a pedagogical approach: from testing to tasting, with a primary focus on helping individuals to develop their career management skills. At the same time, there is evidence from a Dutch study in vocational education that concrete learning experiences need to be accompanied by opportunities to participate in career-oriented dialogues if students are to develop career competencies effectively (Kuijpers et al., 2011).

A widely adopted framework for defining career management skills is the so-called DOTS model (Law and Watts, 1977), the elements of which are self-awareness, opportunity awareness, decision learning and transition learning. More recently, 'blueprints' for defining career management skills on a lifelong basis have been developed in Canada (National Life/Work Centre, n.d.) and Australia (MCETYA, 2009). Work has also been carried out in Europe on exploring critically the nature of such skills (Sultana, 2011).

In reframing career guidance and orientation provision, a key role is being played by information and communication technologies (ICT). These have huge potential for extending access to services and for improving the quality of those services. This includes not only information, but also automated interactions in which users can interrogate the information in relation to their own preferences and characteristics, without additional use of staff time. In addition, the more recent advent of Web 2.0 and 3.0 technologies, including social media and user-generated information, opens up new possibilities, including interactions with 'career informants' (people already in the occupation or course the person is seeking to enter) (Hooley et al., 2010). Many users, however, need help to learn how to find reliable information among the mass of content available (World Bank, 2006, p.17).

Technology is also increasingly being used to enable individuals to communicate with career professionals via the telephone or the web. A particularly innovative and significant initiative of this kind is outlined in Box 3.

Box 3: A career advice helpline in South Africa

In South Africa, a career advice helpline is being developed which comprises a multi-channel career development service accessible by various means (including telephone, text messages, email, Twitter and Facebook), linked to a career information and career resources website, media activities (such as a national radio campaign), and linkages with institutions providing career development services, such as community colleges.

The helpline is viewed as a core element of a new comprehensive career guidance system for South Africa. Its development is being led by the South African Qualifications Authority, as a means of activating learner usage of its National Qualifications Framework.

The helpline builds upon experience with similar helplines in New Zealand and the United Kingdom, but its development has also been enriched by drawing upon a tradition of equity-driven community-based career centres established by non-governmental organizations (NGOs) under the previous apartheid regime. One of its distinctive rationales is the capacity of the mobile telephone to reach out into rural and disadvantaged communities.

Sources: Flederman (2011), Keevy et al. (2012).

It is important to recognize that career guidance provision needs to be adapted to the cultural context in which it is set. Cultural issues include the significance of family influences and patronage, and also of attitudes relating to directiveness and fatalism (Sultana and Watts, 2007). Such issues may be influenced by socio-economic factors: for example, in countries without pension and other public benefit systems, families may be significantly dependent on, and therefore expect to have a significant say in, the career choices of their children. Arulmani (2011) has promoted the development of culturally resonant careers programmes in India, and has demonstrated how negative career beliefs can be countered through such interventions.

Career guidance provision may also be influenced by values in other ways. For instance, the concern for sustainable development has induced interest in the

concept of 'green guidance', in which emphasis is placed on encouraging individuals to consider the environmental implications of their career choices (Plant, 1999).

A final issue worth noting is the relationship between career guidance and enterprise. Careers programmes should be concerned not only with employment but also with self-employment and entrepreneurship. There are strong links between these concepts and the notion of career self-management, reflected in the notion that 'my career is my business' (in both senses of the term: it is my source of income, and it is my concern) (Hakim, 1994). Since the informal sector can be viewed as the latent entrepreneurial sector, it also provides a means of extending the concept of career development to cover the informal economies (which in many middle- and low-income countries provide the main source of livelihood for many people).

5 Current career guidance and orientation structures

The main organizational structures for delivering career guidance and orientation services have been analysed in detail in the international reviews outlined in Section 2. They can be divided into three main groups:

- Career development provision in educational institutions,
- Career development provision in workplaces,
- Careers services in the community.

Each is here examined in turn, followed by a brief discussion of the potential for developing national lifelong career guidance systems.

5.1 Provision in educational institutions

In educational institutions, there is often some formal provision designed to help students to manage their career-related choices and transitions on entry to, while studying in and on exit from the institution.

In schools, these may include career education programmes that form part of the core curriculum. Such programmes have been established in a number of school systems, particularly in lower secondary schools, though sometimes extending to primary and upper secondary schools too. They may be stand-alone programmes run as a separate course, subsumed within other courses (such as personal, social and health education, or social studies), infused within most or all subjects across the curriculum, or provided as extra-curricular programmes (often on an intensive basis over a day or longer). Some countries include work visits, exploratory work experience and work shadowing alongside or as part of such programmes. All of these programmes tend to be more highly developed in high-income countries.

Career counselling tends in many countries – including many middle-income countries (Watts and Fretwell, 2004; Sultana and Watts, 2007; Sweet, 2007) – to be provided as part of a broader role of guidance/school counsellor (or school psychologist/pedagogue). This role also covers guidance on pupils' learning and behavioural problems, and on the personal and social problems to which these may be linked. The counsellor may or may not have also been trained as a teacher, and may or may not also do some teaching. In the World Bank study of middle-income countries, counsellor–pupil ratios ranged between 1:300 and 1:800 (Watts and Fretwell, 2004, p. 9). Within such roles, there is consistent evidence that career guidance tends to be marginalized, in two respects:

- Guidance counsellors tend to spend much of their time on the learning and behavioural problems of a minority of pupils, at the expense of the help needed by all pupils in relation to their educational and vocational choices.
- Guidance on such choices tends to focus mainly on immediate educational decisions, rather than on occupational decisions and on longer-term career implications.

In some cases, these problems may be exacerbated by using guidance counsellors to carry out administrative tasks which have nothing to do with their guidance role, and may indeed (in the case of disciplinary tasks) be in conflict with it (Watts and Fretwell, 2004, p. 9).

Accordingly, some countries have made separate appointments of career counsellors or careers teachers. An alternative model is for such career counsellors to be based in an agency outside the school, closer to the labour market, and independent of the interests of the educational institution (which in some cases may tend to bias the guidance, for example by favouring the school's own learning provision over alternative provision). The German model, in which the PES plays such a role, has been influential in some other countries.

Alongside such specialists, teachers may also play a guidance role, in particular by adopting an additional role as tutors or homeroom teachers. This may include some curriculum time, which can be used for guidance as well as administrative purposes.

In tertiary education institutions, specialist careers services are well-established in such countries as Australia, Ireland, the United Kingdom and the USA, and are growing in some other countries. They may include job-placement services (which school services usually do not), and are sometimes part of more broad-based counselling services or student services. In addition, there has recently been a growth of career education in higher education institutions, in the form of career development modules and the like (e.g. Kumar, 2007; Watts, 2006).

Some countries have also developed what are effectively career education courses in adult education. In addition, career guidance elements may be included in access courses for those returning to formal education after a substantial gap, and in processes for the assessment and recognition of prior learning.

5.2 Provision in workplaces

In some high-income countries, employees commonly look to their employer for some forms of career guidance, especially related to learning new skills and to career development within the organization (see e.g. MORI, 2001). Some employers provide systematic career development provision for their employees, but this tends

to be confined mainly to larger employers in high-income countries (including multinational companies), and to key talent groups such as graduates and managers (CEDEFOP, 2008a). In a number of countries too, trade unions have become involved in schemes designed to support the skills development of their members (Clough, 2009).

Also common in larger companies in high-income countries is outplacement provision for employees who are being made redundant. These services are usually purchased by the company from external career guidance providers (see Section 5.3).

Public policy can support career development provision in workplaces, either by including it as allowable expenditure against training levies, or through voluntary quality-mark schemes (OECD, 2004).

5.3 Provision in the community

The strength of provision being embedded in educational institutions and workplaces is that these are the sites where many individuals are located for substantial parts of their lives, and where their careers are significantly forged. But these institutions may have an interest in influencing their career directions, which can jeopardize the impartiality of the guidance that is offered. This is even more the case in workplaces, in relation to consideration of options outside the organization for individuals whom the employer wants to retain. Moreover, many individuals are not located in either educational institutions or workplaces – for example, those who are unemployed.

For all of these reasons, a range of career guidance provision is located elsewhere in the community. Some is in the public sector, some in the voluntary and community sector, and some in the private sector.

In the public sector, the main such provision is offered by PES. As noted in Section 4, such provision tends to focus mainly on employment counselling and on immediate employment goals, and to be linked to job placement. In countries with unemployment benefit systems, this type of provision tends to be linked to sanctions related to claiming unemployment benefits (in other words, people only retain the right to claim such benefits if they attend employment counselling sessions and carry out agreed action plans) and to gatekeeping roles in relation to training or

other provision supported out of public funds. In middle- and low-income countries without such systems, the unemployed may have little if any incentive to use the services.

Some PES, however, also provide career counselling which focuses on longer-term career goals and is more client-centred in nature. This may be offered to some unemployed individuals and job-seekers; it may also be offered to students and to employed individuals, or to individuals thinking of returning to the labour market. In addition, PES may play a significant role in the collection and dissemination of career and labour market information (Sultana and Watts, 2006; Borbély-Pecze and Watts, 2011).

In a small number of high-income countries, separate all-age careers services have been established, notably in New Zealand, Scotland and Wales. Such services offer coherence and continuity of provision, with related cost savings and added value. They can also provide a professional spine for a national lifelong career guidance system (see Section 5.4), which includes supporting capacity-building of guidance provision in educational institutions and other sectors (Watts, 2010).

Career guidance provision in the voluntary and community sector is much stronger in some countries than in others. In some cases, its role has been stimulated by the contracting out of some public employment services to these kinds of organization (Considine, 2001; OECD, 2004). Voluntary and community organizations can also play a particularly important role in relation to disadvantaged groups returning to education and training (Hawthorn and Alloway, 2009). In Sultana's (2008) review of services in the OPT (see Box 2), he noted that NGOs had been at the forefront of innovation and service provision, and were often more grassroots-based than governmental services and closer to the communities in which they operated. Some external donor organizations accordingly prefer to work through such organizations, especially where relevant government agencies are not well developed (ILO, 2006, p. 45). It is also noteworthy that the new career helpline in South Africa draws upon a tradition of equity-driven community-based career centres established by NGOs under the previous apartheid regime (see Box 3).

Finally, career guidance provision in the private sector tends to be confined to certain niche areas. Only a limited number of career counselling services are funded entirely

through fees paid by individuals, even in high-income countries. There is a stronger market where such services are paid for by employers (notably for outplacement services) or by government contracts. There are also markets in many higher-income countries in career information and in employment agencies, much of it based not on 'user pays' but on 'opportunity provider pays' models. Some web-based employment services, for example, include career information and advice as a 'hook' to attract customers. However, this raises questions about the comprehensiveness and impartiality of such information from a user perspective (Hooley, Hutchinson and Watts, 2011).

Although career guidance is a public good, this does not mean that all such provision should be paid for by governments. Possible public-policy roles in relation to the market in career guidance provision include to stimulate the growth of the market, to quality-assure the market, and to compensate for market failure (OECD, 2004).

5.4 National lifelong career guidance systems

The international studies outlined in Section 2 have not only reviewed the range of career guidance provision on a lifelong basis, but have examined tools and structures designed to coordinate such provision more strongly, making it more seamless to the citizen. In Europe, most countries have now developed national lifelong guidance forums or other coordination mechanisms, designed to bring together the relevant government departments, social partners and other stakeholders, in order to achieve improved communication, cooperation and coordination. Tasks might include the development of cross-sectoral protocols and quality standards (CEDEFOP, 2008b; ELGPN, 2010). Hungary provides a particularly systematic example (Watts and Borbély-Pecze, 2011). More limited coordination mechanisms have been developed in some other middle-income countries (see e.g. Sultana and Watts, 2007, p. 47; Zelloth, 2009, p. 47).

6 Current career guidance and orientation practices in relation to TVET

Career guidance and orientation is relevant to the quality and effectiveness of TVET programmes at two stages: prior to entering a TVET programme, and within the TVET programme.

Prior to entry, two principles are important (Watts, 2009):

- That all young people should be made aware, within their career education programmes, of TVET options alongside the other options available to them,
- That young people interested in TVET options should have access to career counselling, supported by high-quality career information, to ensure that their choices are well informed and well thought through.

In relation to pre-entry guidance, there is evidence in a number of countries of bias in favour of general education options at the expense of TVET options. This is particularly the case where career advice is provided by academically trained teachers with limited knowledge of the wider world of work. This problem may be exacerbated where institutions have an interest in encouraging students to enter courses at their own institution rather than those offered elsewhere, especially where school funding is linked to student recruitment (OECD, 2010). This is one of the rationales for providing career guidance to school students from an external service (see Section 5.1). It is also a rationale for improving the professionalization of career guidance practitioners: moves in this direction are taking place in a range of countries (CEDEFOP, 2009b). Such moves are supported by concern that career guidance should be a separate profession rather than being assimilated into psychological counselling, and that the list of competences required should pay more attention than in the recent past to knowledge of labour and learning markets (OECD, 2010).

It is also important that career education and career counselling should be supported by relevant career information. In relation to TVET, such provision needs to include information on (Watts, 2009):

- The available TVET options;
- The qualifications to which they lead, and the further qualifications to which they give access;
- The occupations to which these qualifications provide access, and the extent to which the qualifications are sufficient for entry;
- The salary/wage levels offered by these occupations;
- The projected demand for these occupations (a strong exemplar here is the Occupational Outlook Handbook published by the Department of Labor in the USA);
- The labour market outcomes achieved by those successfully completing the programmes, including the nature of their jobs, their salary/wage levels, whether or not the jobs are in an occupational sector directly related to their TVET programme, and the extent to which they are using the skills and competences acquired in the programme.

However, as noted in Section 4, career information in general, and labour market information in particular, is very limited in some countries. Even simple destinations data from TVET courses are often missing (e.g. SADC and UNESCO, 2011). Addressing these gaps is a priority in such countries if access to TVET is to be adequately supported.

Such information may be supported by other programmes designed to improve awareness of TVET options. In Turkey, for example, vocational and technical education fairs have been organized annually in all cities to demonstrate the advances made in this sector and to make it more widely known; regulations have insisted that all eighth-grade students in the city should be scheduled to visit the relevant fair in groups, as part of a wider programme to orient them to TVET and its relationship to employment opportunities (Watts and Fretwell, 2004, p.12). Similar activities are organized in Algeria and Morocco, where websites clearly setting out the TVET offer have been put online, and guidebooks, posters, promotional videos and open days support the attempts to attract more students to the TVET sector (Sultana and Watts, 2007, p. 35).

In TVET programmes, the key principles are:

- That career guidance should be available at all relevant decision points, and on exit,
- That career education programmes have an important role to play both in preparing students for future career decisions and in supporting the transferability of their learning.

Both need to be built as core strategies into curriculum design (Watts, 2009).

Some TVET programmes adopt structures of progressive specialization, which mean that further decisions carrying career consequences need to be made after entering the programme. In Egypt, for example, a new study plan for technical education introduced in 2008/09 aimed to postpone specialization to the second year, with only a family of occupations selected in the first year, thus creating the potential for orientation programmes and other guidance activities (Zelloth, 2009, p.15).

In addition, some countries have been introducing structural changes to improve progression pathways between TVET and higher education. A study in Australia, however, indicated that progress in improving such pathways had not been accompanied by corresponding progress in the provision of career support to facilitate these pathways (Harris et al., 2006).

More broadly, career education elements in TVET programmes need to pay attention to career paths in the occupations to which the programme is designed to lead. This should include, for example, opportunities for self-employment and entrepreneurship. Furthermore, as noted in Section 3.2, the elements should give some attention to other occupations to which the competences acquired in the programme might be transferable. This can include experience-based elements, such as additional work placements in other sectors, in order to demonstrate their transferability in action.

It is also important for career guidance and placement services to be available towards the end of courses, to help students to review their plans: in Hungary, for instance, over a quarter of vocational secondary students and over a third of vocational training students indicated that they would choose a different occupation if they

could start again (Kis et al., 2008, p. 26). In addition, help needs to be available earlier in courses for any students who are thinking of, or at risk of, dropping out, to ensure that they are able to transfer as easily as possible to an alternative programme.

In general, though, career guidance tends to be weaker and more often absent in vocational than in general education programmes. In Australia, for example, a review of career development services in post-secondary institutions concluded that students in technical and further education (TAFE) had fewer opportunities than those in universities to benefit from career guidance in their institutions. Whereas almost all universities had dedicated career services units with an institution-wide responsibility for providing career services to students, such services in the TAFE sector were more likely to be provided as part of general student services such as student counselling (PhillipsKPA, 2008). The inclusion of career services in generic counselling services or integrated student services is also evident in post-secondary vocational institutions in other countries: in Germany, for instance (OECD, 2002). In such instances, career guidance tends to be viewed as a reactive remedial service for students with problems, rather than as a proactive core support for all students.

A possible rationale for the reduced attention to career guidance in vocational institutions compared with general education institutions is that attention to career pathways related to particular vocational courses is embedded in the courses themselves, and in the arrangements made for work-experience placements, for tutorial support, and for making use of the experiences and contacts of staff (especially, in some cases, part-time staff) in the relevant occupational sector. Three issues need to be raised in relation to such provision:

- Whether it introduces students to the full range of opportunities in the sector,
- Whether it covers career pathways in the sector rather being confined to entry-level jobs,
- Whether it covers the needs of students who might be interested in changing career direction (including making them aware of other occupational sectors to which some of the competences they have acquired might be transferable).

It is also important to identify whether such provision is subject to systematic institutional policy and quality standards, or is left to individual course teams to determine.

In middle- and low-income countries, career guidance in TVET institutions tends to be even more limited, and is often restricted to informal help offered by individual teachers/trainers (Sultana and Watts, 2007, p. 35). There are nonetheless examples of relevant initiatives. Zelloth (2009, pp.31–32), for example, reported that in Macedonia, careers centres had been established in all vocational schools, as part of an international donor programme; and that in Georgia, careers managers and consultants were to be introduced in all newly established VET centres.

7 Impact evidence

The OECD Career Guidance Policy Review (2004) concluded that there was a great deal of positive evidence of the impact of career guidance interventions on learning outcomes in relation to career management skills and related motivational and attitudinal outcomes; that there was some evidence of positive effects in relation to such behavioural outcomes as participation in learning programmes, and learner attainment; but that the available evidence on long-term outcomes (such as social mobility) was limited, mainly because of the costs and technical difficulties involved in mounting relevant studies. More recent reviews (e.g. Hooley, Marriott and Sampson, 2011) support this broad conclusion.

In terms of the relative impact of different career guidance interventions, meta-analyses (notably Whiston et al., 1998; Whiston et al., 2003) indicate that if the aim is to provide the greatest gain in the shortest amount of time for the client, individual counselling is much the most effective intervention, followed by computer interventions, with group counselling, workshops and class-based interventions some way behind. But if the criterion is the greatest gain for the greatest number of clients per unit of counsellor resource, the most cost-effective is computer-based

interventions, followed by class-based interventions and workshops. Counsellor-free interventions are less effective than interventions involving a counsellor; computer interventions supplemented by counselling are more effective than computer interventions on their own.

8 Conclusion

This paper indicates that career guidance and orientation is strongly relevant to TVET programmes, but that its relationship to such programmes has been under-explored and is still weakly developed in many countries, especially middle- and low-income countries. There are signs that this may now be beginning to change, not least because career guidance and orientation is beginning to be recognized as a significant means of making TVET more responsive and demand-driven, and addressing its relationship to occupational flexibility. It is critically important prior to entry to TVET programmes, to ensure that TVET options are considered by a wider range of learners, and that learners' decisions related to them are well informed and well thought through. It is also important during and on exit from such programmes, to support individuals' sense of direction and the transferability of their learning. More attention needs to be given to the policy implications of these issues, and to evaluating what can be learned from current and innovative practices. Such evaluations should include impact evidence.

UNESCO could play a significant role in strengthening the role of career guidance in relation to TVET, through its research and other catalytic activities. Its recent review in the OPT (Sultana, 2008) is a good example of what is possible. In doing so, it would be helpful and cost-effective to build upon the international studies that have been conducted in recent years through the OECD, the World Bank, and the European Commission and its agencies (see Section 2). Regions that merit particular attention include Central and Southern Africa, and Central and South America (the only countries in these regions covered in the reviews to date are South Africa and Chile respectively).

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Chapter 8

TVET and entrepreneurship skills

Aboubakr Abdeen Badawi

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1 Introduction

There is no doubt that we are living in the 'knowledge era' of human history. Knowledge societies and knowledge economies are the main characteristics of the knowledge era, but more important is the 'knowledge mindset'[1] of individuals. The knowledge mindset helps individuals to navigate today's uncertainties and tomorrow's unknown developments, not only in labour markets but in all aspects of life. Twenty-first-century citizens, regardless of their occupation, must be well equipped to navigate oceans of fast changes and developments. It is the responsibility of education to equip individuals to meet current and future challenges and expectations. This is a huge responsibility, but one that must be fulfilled. Education is the main vehicle used by societies to develop their new generations, and education reforms should be oriented to providing students with a knowledge mindset. Two main forms of education have a particular role to play in this context: technical and vocational education and training (TVET) and entrepreneurship education (EPE).

The last decade of the twentieth century, and the first decade of the twenty-first, have witnessed numerous and diversified initiatives to develop education in almost all countries, both developed and developing, building on the proven role of education in development. There have been rigorous reforms and major developments at all levels of education, from elementary to higher and tertiary. Some of these initiatives are global, while others are regional, national or local.

The United Nations (UN) system has adopted several global educational initiatives to bridge the gap between the vast need to prepare the new generation to help develop societies and economies, and the current offerings of educational and training institutions. Among the relevant initiatives in this context are Education for All (EFA), Millennium Development Goals (MDG) and Education for Sustainable Development (ESD). The United Nations has also contributed to developments such as private–public partnerships (PPP) and Life-Long Career Guidance for All (LLCG).

[1] A mindset is a set of assumptions, methods or notations held by one or more people or groups of people, which is so established that it creates a powerful incentive within these people or groups to continue to adopt or accept prior behaviours, choices or tools (http://en.wikipedia.org/wiki/Mindset).

Many country-level initiatives have been developed, customized to the country's specific environment and needs. One initiative that is common to many countries is Education for a Knowledge Economy (EfKE). Although many objectives and activities of these initiatives overlap, each one represents a comprehensive package in itself. Each initiative requires implementation, monitoring and evaluation systems at global and country levels.

The unprecedented economic and social changes sweeping across all corners of the world, and the growing effects of globalization, are drawing a new picture of our current and future world. The global economic crisis which began in 2008–2009, and the revolutions in the Middle East from 2011 onwards, which were led largely by young people, call for a fresh look at how education and training policies and systems, and labour market/ employment policies and practices, are matched to each other and capable of accommodating these new realities. Many have been demanding for a long time a shift of focus from quantifying economic returns as the criterion for success, to an emphasis on securing productive decent work for all and strengthening social coherence. It is time for planners and politicians to seriously consider how they can achieve this transition.

The time is ripe to vigorously examine the role, modalities and effectiveness of many governmental and non-governmental interventions, including education and labour market policies. It will not be realistic to shape the minds of future generations using traditional methods and settings. Innovation is a must, particularly in education. In spite of the plethora of initiatives mentioned earlier, what seems to be missing is an approach that comprehensively sets decent work for all at the centre of planning, in contrast to the current focus on economic indicators. This is not to argue that we should neglect economic growth and competitiveness. Rather, we need to revise our priorities with a view of optimizing the impact of economic development on the standards of living of all citizens. In other words, we need to view economic growth through an employment lens, rather than viewing employment through the lens of economic growth. There is a consensus among development researchers that developmental plans to orient our economies around decent work are the right approach to mitigating poverty[2] and social exclusion. In such comprehensive plan,

2 For further information on decent work and poverty see the International Labour Organization's (ILO's) Decent Work page: www.ilo.org/global/about-the-ilo/decent-work-agenda/lang--en/index.htm

EPE and TVET would be the main cornerstone. EPE could promote innovation and the self-reliance of learners, while TVET continues to play a major role in increasing the employability of students and trainees and empowering them with relevant skills needed for the labour market.

1.1 Background

The developments towards a knowledge economy, (KE) the faster than ever technological developments, as well as changes in the structure and functioning of labour markets, mean that all the workforce, both present and future, need to acquire common skills over and above their specific occupational skills. In order to be seen as employable, people today must not only show a capability of applying their practical and theoretical learning in their own specialism; most importantly they need the abilities to deal with change, to learn from experience, to think critically and act autonomously.

A European Union (EU) Experts Group report (EU, 2008, p. 7) identified three broad areas of competencies necessary for each individual: using tools interactively, interacting in heterogeneous groups and acting autonomously. Among the other generic skills that employers have indicated that they prioritize for inclusion in education and training programmes are working in teams, communication and language skills and problem-solving. Many education development initiatives have taken on board the need to foster generic (also called soft or transferable) skills, but there is a need to do still more, because skills and characteristics such as innovation, creativity, energy and single-mindedness are needed increasingly for all levels and types of work. The EU Expert Group report stated:

> The important role of education in promoting more entrepreneurial attitudes and behaviours is now widely recognised. However, the benefits of entrepreneurship education are not limited to start-ups, innovative ventures and new jobs. Entrepreneurship refers to an individual's ability to turn ideas into action and is therefore a key competence for all, helping young people to be more creative and self-confident in whatever they undertake.
>
> (EU, 2008, p. 7)

In essence, comments such as this one are calling for skills and competencies that are already included in the rich modality of EPE. Indeed, the time is ripe for integrating the efforts aiming at helping individuals acquire occupation-related technical skills through TVET with those for instilling transferable skills through EPE. The growing trend towards many career changes in the course of people's lives adds to the importance of their acquiring good generic transferable skills.

Because of this growing awareness of the role of entrepreneurship in growth and employment, the issues of redefining entrepreneurship, and consequently entrepreneurship education and training, have become hot ones since 2001. Initiatives in this regard have resulted in a wide acceptance that entrepreneurship skills should be considered as generic skills for all. The conclusion of the EU Expert Group report was that:

> If it is to make a success of the Lisbon Strategy for growth and employment, Europe needs to stimulate the entrepreneurial mindsets of young people, encourage innovative business start-ups, and foster a culture that is friendlier to entrepreneurship and to the growth of small and medium-sized enterprises (SMEs). The important role of education in promoting more entrepreneurial attitudes and behaviours is now widely recognised.
>
> (EU, 2008, p. 7)

The countries in the Organisation for Economic Co-operation and Development (OECD) also consider EPE as one of three pillars for building the individual. In the OECD project on Definition and Selection of Competencies (DeSeCo), entrepreneurship skills are highlighted:

> In most OECD countries, value is placed on flexibility, entrepreneurship and personal responsibility. Not only are individuals expected to be adaptive, but also innovative, creative, self- directed and self-motivated.
>
> (OECD, p.8)

This relatively new concept that entrepreneurship should be seen as a generic skill for all is not in contradiction with the still prevailing concept that entrepreneurship is concerned primarily with the development of businesses (which typically begin as SMEs). EPE programmes usually include a 'Raising awareness' element that is offered

to all learners, as well as more in-depth training that is provided in particular for TVET students and trainees. In this context, it is important to clarify the definitions used here for entrepreneurship, EPE, social enterprises and TVET.

Entrepreneurship

The word 'entrepreneur' originates from the French entreprendre, to undertake. In a business context, an entrepreneur is someone who starts a business. The concept of entrepreneurship covers a wide range. At one extreme an entrepreneur is a person of very high aptitude, possessing characteristics found in only a very small fraction of the population, who pioneers change. At the other, individuals who want to work for themselves can be considered as entrepreneurs. [3]

There is however a clear distinction between entrepreneurship and managing a small, medium or even large enterprise. An entrepreneur is a person with vision (or a visionary):

> Who starts a business with a fresh idea – to make something better or less expensively, to make it in a new way or to satisfy a unique need – [and] is often not primarily interested in making money. The visionary wants to do something that no one else has done because they can, because it is interesting and exciting, and because it may be meeting a need. Once the business begins to have some success, then the nature of the processes needed change.
>
> (Di Masi, 2009)

EPE planners must distinguish between the need to assist visionary would-be entrepreneurs in realizing their vision, and the equally real, but different, need to prepare business managers (who need not possess this kind of vision) to run businesses successfully. EPE programmes need to cover both roles. Trainees can best be selected on the basis of their ability to create business ideas, rather than by using psychometric tools. There are two real dangers for those involved in making such selections. The first is:

> Selecting entrepreneurial qualities over managerial skills. This may thereby condemn the business to uneven growth, poor management and ultimate

[3] www.quickmba.com/entre/definition/ (retrieved 1 January 2012).

> failure, as the enterprise does not respond adequately to new market and trading conditions. A further danger is attempting to select people over ideas.
>
> (Di Masi, 2009)

There is a longstanding debate on whether entrepreneurship is an innate ability, or a skill that can be acquired through education, or indeed a combination of both. Whatever the truth, it is apparent that a number of people in society opt to follow this path, although the proportion varies between societies. Some societies are known for their 'entrepreneurship culture', an environment which encourages individuals to become entrepreneurs. In other societies, there is more of an emphasis on the need for security, best achieved by taking up a job in an established enterprise, which tends to have a negative impact on the entrepreneurship culture.

A more recent phenomenon is the tendency for economic development that does not of itself create new employment opportunities. Because of the real need noted above for an emphasis on employment opportunities, such a trend calls for structural changes in labour markets, including the promotion of SMEs. As a result many scholars and leaders are calling for encouragement of, in effect a revival of, an entrepreneurship culture. In a recent Global Entrepreneurship Forum in Turkey (see INSEAD, n.d.), the president of the Public Forum Institute talked about Turkey's case:

> Perhaps most difficult to change, as is often the case around the world, is culture. Although entrepreneurs 'by necessity' are generally respected for their work ethic, entrepreneurs 'by choice' who have other promising career options are often discouraged by their families.
>
> (Ortmans, 2011)

Entrepreneurship education is certainly a vehicle towards reviving entrepreneurship culture.

Social enterprises

In addition to for-profit enterprises, social enterprises have become an important field of entrepreneurship. They are emerging as the 'missing middle' between traditional government programmes and non-profit bodies. Social enterprises use business methods, but work for the common good of the society. At best, they

address social, environmental and human concerns more efficiently than traditional government programmes, and more sustainably than traditionally funded non-profit organizations. Some see social enterprises as the single most hopeful vehicle for overcoming the most heavily debated social, environmental and human concerns.

In the late 1990s, national gatherings for social entrepreneurs started in several countries, leading to the establishment of social enterprise alliances and unions. These focus on creating more connectivity and opportunity for mutual learning and support between members, providing access to information, partnering with other resources and developing a social enterprise marketplace. Some of these alliances and unions certify their members, to help them obtain better visibility and credibility. Such certification may help social enterprises in obtaining venture finance, promoting their products and services, and receiving a favourable response from governmental and other bodies. The work involved in establishing, managing and developing social enterprises is not much different from what is required for business enterprises, but the objective is to achieve social goods rather than profit.

Entrepreneurship education (EPE)

Initiatives to use the power of education to enhance individuals' entrepreneurial mindsets, and raise awareness of entrepreneurship as a viable alternative to paid employment, gave rise to educational programmes that can be grouped together under the heading of entrepreneurship education and training. EPE has existed for decades and a wide variety of courses have been introduced in many systems of education around the globe. Special EPE programmes are tailored to job seekers, to unemployed people, and to scientists, engineers and researchers to encourage them to commercialize their intellectual property. EPE is often a link in a chain of support offered to those who decide to explore self-employment and establish a small enterprise. Other links of the chain include technical, legal and administrative support, as well as incubation, franchise and networking support services.

Although in this sense EPE is well established, the first decade of the new millennium witnessed the birth of a broader concept of entrepreneurship as a generic skill for everyone, and not just for exceptional entrepreneurs. EPE on these lines has been adopted in many countries and regions, but this new concept is still in its infancy. The new concept of EPE is closely linked to innovation and to knowledge-based action,

so it stimulates the 'entrepreneurial mindset' of learners. EPE, in this new sense, should start early in the lives of learners. 'Introducing entrepreneurial thinking and entrepreneurship education early at all levels can go very far in nurturing a culture that rewards prudent risk-taking' (Ortmans, 2011). In this paper EPE is used in both senses: as a preparation for entrepreneurs and as a generic skill for all. The context usually makes it clear which sense is meant, and where clarification is necessary, EPE linked to enterprise start-up is referred to as the prevailing concept, while the 'new concept' refers to training in generic skills.

Technical and vocational education and training (TVET)

The 2002 UNESCO and International Labour Organization (ILO) Recommendations on TVET characterize it as:

> A comprehensive term referring to those aspects of the educational process involving, in addition to general education, the study of technologies and related sciences and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life.
>
> (UNESCO, 2002)

Accordingly, the responsibility for activities related to TVET is shared among all bodies planning for, implementing, monitoring and evaluating programmes. TVET is administered differently in various countries, and several ministries and bodies can be involved, but with a common objective: all TVET programmes aim at increasing the employability of individuals, and work for the benefit of the community and sustainability in general. 'TVET must be the master key that can alleviate poverty, promote peace, conserve the environment, improve the quality of life for all and help achieve sustainable development' (UNESCO, 2004).

1.2 Why this paper?

Under the prevailing concept of EPE, a vast range of activities to support entrepreneurship have focused on numerous initiatives, projects and plans all over the world. Typically there is an educational component that develops learning materials,

in addition to other components (linking education to incubators, soft loans, technical and legal/administrative support, and other services for entrepreneurs). Because the broader conception of entrepreneurship as a generic skill is much newer, currently there are few programmes focusing on this area. This paper attempts to:

- Analyse the main policies and trends in introducing EPE in education in general, and TVET in particular;
- Identify the relevance of EPE to TVET;
- Come up with some policy recommendations.

Although it touches on EPE in its prevailing concept as promoting entrepreneurship, the focus of the paper is on policies and trends for EPE to teach entrepreneurship as a transferable skill necessary for all learners at all levels and at any point of life.

1.3 Methodology

The paper is based on an analytical review of the rich literature on TVET as a generic concept, programmes linking technical, industrial, vocational and entrepreneurship training (TIVET) in some African countries, career and technical education (CTE) in the post-secondary sector in the United States of America (USA) and the two concepts of EPE discussed above.

2 TVET and EPE: where we stand today

It would be impossible to cover all aspects of TVET and EPE in this paper, so the emphasis here is on their complementarity and relationship. There are new trends and developments in the concept, coverage, policies and modalities of both TVET and EPE. In this section the focus is on EPE as a preparation for SME establishment and development. Section 3 of the paper focuses on the newer trend for EPE to impart a generic skill for all, as an integral part of life-long learning (LLL).

2.1 TVET: A broader concept and greater importance

TVET is of paramount importance in developing, competitive economies and better societies. International and regional developmental organizations as well as country planners and decision-making bodies are nowadays focusing on TVET to boost economies and promote equity. Research shows the level of workforce skills is a major determining factor in growth rates: 'Recent research shows that the level of skills in a workforce predicts economic growth rates far better than average schooling levels' (World Bank, 2011). A look into the international arena gives specific evidence of that importance. It is shown, for example, in the selection of 'Skills Development: Expanding Opportunities for Marginalized Groups' as the theme of the EFA Global Report 2012; in the Third Global TVET Congress in May 2012; in plans to issue the OECD Skill Strategy during 2012; and in the selection of 'Education and Skill' as the topic of 2012 Global Youth Video Competition. The World Bank Group's Education Strategy 2020 (World Bank 2011) stresses the importance of skills and many more examples, both international and on the country level, could be given.

To meet the growing demand for skills, many developed and developing countries are adopting policies that clearly focus on skill development and TVET as means to ensure that people will be more employable, and more productive once they are employed (or self-employed). TVET policies cover the preparation of tomorrow's workforce for competitive labour markets, most of which are dominated by SMEs. In many countries SMEs amount to more than 90 per cent of the total number of enterprises, and employ more than two-thirds of the labour force. In Serbia, for example, they make up 99.8 per cent of enterprises and 67.2 per cent of employees (Republic of Serbia, n.d.).

Innovation in SMEs is crucial to their success and sustainability. Enterprises characterized by innovation are more likely to survive in the market than enterprises that do not innovate. Innovation should be the responsibility not only of entrepreneurs but of all employees, particularly in high-tech enterprises where many are typically TVET graduates.

Some countries have already moved to link EPE and TVET. For example, in Kenya there is a Technical Industrial Vocational and Entrepreneurship Training (TIVET) programme.

To sustain and develop SMEs, entrepreneurship education must be integrated into TVET programmes to empower entrepreneurs and potential SME workers as innovators.

2.2 EPE for SMEs to complement TVET

One of the challenges for educators and policy-makers working in TVET is to assess the extent to which their programmes are preparing students for the whole spectrum of working life, including paid employment, work in cooperatives, self-employment, setting up businesses, family work, social work and voluntary work. Currently, most TVET programmes are basically designed to prepare people for paid employment and many focus on employment in large enterprises. It could be argued that PPP can help TVET planners and providers to improve the relevance of offerings, by ensuring that the private sector viewpoint is heard and considered. In addition, EPE is needed to ensure that students learn entrepreneurship. A combination of entrepreneurship skills and occupation-specific skills should act as a major tool in mitigating unemployment and opening opportunities for self-employment and SME development. So EPE is needed alongside TVET to address the challenge.

By its nature, TVET applies particularly to some economic sectors (those with a relatively large technical component). These relatively high-tech occupations can play a significant role in alleviating poverty and achieving sustainable development (UNESCO, 2004). It is natural to find entrepreneurship education as an integral part of the TVET mandate in this context. It is through EPE (in the long-established sense) that TVET graduates can gain access to a wider and better range of employment opportunities. The eye for innovation that it encourages will also enable them to become more productive employees. In addition to its role in accessing direct employment, EPE can help TVET trainees and learners acquire the skills necessary for successful enrolment in higher education. In some countries TVET is not a popular training choice, and a crucial, and much needed, part of the equation is that EPE can help to improve the public perception and image of TVET, enabling TVET courses to attract higher-achieving learners.

TVET (at all levels of education) and EPE have more in common than either has with many other types of education. First, TVET (in particular when designed using PPP, so

the courses have strong links with the labour market) is already utilizing enterprises of all sizes to assist in training students and trainees. This real-life experience helps to expose them to the reality of entrepreneurship, and to see self-employment or starting up a business as a viable employment alternative. Second, some of the occupations for which TVET courses provide training lend themselves particularly to self-employment and the establishment of SMEs. Third, many TVET programmes and activities already include some of the main EPE skills, such as working in teams, problem-solving and thinking innovatively. TVET students with practical work experience are already familiar with the rules of preserving the work environment (that is, with occupational health and safety) and the wider environment (being aware of issues such as pollution and the degradation of natural resources), as well as having some awareness of the sustainability of work opportunities and the economy in general. For these reasons, and many others, EPE is crucial to TVET students, trainees, and equally important to their teachers and other educational personnel.

Further evidence for the relevance of EPE to TVET can be found by analysing graduate employment data, considering in particular the percentages of graduates from TVET and general education who choose to become self-employed or establish their own enterprise. Only limited information on this subject is available, but the evidence that is accessible suggests that a higher percentage of TVET graduates establish SMEs than do graduates in general education. In Australia, for example:

> Around 20 per cent of all workers, the majority of whom are TVET graduates, are self-employed, a significant number that has steadily increased since the late 1970s. Over a quarter of males with vocational qualifications and 14 per cent of women with vocational qualifications are self-employed. Most self-employed males are working in skilled manual occupations, while most self-employed females are in hospitality management and the community and personal services sector.
>
> (Atkinson, 2011)

In the People's Republic of China, 12.84 per cent of secondary vocational school graduates opted for self-employment or to establish their own small business in 2010 (China integration of Vocational and Technical Education, 2011). This data was collected just over one year after graduation, so the percentage can be expected to

increase over time, as graduates gain experience and become more confident about running their own businesses. The considerable percentage of TVET graduates who choose to work independently (in self-employment or their own business) supports the conclusion that EPE is relevant to TVET.

EPE and TVET are two types of education that aim directly at increasing the employability of students and trainees in two major types of employment: self-employment (which includes establishing and developing SMEs) and paid employment. Both types of education directly link the educational course to the labour market, widen the scope of choices for students and graduates, optimize the utilization of individuals' potential, and contribute to the comprehensive development of society, both economically and socially. EPE is a major cornerstone in promoting the establishment and development of SMEs. It can usefully be provided at secondary and tertiary education levels, and to graduates, the unemployed (including both the never-employed and those who have been laid off as a result of economic difficulties) and many other groups. TVET programmes in particular are a major beneficiary of this type of entrepreneurship education in many countries.

In times of national, regional or global economic crisis, such as has prevailed since the onset of the global financial and economic crisis in 2008–2009, the need for more skills becomes even more apparent. OECD research clearly confirms this:

> Millions of workers lost their jobs in the recent economic crisis. And with the global economy still subdued, the OECD expects unemployment to remain high. One lesson from the crisis has been the importance of skills in today's workplace: job losses among skilled workers were much lower than among the unskilled. In a globally competitive, knowledge-based economy, having a skilled workforce is necessary to ensure productivity and sustainable growth.
>
> (OECD, 2012)

Complementing their acquisition of job-specific skills with EPE would broaden the scope for gainful decent work opportunities for TVET graduates in times of economic difficulty.

2.3 Selected EPE–TVET complementarity practices

The European Union's Leonardo da Vinci programme was specifically designed to promote innovation and entrepreneurship in Europe, through modification schemes linked to professional and vocational training in individual participant countries (Norway, 2006). The 2008 Expert Group report referred to earlier in this paper showed that in spite of this imitative, implementation is lagging behind targets, 'In spite of the numerous policy initiatives to promote EPE, implementation is still lagging behind and scattered (Final Report of the Expert Group, 2008).' The analysis, carried out by the European Commission in cooperation with national authorities, showed that:

> Although numerous initiatives on entrepreneurship education are under way at all levels across the EU, most of them are neither integrated into the curriculum nor form part of a coherent framework, and that as a result most students – at school and university – have no possibility as yet of taking part in entrepreneurship courses and programmes.
>
> (Final Report of the Expert Group, 2008)

Analysis of the results of the EU initiatives to promote entrepreneurship has stressed the need for:

- Raising awareness;
- Tutoring by experts and professionals;
- Securing technical assistance;
- Involving guest trainers from different backgrounds, including young entrepreneurs; and
- Integrating EPE into a wider entrepreneurship promotion programme (Final Report of the Expert Group, 2008).

There is further information on EU policy and activities in this field in Section 3 of this paper.

Norway's Strategy for Entrepreneurship in Education and Training 2004–2008 shows a trend towards EPE–TVET integration:

> Knowledge of working life, of enterprise-founding, of ethics/environmental theory, economics and resource utilization will be important elements in training. Within the vocational programmes the pupils and apprentices will get to know different kinds of business and industry.
>
> (Norway, 2006, p. 5)

The strategy hints at a team-teaching methodology that integrates EPE into subjects that lend themselves to EPE:

> For upper secondary 1 and 2 vocational programmes (Norw. Vg1 and Vg2) we find entrepreneurship in: Arts, Crafts and Design, Electro and Electrical subjects, in Media and Communication, in Programme for Agriculture, Fishing and Forestry and in Service and Transport and communication.
>
> (Norway, 2006, p. 7)

The ILO has a special department for enterprise development (Job Creation and Enterprise Development Department, EMP/ENTERPRISE), including a unit responsible for SMEs (Boosting Employment through Small Enterprise Development, EMP/SEED). The Entrepreneurship training package developed by the ILO includes programmes entitled Know About Business (KAB), Start Your Business (SYB) and Start and Improve Your Business (SIYB).[4] Know About Business (KAB) is focused on the awareness issue, while SYB and SIYB aim to help those who opt to establish and/or improve an SME. The ILO's field offices offer support to training and educational institutes in using the package in their programmes, including training teachers/instructors to use it efficiently. Numerous memoranda of understanding (MOU) between ILO field offices and education institutes, including ministries of education, have been signed in many countries around the globe. A good percentage of these initiatives involve TVET programmes.

At the request of its Member States, UNESCO has developed two training packages, one tailored to students in secondary technical and vocational schools, and one fitted to learning in informal settings. The idea is to broaden career options (work options) for TVET graduates:

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[4] www.ilo.org/empent/units/start-and-improve-your-business/lang--en/index.htm

> Proposing that entrepreneurial skills should augment the technical knowledge and skills young people gain in formal vocational training. Entrepreneurial skills will help them to acquire the mindset and know-how necessary to make self-employment a viable career option.
>
> (UNESCO, 2006-07a, p. 4)

Each package starts with raising the awareness of self-employment as an option:

> Launching a successful business requires an awareness of one's knowledge, skills, abilities, aptitudes, values and preferences. The training therefore begins by inviting students to consider their own strengths and weaknesses in these areas, so that they develop a clear sense of themselves.
>
> (UNESCO, 2006-07a, p. 4)

The packages focus on preparing individuals to become successful entrepreneurs:

> They are encouraged to perceive themselves as the actors responsible for their own lives. Learners are then guided through the various stages of developing a commercial idea, from identifying a community need for a product or service to acquiring resources, organizing a workplace and marketing the product or service and finally preparing a business plan.
>
> (UNESCO, 2006-07a, p. 4)

These quotes are taken from the package for formal learning, but the one designed for use in non-formal settings has similar content. Both training packages include a participant's workbook, as well as a facilitator's guide.

Finally, it must always be remembered that EPE alone is not sufficient to promote entrepreneurship. The task calls for a multidisciplinary approach involving other governmental, financial, economic and social bodies. Shaping fertile ecosystems for entrepreneurship is crucial in boosting the success rates of start-ups (Badawi, 2011). A Forbes study (Marich, 2011) outlines ten recommended actions for governments to promote entrepreneurship. The recommendations are grouped under three main headings: shaping fertile ecosystems, financing entrepreneurship from inception to critical size, and promoting an entrepreneurial culture.

3 Emerging trends in TVET and EPE which confirm their complementarity

TVET today involves more than skills acquisition programmes. Its policies and strategies stress the need for stronger links with the labour market and for strategies to help graduates to adjust continuously to the fast changes in the market. With the return of apprenticeship programmes (in a modern form), learning/workplace partnerships, high skills training, broader specializations, a greater role for information and communications technology (ICT) in TVET, more transferable skills, the learning workplace, recognition of prior learning and skills acquired informally, and many other initiatives, EPE seems to be the glue that can keep all the trends together. The innovative mindset developed through EPE will help people in choosing and pursuing the career that most suits their abilities and interests. It will also help them in changing their occupation, should the need arise, in fast-changing labour markets.

TVET trends can be analysed on three main axes:

- The demand for graduates (with the skills taught);
- The willingness of students and trainees to enrol in programmes; and
- The qualitative and quantitative relevance to actual labour market needs.

On the issue of demand for general skills, a recent World Bank discussion paper on skill development in the OECD countries confirms that the demand is growing: it refers to 'the growing demand for general competencies and higher-level skills' (You, 2009). This finding is true for most countries, developed and developing. The same study found that more than half of the secondary school students in OECD countries choose to enrol in TVET courses:

> Despite the increasing focus on general and higher education, we document that participation in TVET systems at the upper secondary level in OECD

> countries has remained at approximately 50 per cent of total enrolment in recent years.
>
> (You, 2009)

Three strategic trends in the OECD countries were identified which were aimed at ensuring the relevance of TVET:

> There has also been an increasing trend in OECD countries to defer vocational specialization and more effectively integrate general and vocational education. Furthermore, in an effort to combat the image of TVET as a 'dead-end' pathway, OECD countries are undertaking measures to improve permeability between TVET and higher education (e.g. the establishment of national qualifications frameworks). Finally, while traditional apprenticeships are declining in popularity, OECD countries are adopting new approaches of effectively integrating workplace experience in pre-employment TVET systems.
>
> (You, 2009)

EPE could open up the scope of employment for TVET graduates, as well as playing an important role in promoting enrolment in TVET courses and improving their image. Transferable skills acquired through EPE would help to integrate TVET with general education as well as workplace learning.

With the growing role of entrepreneurship in economic and social development, and its importance for building a 'self-reliant population' capable of surviving in increasingly turbulent labour markets, the learning of entrepreneurship skills cannot be left to chance. Just as EPE is moving from a preparation for those starting up SMEs to a focus on broader generic skills for all, it needs to become an integral part of national education systems:

> Entrepreneurship is an employment strategy that can lead to economic self-sufficiency. Through entrepreneurship education, young people, learn organizational skills, including time management, leadership development and interpersonal skills, all of which are highly transferable skills sought by employers.[5]

[5] www.unevoc.unesco.org/56.0.html?&tx_drwiki_pi1[keyword]=Entrepreneurs (Accessed 1 January 2012.)

That is why EPE is today recognized as a main objective of national education systems:

> One of the main goals of education is to prepare students to be entrepreneurial innovators and active participants in the labour market. Entrepreneurship education increases the self-reliance of populations and makes them less dependent on an increasingly shrinking job market.
>
> (UNEVOC-UNESCO, n.d.b)

3.1 Emerging EPE and education systems: selected examples

In 2001 the European Commission set up an expert group for training and education in entrepreneurship. The group had members from sixteen countries. One of the group's tasks was to arrive at a common definition of entrepreneurship in training and education. In November 2002 the group submitted their report, defining entrepreneurship as:

> Entrepreneurship is a dynamic and social process where individuals, alone or in collaboration, identify opportunities for innovation and act upon these by transforming ideas into practical and targeted activities, whether in a social, cultural or economic context.
>
> (EC, 2002)

The Council of Europe in Strasbourg and the European Charter for Small Businesses adopted the proposed definition and stated in the EU publication Measures to Create a Culture of Enterprise that 'Today the importance of entrepreneurship as one of the fundamental skills that must be acquired through lifelong learning has been accepted' (EC, 2002). With this declaration, EPE became an integral part of the LLL process. In October 2006, the European Union organized a European Conference on EPE in Oslo, which presented a wealth of good-practice examples of EPE policies and practices in the EU Member States. Based on these experiences the Commission published The Oslo Agenda for Entrepreneurship Education in Europe (2006c). The agenda presents a menu from which all stakeholders can pick items at the appropriate level.

EU policy does not limit EPE's importance to one level or type of education, but it stresses its importance for tertiary and higher education, including researchers:

> Special attention should be paid to systematically integrating entrepreneurship training into **scientific and technical studies and within technical institutions**, to facilitate spin-offs and innovative start-ups, and to help researchers acquire entrepreneurial skills. There needs to be more focus on developing the skills necessary for fully exploiting innovation and knowledge transfer activities in combination with the **commercialization of new technologies.** Academic **spin-offs** are increasingly seen as important means of enhancing local economic development. However, in their new roles, scientists and universities must build business and managerial competencies.
>
> (EC, 2006a)

Entrepreneurship and innovation are closely linked, and the "Recommendation of the European Parliament and the Council" of 18 December 2006 on "Key competences for lifelong learning (EU, 2006a)" identifies a 'sense of initiative and entrepreneurship' as one of eight key competences that should be put across at all stages of education and training. In its Europe 2020 Strategy (EC, 2010), the Commission is clearly reflecting on that understanding. One of the 'Flagships' of the Strategy is entitled 'Flagship on innovation union' and clearly refers to promoting entrepreneurship as a tool for ensuring that the Union is an innovation one:

> To promote knowledge partnerships and strengthen links between education, business, research and innovation, including through the EIT, and to promote entrepreneurship by supporting Young Innovative Companies.
>
> (EC, 2010, p. 13)

Support for innovative companies would not be effective without TVET-EPE complementarity.

Beyond the European Union, there are several other initiatives focused on adopting EPE in its broader sense. In 2003, the World Economic Forum announced a Global Education Initiative (GEI) as an open multi-stakeholder approach to education advancement (WEF, n.d.) aiming to scale education partnerships globally.[6] One of the

[6] GEI now involves over forty private sector partners, fourteen governments, seven international organizations and twenty NGOs. It has mobilized over US$100 million to support five countries or regions, Egypt, Jordan, Palestine, Rajasthan (India) and Rwanda.

GEI's main work streams is 'Educating the next wave of entrepreneurs' (WEF, 2009). In its Phase II, this work stream organized regional EPE round tables (for Europe in May 2010, the Middle East and North Africa in October 2010 and Africa in April 2011). The GEI justifies an emphasis on entrepreneurship education as a tremendous force with a big impact on growth and progress. Education for the new wave of entrepreneurs would normally include both EPE and TVET. It is equally important to offer similar training to current and future employees of SMEs, to help them in running more sustainable enterprises.

UNESCO too has not been far from the developments. An inter-regional seminar on entrepreneurship education was organized by UNESCO's Division for the Promotion of Basic Education (from 11 to 16 February 2008) to address the issue of entrepreneurship education in a global context. It took place in Bangkok, Thailand, where representatives from UNESCO and other UN agencies along with education experts from all geographic regions of the world participated. The seminar adopted the joint UNESCO- ILO definition of entrepreneurship education, which opens the concept up to focus on basic skills for all. The inter-regional seminar also decided to establish an International Working Group (IWG) on Entrepreneurship Education. This group organized its first meeting in Frankfurt, Germany from 27 to 29 October 2008. Around twenty education experts from various international organizations, national governments and entrepreneurship education providers met to share experiences and build partnerships, and to determine the best means for the IWG to promote entrepreneurship education that responds to the current needs and conditions of countries worldwide.

Shortly before the Frankfort meeting, from 22 to 24 September 2008, UNEVOC Centres in the Southern African region came together in Mbabane, Swaziland to exchange views on innovations and best practices, and to discuss areas for intensified collaboration. The meeting adopted integrating entrepreneurial skills in TVET curriculum as one of these areas of intensified collaboration.[7]

In clear support to the new concept of EPE as a generic skill for all and an integral part of LLL, a UNESCO on-going pilot project for Arab States was launched jointly with a UK NGO, the StratREAL Foundation, in 2010. The project title is 'Entrepreneurship

7 www.unevoc.unesco.org/wiki.html?&tx_drwiki_pi1[keyword]=page_entrepreneurial_learningmore

Education in the Arab States', and it is being implemented by UNEVOC Bonn and the UNESCO Beirut Office. The project adopted the joint UNESCO-ILO broad definition of EPE as basic/generic/key skills for all learners at all levels. Based on the adopted concept, four country reports and a regional synthesis report have been prepared. The reports clearly showed that a major thrust of EPE offered in the four countries is focusing on raising the awareness of self-employment and establishing SMEs. They also revealed that the EPE programmes available were not as yet an integral part of a national entrepreneurship promotion strategy or plan, but rather that the on-going activities were scattered in nature.

To help countries in the Arab region to consider the practicality of adopting the new EPE concept, and to re-examine their current EPE plans and activities, these reports have been disseminated to all Arab countries for study. The project also offers technical support, according to need. In development, it is well known that adopting new concepts is a policy decision that must be supported with applicable plans for implementation. Arab countries were invited to study the new concept, explore its relevance to their educational strategies and systems, and decide on their own priorities. Countries that choose to engage in further activities related to policy/strategy or pilot implementation of the new EPE concept have been invited to submit project ideas.

As would be expected, the responses were cautious, and at present several small pilot projects are being implemented in a number of Arab countries. Most of the supported pilot projects are focusing on the policy level, aiming at a smooth inclusion of the broad concept of EPE in educational policies and strategies. Interestingly, most of the project ideas submitted, and the projects that are currently running, came from the TVET sector in ministries of education and other concerned national-level institutions.

4 Conclusions and policy recommendations

There is a consensus on the potential role of entrepreneurship, and its supporting educational activities (EPE), in promoting economic and social progress for all societies, in both developed and developing countries. The international evidence for this consensus is documented by the GEI:

> The current emphasis on Entrepreneurship Education reflects the fact that entrepreneurship has never been as important as it is today when the world is confronted with big challenges that extend well beyond the global economy. Entrepreneurship is a tremendous force that can have a big impact in growth, recovery, and societal progress by fuelling innovation, employment generation and social empowerment.
>
> (WEF, n.d.)

4.1 Conclusions

The need for national entrepreneurship strategy

The potential role of EPE covers two main complementary, but distinct, roles: skills for all, and the preparation of entrepreneurs. The importance of both roles calls for integration and coordination via comprehensive national policies which weave together all the necessary success factors. EPE strategies must stem from a broader strategy to promote entrepreneurship and revive its culture.

National decisions on adopting EPE concepts

TVET, at all levels including tertiary programmes, should be a main contributor to entrepreneurship skills acquisition in both its senses. EPE is more relevant to TVET than to most other types of education. According to the situation in each country, a decision needs to be taken on whether to focus the available resources on one track or the other, or to work simultaneously on both tracks. In all cases, EPE should not be the responsibility of education professionals alone. The business community and other related bodies (law, finance, marketing, management, human resource

professionals and so on) as well as representatives of society at large must be full, active and educated partners. Building the capacity for proper implementation of EPE should start without delay.

EPE as generic skills for all is best started early in schools

If generic EPE were offered to students as part of the basic education cycle, entrants to TVET would normally enrol on their courses on a sound basis of appropriate labour market information and an accurate analysis of their own abilities and interests. Their educated choice of TVET would ensure their motivation, lead to better achievement of the required skills, both personal and technical, and increase their opportunities to enjoy satisfaction in their jobs and life. During their programme of study, they will continue to use their acquired entrepreneurship skills in mastering skills and acquiring knowledge that would enable them to become self-employed, establish their own business, or become more productive in paid employment. EPE would help them become more mature employees and possible entrepreneurs.

EPE should be an integral part of life-long learning

Life-long EPE would mean that students and trainees enrolled in TVET, at any level and age, would continue to receive relevant support to master entrepreneurship skills. Addressing TVET and EPE in an integrated way, for example using a multidisciplinary team teaching approach, would allow students and trainees to organize what they learn, in terms of skills, knowledge or attitudes, in a way that facilitates recalling and using it, as appropriate, in different types of employment. It would also help them to think about using these competencies in an innovative way in their work and in their life more generally.

EPE can support the career decisions of individuals

Students and trainees who receive EPE as general skills for all would be able to optimize their workplace experience, as a part of the TVET programme, by looking beyond their skills and knowledge to other issues such as the organization of the workplace, relationship between workers and managers, and many other aspects of the workplace as an enterprise. Such 'extra' learning would be crucial in empowering them to take career decisions.

EPE would enhance the starting-up of enterprises

As they approach the completion of their TVET programme, students and trainees receiving EPE as general skills for all should have the opportunity to discuss with their teachers, parents, peers and others, issues related to their next step in life. They should seek careers advice from life-long career guidance services either in or outside their educational institutions. They can then start to arrange finance for their project if they opt for a self-employment route, to seek employment (perhaps with the private partner in their training programme), or to continue their education as appropriate.

Implementing EPE is lagging behind policies

After almost ten years of developing the emerging concept of EPE, the achievements are mostly at the policy and strategy level. On the ground, the UNEVOC joint pilot project on EPE in Arab States is a humble start with very limited funds. It is hoped that UNEVOC and UNESCO Beirut will be able to use the lessons learned from the project in fuelling further implementation of the emerging concept. Good and practical ideas can help to overcome the scarcity of funds for such pioneering projects. Meanwhile, more information on the application of policies and strategies is expected in the near future, in particular from the countries of the European Union and from the OECD countries that have adopted EPE as life-long skills for all.

4.2 Policy recommendations

Based on the analysis and discussion in this paper, the following specific main recommendations can be made. They are divided into recommendations for each of the main stakeholders, researchers and international organizations, as appropriate.

Recommendations for governments

- Comprehensive national entrepreneurship promotion strategy: As entrepreneurship must be developed by concrete policy initiatives, governments are invited to take the lead in developing such policies and strategies. EPE would normally become the cornerstone of the strategy, weaved in harmony with related issues such as fertile ecosystems, finance and marketing.

- Adoption of the EPE concept and activities: Since there are two strains of EPE, it is necessary for each country to consider its available human and material resources as well as its developmental plans, to decide how available allocations can be best utilized. A double-track approach, which includes both training for entrepreneurs and offering entrepreneurship skills as generic skills for all, is recommended. Prioritizing activities in phases within a medium-term plan is an alternative where human and financial resources are limited.
- Promoting regional and inter-regional cooperation: For developing policies and activities in a relatively new area such as EPE as skills for all, governments should seek regional and global exchange of ideas and practices through regional and international networking. Peer review and learning would facilitate cooperation.

Recommendations for TVET institutions (at all levels)

- Building capacity and motivating staff: Given the importance of entrepreneurship skills to all, awareness programmes for all teachers, professors and other related staff should be started without delay. Building capacity in an early stage would help in studying the appropriateness of introducing EPE in TVET institutions. Motivation for staff is also needed. Staff members need to be confident that they will be rewarded in the medium and long term if they invest in personal development in this area.
- Taking the lead in building partnerships with all stakeholders: Partnership is crucial in education in general, and TVET and EPE in particular. TVET institutions should play an active role in networking by reaching out to anticipated partners. Partnerships for EPE (and TVET) should not be limited to economic sectors, but must also include civil society, other providers of education and training, trade unions, employers' associations, academics, learners and their families, national and local supporters and others.

Recommendations for business and social partners

- Engage in a win–win partnership: Research in the area of partnership in education, and TVET in particular, has revealed that such partnerships benefit all the partners, including businesses. Economic sectors reaching out to TVET

institutions to play an active role in TVET and EPE are choosing a win–win option. The involvement of business associations and social organizations would give credibility to the process.

Recommendations for researchers

- Crucial areas like EPE and TVET deserve more focused research. There is a need to explore issues related to EPE and TVET especially their bilateral relationship and the impact on the employability of learners. Evidence-based policies cannot be realized without a sound research base. Such a base would also guide policy development and implementation actions, so this is an area that merits further research from institutions and individuals.

Recommendations for international organizations and the donor community

- Coordination, articulation and collaboration: In spite of a good deal of international and bilateral/multilateral cooperation in EPE, there is a large amount of overlap in the on-going activities. In other areas, there is little active endeavour: for example, efforts to educate policy-makers in developing countries about the new concept of entrepreneurship are very limited. EPE, in particular in TVET, is a promising area that merits more effort. This should involve networking among those working on current initiatives and facilitating the exchange of practices, lessons learned and ideas.

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Chapter 9

Technical and vocational education and training, and skills development for rural transformation

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1 Introduction

The discourse on education for rural transformation (ERT) and the exploration of the concept began with a study undertaken by the UNESCO International Research and Training Centre for Rural Education (INRULED) in 2001, entitled Education for Rural Transformation: Towards a Policy Framework. Since this publication there has been growing attention paid to the concept of rural transformation, and the role that general education, technical and vocational education and training (TVET), and skills development play in it. Across the world, rural communities are experiencing fundamental changes, which are both impacting on and being impacted by people. In some communities these changes are about variations in the social fabric, with urbanization and rural industrialization playing significant roles. In other cases, these changes are reflected in depopulation, as people migrate to the cities.

1.1 The authors' view

The definition of rural transformation through TVET that we take in this paper is the significant, fundamental and beneficial change that takes place in people (individually, and in families and communities) where people are empowered and enabled to make decisions and take action to improve their life (in all dimensions: economic, vocational, social, political, cultural, health and environmental) in ways that result in a broad positive impact on society. Our view of rural transformation is centred on people, at the community level, and on their impact on their society and environment (Shaw, 2011a).

When we think about transformation in rural contexts, it is easy to think in terms of the physical transformations that occur, particularly through the processes of economic development. Economic development is often very much the driving imperative that determines what many people see as the vehicle for improving people's lives. And this is often the case: that is, when economic development takes place that impacts positively on individuals, then very often people's lives are improved. However, things are more complex than this, because economic development also brings with it other

aspects of issues that can have a negative impact on the quality of people's lives. Transformation of rural communities involves more than just economic development, and is imperative that we consider the broader impact that changes have on the ways in which people live their lives and how people's quality of life is determined.

The negative impacts that economic development has on people and their environments are well known. Environmental pollution, degradation of natural environments, depletion of resources, extinction of species, global warming and climate change are all very much to the fore as issues of concern, at least for various groups. And while the impact of some of these factors is still under debate, there is a general consensus that there is a 'dark side' to economic development, and the transformation of environments and individuals' lives to which it leads. Indeed, there is clear evidence that some aspects of current economic development are unsustainable under the existing approaches.

Also often missing from the conversation on these issues is an awareness of the role of individuals and communities in the processes of transformation. Where transformation is seen as a process that is 'done' to communities, the role of individuals in this process is normally a consequential and reactive one. That is, individuals need knowledge and skills and capacity in order to be able to adjust to the changes in their environment and society. Education and training clearly plays a pivotal role in this, because educational institutions provide people with the knowledge and skills they need to be able to adapt to the changes that occur around them. In this process individuals as well as their environments are transformed.

The broad question that we might ask is, 'What kinds of skills are required for people in or from rural areas, in order for them to be successful in life: to respond to and to facilitate rural transformation, and themselves be transformed?' Subsidiary questions include 'Is there a need for a minimal set of skills?' 'Are there enabling skills that are needed in order to acquire TVET skills?' and 'What issues, problems and success stories can be found from TVET activities in developing contexts?' These questions and others are addressed later in this paper.

1.2 Poverty and Millennium Development Goals

Poverty is still a major problem in many rural areas, and rural transformation has contributed to alleviating poverty, as well as increasing poverty in some cases. It is very clear that increasing people's skills in most cases provides them with opportunities to improve their lives, and more importantly to adjust to the changes occurring around them, and even themselves act as a catalyst to changes.

The dynamics of rural transformation in the globalized world of the twenty-first century have created new educational imperatives, which go beyond the traditional approaches to education and TVET in rural communities. There is an urgent need therefore to re-examine the role of education and TVET within the dynamics of rural transformation, both now and for the future.

In 1990 at the World Conference on Education for All (EFA) in Jomtien, Thailand, a framework of action for world education development was put in place. Ten years later at the World Education Forum in Dakar, Senegal in 2000, revised goals were developed. However, unlike other parts of the Dakar Framework, Goal Three (skills development) has been significantly neglected. It has been conspicuous by its absence not just from the agendas of high-level inter-government development summits, but also from campaigns of government and non-government organizations (NGOs).

In the emerging knowledge-based global economy of the twenty-first century, learning and skills play an increasingly important role in shaping prospects for economic growth, shared prosperity and poverty reduction particularly for the vulnerable population in rural areas in most developing countries.

Today, three out of every four poor people in developing countries live in rural areas, and most of them depend directly or indirectly on agriculture for their livelihoods (World Bank, 2008). The world's rural populations experience problems including being illiterate, unhealthy, malnourished, marginalized and oppressed people. While land and water are critical assets in rural areas, education is often the most valuable asset for rural people. It enables them to pursue opportunities in the new agriculture, obtain skilled jobs, start businesses in the rural non-farm economy, proactively manage their communities, and move to urbanized areas and secure employment successfully if the need arises.

In the decade since the ERT study, an even greater need for a focus on rural transformation and the role of education in it has emerged. New sources of vulnerability for the poor, especially the poor in the rural areas, have arisen. This is graphically illustrated by the recent global financial crisis, which originated in the financial markets of the developed countries but affected poor people everywhere; new threats to people's food security; and human-made and natural disasters, including the effects of climate change, which are endangering the life and livelihood of millions. These hazards affect rural people disproportionately, because the poor are typically in rural areas.

The United Nations (UN) General Assembly's review in September 2011 of progress towards the 2015 Millennium Development Goals (MDGs) made it clear that many of the MDGs that envisioned a new future for humanity in the twenty-first century, including those for education, will not fully be achieved. An important reason for this failure is that a large proportion of rural people, especially in the developing world, remain deprived educationally, missing the opportunity to acquire the skills and knowledge to develop their capabilities, and become aware of and expand their choices in life.

The structural problems of global, national and local economies, and the dominant development model of unlimited consumption, show no signs of disappearing. Two phenomena symbolize the structural fragility. First, agriculture and rural production in the developing regions is diminishing as a share of total national product. It now typically accounts for about a quarter of gross national product (GNP). However, more than half of the world's economically active people are dependent for their livelihood on agriculture. The plight of rural people cannot be improved and the tensions of rural–urban disparity cannot be solved unless this imbalance is rapidly reduced.

Second, the economic development goals and aspirations of the developing world are premised on the consumption habits and patterns of North America and Europe, which means they are dependent on ravaging the non-renewable resources of the planet. This is simply unsustainable, because this path will lead to the collapse of the natural and biological balance of resources of the planet. The world has to move towards a new pattern of economic growth and development that better recognizes

the fine natural balance required for sustainability. Rural transformation, even if it is not fully recognized yet, is at the epicentre of this tectonic shift. But this shift in thinking and vision will not happen through natural forces like a physical tectonic shift; people must will it, plan it and work for it.

The anticipated shortfall in the MDGs in numerous countries indicates that many national development plans and programmes need to be reassessed. Some policies are just not having the impact that was planned and required. The fundamental issues driving the MDGs have not gone away, but in many cases approaches to bridge the gap have not been successful yet or they need significantly more resources, including time.

The aim of this paper is to provide some contextual information about the nature of rural transformation and the role of education and skill development in it. In developing these ideas, we have drawn upon some of the changes that have occurred over the last decade or so in rural communities, and in education and training approaches. We also grapple with the concept of rural transformation, and the roles of individuals, communities and government in it. Additionally, we provide some case studies of rural transformation where education and training has played a significant role, in order to draw out principles that might be applied elsewhere.

2 TVET and skills development for rural transformation

Developing countries have been struggling to address the main challenges in education, which can described as the triad of access with equity, quality and relevance, and efficiency and accountability. Although progress has been made in every country, the shortfall in achieving the 2015 MDGs in education in many countries indicates that national plans and programmes need to be reassessed and re-examined to ensure that the rural dimensions of the educational agenda

are adequately and specifically reflected in these efforts. The dynamics of rural transformation in the globalized world of the twenty-first century have created new educational imperatives, which go beyond the current traditional concerns regarding rural communities, and need special attention.

2.1 Social production and reproduction

Education has pivotal roles in social production and in social reproduction (Willis, 1981). Social reproduction is the process of ensuring from one generation to the next that the fundamentals of a society are passed on, whereas social production is about the generation of the goods and services, and systems and processes that are necessary for society to work and individuals to be able to live useful, productive and quality lives. Critical to both these processes are the skills that individuals need as they take their place within roles of social production and reproduction. Skill development or skill education is very often embodied in the concept of technical and vocational education and training (TVET), although there are skills and knowledge embodied in education that go beyond this. Work is a central requirement of most people's lives. People work in order to obtain the things that they need in order to live. At a basic level these include food, water, shelter, good health and sanitation, security and safety. However, there are other things that people need in order to achieve a good quality of life, including continually evolving skills and the opportunity to further improve their life quality. Also, people need to be able to take control of their lives and proactively engage in processes individually and corporately, to both adapt to their environment, and proactively adapt their environment.

To take control of their lives and to engage in work both in order to live, and to improve their living standards, people need skills. Very often, these skills are vocational skills. That is, they are the skills they need in order to undertake their vocational work. Where such work is through self-employment, which is the case with much farming activity, people need skills and knowledge about agriculture and agricultural processes in order to be engaged in this vocation. To improve their lives, and go beyond existing ways of working, people need skills that will enable them to work better. When people live in rural environments where the social organization is based on employment by others, then they need employability skills.

In addition to these vocational skills, people need life skills that are not necessarily related to a vocation in order to create improved living environments, to ensure the health and safety of themselves and their family, and to take an active role as responsible citizens of their society. For both vocational skills and life skills, the concept of lifelong learning is important. It is not possible now to learn all the skills required to live and work in society in the course of the single phase of life when people attend school. People need to learn throughout their lives in order to acquire the skills they require as their society evolves around them.

This popular notion of an evolving society suggests that people are pawns of societal change and not a critical part of its discourse and evolution. We explore this notion later on in this paper, when we discuss the need for a paradigmatic shift in thinking about rural transformation.

Central to all of the skills required is literacy in its broadest sense, which includes reading, writing, computer and computational skills. These skills form the centrepiece of learning and lifelong learning. Literacy skills not only provide a vehicle for learning vocational skills, they are central to the skills that empower people to engage proactively in processes of control and adaptation, and to contribute to the transformation of their community and society. In this, literacy has a strong link to individual transformation as a worthwhile product of education.

2.2 Education, experience and skills

In educational theorizing, planning and implementation there is some confusion about the best approach to skill development for rural transformation. Should a broad general education or a narrow focus on TVET be used? In the first instance the term 'education' is used correctly. In the second it is not.

By this, we mean that we see education as the continual reconstruction of experience that adds to and guides subsequent experience (Dewey, 1971). Generally the term 'training' is used when there is a focus on vocational skill development. Further, the notion of skill development within the educational paradigm is one concerned with broad general across-the-board transferable skills, which are often though not exclusively concerned with life as a whole, and not just a single vocation. In the

training matrix, skill development is loosely conceptualized as industry-based, with the unit of production being the worker, who must be skilled up. The focus is on an industry. However, much of the skill base is, by definition, lost if this industry diversifies or closes down. In this context, specific industries tend not to see transferability as an essential element of their workforce's skill base. Transferable skills take more time to impart, which means extra cost compared with job-specific training. When there is a surplus labour market (with more people chasing jobs than there are jobs available), this extra cost cannot be justified on narrow economic grounds.

There are many other mismatches between the world of work, the required skill base, and the current skills of rural populations. The following examples are merely the tip of the iceberg that clouds conceptual thinking in relation to measures necessary to transform rural areas in line with the MDGs.

For example, in school environments, especially in the lower grades, literacy teaching is often focused on teaching numbers and letters in a way that makes it difficult for pupils to see the real-life relevance of what they are learning. In the later stages of schooling, the curriculum often becomes further disassociated from the world outside school. Youth leave school to work with little or no knowledge concerning the world of work. When rural youth seek training, often the training they receive is inappropriate to the skill base needed for their local community and the local industries. The training is often short term, designed to cover immediate gaps in the labour market, and not geared to providing trainees with lifelong sustainable living and working skills. Often those who are newly trained enter the workforce and are confronted with workers who have always 'done it this way', when this is in conflict with how they have been taught to do the job. As a result, they find that they are at odds with the entrenched workforce, and have a difficult time assimilating into it.

Another common problem is that many trainers have been out of the workforce for a long time, and have lost touch with how things are actually done today in the working environment. As a result, the training they give and the curriculum and materials used are inappropriate, and trainees find it difficult to obtain the jobs they were being trained to fill. Often institutional training has a basic curriculum that is used for all trainees, which is so general in scope and function, and so removed from

the day-to-day press of individual workplaces, that it is useless to the individual seeking to enter a specific industry.

2.3 Other issues

Other issues that need to be addressed are concerned with the commercial changes that are demanded by owners of production facilities. This is particularly related to the need to increase efficiency through mechanization. Technical advances of this nature often lead to a need for fewer workers, so the result is a surplus labour supply. There is then a need to upskill these surplus workers so they can seek employment elsewhere. This situation raises the issue of how specific TVET should be. It needs to strike a balance between addressing the need for individuals who can operate in a specific industry based on the current technology, and imparting broader (though still industry-based) skills which are specifically geared to enabling people to cope with technological innovations.

Another issue that should be considered – one that needs to be addressed at the policy level – is the question of what constitutes fair and decent work for youth and adults. The desire of employers to increase profitability, either by technical innovation, or through pressing employees to work harder or for longer hours, needs to be balanced against the interests of the employees themselves. Each side needs to acquire the notion of what are reasonable expectations, and society as a whole perhaps needs to consider whether displacing employees by investing in technology is always in the interests of the wider society.

The International Labour Organization (ILO) (2012) has defined decent work as employment that occurs under a set of conditions that include freedom, equity, security and dignity. It is work within a framework that protects the rights of workers, who are remunerated adequately and covered by social provisions concerning other distribution of benefits beyond income, such as access to health, education and welfare. These issues all have an impact on the broad field of education and training, but decisions on them are clearly not within the remit of TVET alone.

However, if it is accepted that the aim should be to ascertain what constitutes 'freedom, equity, security, dignity, adequate remuneration and social welfare', and

to determine how training can prepare people for work with these characteristics, this implies a new way of thinking for examining the notion of rural transformation through skills development, and the contribution that TVET can make to this. What appears to be necessary is akin to a paradigm shift in the concept of TVET.

2.4 A paradigmatic shift

One way of conceptualizing the paradigmatic shift necessary for sustained rural transformation through education and training is by using oppositional couplets. One element in each couplet represents the current paradigm, the other indicates the desired new paradigm. If the paradigm shift is to be implemented, then the decision-makers at all levels of government, in industry, in NGOs, and groups and individuals concerned with developing training through TVET, need to move towards adopting the new way of thinking. If they orient policies and plans along these lines, it should result in the type of rural transformation that is necessary for success in the rapidly changing globalized environment.

Table 1 suggests some couplets that can be considered in this context. It is intended as a first step towards a better theoretical understanding for decision-making. These couplets are derived from research literature and literature from government and non-government policy-formulating agencies concerned with rural reform and reconstruction, all within the more global concept of rural transformation.

Table 1. A New Paradigm for Rural Transformation

Current Paradigm	The New Paradigm
Wage workers	Entrepreneurs
Family subsistence	Community food security
Stable climate	Climate change
Absolute poverty	Poverty alleviation
Marginal literacy	Functional literacy
Women exclusion	Positive discrimination
Poor health	Increasing health

Produce consumed	Surplus production & distribution
Local market	Global market
Industrial-food production	Human food chain
Mono-cropping	Diversified production
Specific skills	Mobility skills
Resource depletion	Resource sustainability
Extractive economy	Sustainable practices
Inappropriate practices	Relevant practices
Rural–urban divide	Inclusive transformations
Inappropriate technology	Appropriate technology literacy
Unsustainable practices	Sustainable practices
Discipline curriculum	Personal curriculum
Experience	Experience and training

We have argued elsewhere that rural transformation involves much more than changes in rural environments, both constructed and natural. Governments often highlight the development of physical infrastructure when they emphasize their contribution to rural reform. However rural transformation is much more than this, and it also involves more than the conceptual shift that is political, social or economic reform. It concerns the transformation of people, so that they have power over decisions that affect their quality of life. The quality of life factors that need to be considered include poverty, literacy, decent work, equity, health, food security and climate change. Food security, including agreeing on a balance between producing food for immediate consumption, and foodstuffs for trade (not just for human consumption: this also includes crops grown to feed livestock, and for use in industry, including biofuels) is a particularly key issue that needs to be addressed at all levels within the new paradigm for successful transformation.

The oppositional couplets in Table 1 can form the basis for a shift in thinking and focus for successful TVET activity. The unpacking of the couplets allows theory and practice to become intertwined, so that legitimate training, grounded in research and theory, can be implemented. Some examples will clarify the directions necessary for successful curriculum planning within the new paradigm. The various case studies presented later attempt to unpack these couplets for better decision-making in TVET.

When developing and implementing policy, as well as when developing curricula and resources for TVET, the changing paradigm needs to be continually critiqued, developed and redeveloped, and kept at the forefront through intelligent rational debate.

In essence, the new paradigm template should be used to answer the questions of how, what, where, why and for whom skills need to be developed to improve the lives of rural populations as they confront and are affected by transformation. For example, a government might make the decision that there needs to be a focus on lifting the income levels of farmers who are at a subsistence level. The old paradigm suggested that actions to achieve these could include, for instance, training farmers to raise their level of efficiency, or programmes to implement the use of new seed technology. (This kind of initiative was often taken with little or no consultation with the farmers themselves.)

Under the new transformational paradigm a possible approach is to identify rural people's needs and skill base. The process would also identify people (often farmers) who are prepared to retrain in alternative entrepreneurial activities. Some farmers might prefer to remain in farming but take advantage of new technology. When an understanding of the issues and context, and agreement of all stakeholders involved is achieved, a TVET programme can begin the process of designing and implementing appropriate curricula and training packages (including detailed instructional materials for trainers and/or trainees).

The transformation for people and society, under this example, would result in a move from an economic pattern with subsistence farmers and some waged workers, towards one based on entrepreneurial farmers and off-farm workers (both waged workers and entrepreneurs). The training locations may vary considerably, and could include on-site farm sheds, schools, community learning centres (CLCs), universities and colleges. There might be a need for modification and/or upgrading of training facilities.

This example addresses an economic objective of transformation, but as we argue repeatedly in this paper, transformation is more complex than that. It encompasses broader social well-being issues, and the many-faceted human attributes that are impacted upon by change. Humankind functions in a context of ubiquitous

change. There are two main sources of change: some is a product of natural physical developments, and other change is the product of humankind's invention. The first type of change is often philosophically confused with the second, and gives rise to capitalist mottos such as 'We must learn to cope with change' and 'Change is inevitable'. This could be seen as an 'evolutionist' approach, in which change is something that just happens to people. This stance could continue to be maintained by governments, and schools and training institutions, unless it is challenged. That challenge must centre on the realization that much change is the product of human choices. The collective community can identify those changes that fit community needs and aspirations, and that are within the capacity of its members to address. Then it can work with government to develop training and educational regimes that fit the new paradigm (Cavanagh et al., 1991). This is a necessary step towards the resolution of the MDG.

3 Rural development and rural transformation: skills, empowerment and transformation

3.1 Rural transformation and development

How is rural transformation different from rural development? Rural development is mainly about economic development, and about actions and initiatives in rural communities that are undertaken to improve the standard of living in these non-urban environments. It is mainly about infrastructure improvement and the enhancement of existing industries and activity. Very often it involves bringing features of urban environments into rural settings. It is often about changes to environments, systems and processes that impact people. Rural transformation is a more dynamic concept. It is not just about changes of the physical environment, but embodies a transformation in people's perspective on life. In this paradigm, life in rural communities is fundamentally changed, even to the point at times where it makes us question what 'rural' really means. Rural transformation not only radically

changes places, it changes people, either by acting on them, or when people are part of the dynamic process of the transformation. (Shaw, 2011a).

3.2 The roles of education

It is not normally the case that parents are able to provide all the knowledge and skills their children will need to survive and live productive lives. We send our children to schools to gain literacy and numeracy skills, some principles of science and nature, and learn of the complexities of our society; in short, to gain an education. Schools also provide some base-level vocational skills, imparting the abilities and knowledge that people need in order to produce materials for their survival. Schools also provide a base level of skill and knowledge that people need in order to progress to other levels of education and training. So schools, and the education and training they provide, are a critical component of what people need in order to be able to live and produce in society.

Education also plays another role. Education is also about social reproduction. That is, it is the way in which we pass on from one generation to the next the knowledge and values that we hold as a society, and our various cultures. Skills are also required in this process, such as skills of language and communication, and artistic, social and cultural skills that are important for the cohesiveness of the societies in which people live. People's lives are formed by the cultures in which they exist, and by the physical environments where they live.

3.3 Critical transformative perspectives

Individuals can and do play a role in the transformation of their communities. That is, they can be active agents in the processes of environmental and cultural transformation of their communities. As we have pointed out, humankind exists in the context of two kinds of change: changes that we need to be able to respond to, and changes that we drive proactively. Both kinds of change require skills and knowledge, and both are reflective of the transformations occurring in society. However, when people themselves change, and when together people bring about societal changes, individuals also go through a process of transformation. The transformation in this

case is not necessarily a physical transformation in terms of the environment or person, but a perspective transformation, where individuals take on a whole new way of viewing their community, society, environment and the world.

The term 'perspective transformation' is pivotal to transformative learning theory (Mezirow, Tennant et al., 1994). Perspective transformation as a consequence of education and training is a radical change in an individual's world view. To proactively achieve perspective transformation, education and training provide scaffolding for learning that results in the transformation of individuals and their communities.

A view of education as an empowering tool for not only providing people with skills to produce goods and services for society and to reproduce society, but also providing them with the knowledge and skills to change themselves and society, is not new. Paulo Freire (1972), in his seminal work in South America involving literacy teaching, took an approach that placed literacy development in the context of individual empowerment. When education and training provide for the development of skills that people need in order to live and survive, and also empower people with knowledge and skills they need in order to take charge of their lives and bring about changes in the society in which they live, it takes on a new and powerful meaning. In this new paradigm, people can take control of their lives rather than just respond to the things imposed on them.

In order for TVET to be effective and to provide what people require, it must provide people with not just the skills and knowledge that they need in order to live and survive in their society, as it is transformed around them, but also the skills and knowledge that they need in order to shape the transformation of their society. This is certainly the case for people undertaking TVET activity in rural contexts.

Clearly, in many situations rural contexts are changing. There is a general shift from agrarian pursuits to industrialized agriculture and other industries. In order to be able to increase agricultural outputs, farmers need to apply contemporary agricultural methods and technology. Although there are some exceptions (such as specialized smallholder plots), in general, in order to be viable using such contemporary approaches, farms need to be bigger. As rural areas become more industrialized, and host a range of industries in addition to those based on agricultural products, people need new skills that will enable them to gain employment in these industries.

Schools and post-school agencies should take a leading role in helping people to gain the skills they need. This calls for education and training that is adaptive and responsive. However, this is often not the case today. Centralized and fixed approaches to education are often focused on an academic curriculum designed to provide knowledge and skills for the next academic level, rather than knowledge and skills designed to help people engage usefully in society when they leave school.

3.4 Valuing rurality

It is a little more difficult to train people in the skills and knowledge that are needed for the members of a society to shape its transformation, than it is to impart specific vocational skills. But this is a need that must be addressed. As part of this process, it is important that the positive attributes of rural communities are fully appreciated. Rural communities are where most natural resources are located. When rural transformation centres on the industrialization of rural environments, it often leads to a degradation of these natural resources. If the change process is left to market forces and policies focused on 'development', the natural resources of rural communities often come off second best. It is often rural people themselves who are in the best position to do things proactively to ensure the survival of the natural resources that make up their landscape, their rural communities and their way of life. However, this only happens when rural people themselves have a good understanding of the value of their natural resources, and the threats that industrialization and development often bring to them. Again, education has an important role to play here in raising people's awareness of the importance of protecting the valuable natural assets found in rural communities.

The protests by indigenous people over the last ten years in various South American countries, as a backlash against development activities focused on large-scale agricultural initiatives and mining, are examples of communities taking a proactive role in monitoring and managing the transformation, or potential transformation, of their environment (Kenemore and Weeks, 2011).

When TVET is designed to provide both the knowledge and skills needed for people to respond to rural transformation, and the skills and knowledge that are needed

for them to proactively bring about rural transformation, and their individual transformation, it provides the best opportunity not only for rural transformation but for personal transformation (Shaw, 2011a).

4 Critical transformative approaches in practice

Examples of critical transformative approaches exist in many developmental and rural contexts. Typically these result from local responses to local needs. They arise when local education providers take steps to adjust national policies and requirements to address local needs and achieve appropriate local outcomes.

Richardson (1998) describes a primary (elementary) school in a small rural aboriginal community in the Northern Territory of Australia that was operating as an informal community learning centre (CLC). It helped parents to solve a range of problems, either directly or by accessing other sources of assistance. However, children at the school were not getting good scores in state and national literacy and numeric tests, so it was perceived as not being a successful establishment. It could be argued that the real problem here was not such much the failure at the tests, as the inability of the educational system to recognize the school's real achievements.

The curriculum and state requirements for education need to recognize and adjust to local cultural needs. In this example the school had real and transformational achievements in community health, finance, communication and cultural perspectives. It was acting as an agent for change in a variety of contexts, and was achieving some excellent educational outcomes, but in ways that were not reflected in the standard tests. The state was imposing inappropriate requirements on a school that was acting in a transformational way.

Policy-makers needed to adopt flexibility over aspects that go beyond the mere pedagogical, but broadly encompass both children's and community needs. To achieve these requirements, parents, teachers, policy-makers and the local community need

to collaborate in identifying and working through appropriate strategies to focus on sustained transformation of the people in the community. Teachers as the change agents need both pre-service and continual in-service training and education. They need to be empowered to determine aspects of the local operation and curriculum (Cavanagh, Connell and Marriner, 2005, 2007).

This situation represents a new paradigmatic approach. The old paradigms require teachers to be submissive to dominant state-wide rules and processes, and not make attempts at adjustments because of local needs. When education and training is flexible in content and process, reflecting local needs, then it will be more likely to achieve outcomes that go beyond what was originally intended.

In another case located in the same jurisdiction of Australia, the government identified an issue that required intervention at the local level. In this case, it concerned teachers' mental health: some teachers were encountering problems when they were posted to isolated rural communities where the dominant culture was indigenous (Parker and Ben-Tovim, 2002). The response was an intervention programme called Mind Matters (www.mindmatters.edu.au), which provided government funding for communities to take proactive approaches to support these teachers. The new paradigmatic approach makes an attempt to recognize the impact of a new environment and culture on people whose background is very different. It recognizes that in such a situation, different individuals may need different types and levels of support.

Wang (2005) describes how the Agricultural University of Hebei, Baoding, People's Republic of (PR) China, challenged the conception that the prime function of universities is research and not extended education and learning. It established an ideal example of how universities can combine theory with practice. The 'Taihang Mountain Model: A Road to Prosperity' project, in which the university played a core role, became a foundation stone for policy-making in rural economic development and rebalancing the ecological environment in China. Pivotal to that success was a close and collaborative relationship between the university, communities and individuals, in which individuals and the community were empowered to make decisions and act.

Xiaoxi (2011) describes the 'Sunshine Project' in PR China, launched in 2004 by the PR Chinese government to address poverty, socio-economic exclusion and the

integration of migrants into urban society. Its main programmes were designed to provide vocational training to young women, and training to returning migrants to help them reintegrate into rural zones. The programme in particular addresses the rights of labourers and ways of helping their transition from rural to city work. A collaborative cross-ministry approach, the programme fosters partnerships with organizations such as universities and NGOs/NPOs at both national and local levels. However, its strength is derived from its activity at the local level.

CLCs have been shown in a number of cases to provide sound transformative models for rural and community development and transformation (Lakin and Gasperini, 2003). A CLC is a local educational institution that normally lies outside the formal education system. It is usually set up and managed by local people to provide various learning opportunities for community development and the improvement of people's quality of life (UNESCO, n.d.). The CLC represents a bottom-up model, where the local community is closely involved in establishing and operating the centre. The general goal of a CLC is to empower learners and the community as a whole through the flexible delivery of educational programmes and the adaptation of the educational content to specific community needs. These result in individual, family and community transformations as well as transformation of the environment, which is managed by the people directly affected.

The empowerment and mobilization of people at the community level is thus critical in the process of rural transformation. However, rarely can this happen without guiding and enabling government policy. Education in Indonesia, for example, is undergoing radical change (Bangay, 2005; Bjork, 2004). For most of its history the education system has been a centrally prescribed and directed undertaking, using didactic information-dissemination processes centred on national examinations. However, through shifts in government policy this is changing towards a community-centred and community-needs-responsive approach, adapting more learner-centred pedagogies based on learner needs. Of Indonesia's population of 250 million, over 60 million are living on less than $1.25 a day. Poverty is widespread, and many people's lives as well as their communities are in need of transformation.

The key to undertaking any educational change, and improvement, at the grassroots level is through the school principal (Grubb and Flessa, 2006). Indonesian government

Regulations 13 and 28 define competency standards, grounded in the realities of the principal's work, for school principals. The training programmes that have been developed focus on identifying a strong match between professional practice, and through this the development of skills, and the professional standards and appropriate and practical ways of assessing them. Shaw (2011b) describes Indonesian professional development programmes that take into account the transformation requirements of the local context and of the children being taught at school. The training programmes also have a strong and purposeful focus on promoting transformational leadership, which involves bringing about the transformation of leadership approaches in schools. In the past these were dominated by traditional hierarchical top-down controlling approaches, but they now include collaborative and inclusive approaches. The secondary objective with this transformational leadership approach is to endeavour to bring about individual transformation of each principal so that they themselves have a perspective transformation of their view of education, and of their role in providing leadership and direction in their school, to bring about improved and more relevant educational outcomes at the local level.

Achieving education and training changes relevant to the local level is difficult when the education and training agenda, curriculum and approaches are set nationally. Often too, education and training is driven by academic agendas focused upon academic content, where success in tests and exams leads learners to the next level. National examination processes, themselves dominated by academic agendas, give little opportunity for flexibility at the local level. Students who do not go on to the next level are often seen as 'drop-outs' or 'failures'.

The few cases mentioned here enable us to identify certain principles that focus on individual learning needs that can be realized though appropriate learning situations. The application of these principles under the new paradigm can lead to concurrent individual, community and rural transformation.

The curriculum planning that is needed to meet individual learning needs within this rural transformational development paradigm also constitutes a shift away from the current paradigm of community transformation through development (Cavanagh and Fielding, 1983; Cavanagh and Rodwell, 1992). Community participation and

activity at the local level is essential for rural transformation. Often communities themselves do not have the resources to initiate the desired activity, and external resources and expertise are needed. However to ensure the effectiveness of external experts under the new paradigm, they need to become insiders so that trust and partnership are established at the community level.

The learning process in TVET, and in adult education generally, relies on the significance and relevance of the learning to the individual. When adults (or indeed any learner) can make links from the proposed new learning to their existing knowledge, and can see how the new learning will bring personal benefit to them, they are more inclined to actually engage in learning (Shaw, 2005). Adults also prefer to be part of the planning and implementation process when it comes to their own learning (Moore, 2006). Building a learning environment that is inclusive and collaborative requires skill. It is helpful to use a facilitator or teacher trained in new paradigm principles. Continual professional development for those involved is an essential prerequisite for successful good practice in implementing rural transformation through individual capacity-building.

Learning approaches for learner transformations need to be multi-method, fun, cooperative, have space to build individual self-esteem, and be carried out in a mental and physically safe environment.

The brief case study examples and discussion here suggest that there needs to be a substantial change in the way the development of rural people and their communities is undertaken if the MDG and the EFA goals are to be achieved. However, more importantly, such change is necessary to give millions of individuals a better quality of life. This requires a paradigm shift at all levels of the debate, and in the ways that governments act. This paradigm shift also needs to occur in education and training approaches and activity. TVET that is appropriately focused on individual and community needs can provide significant opportunities for skills development linked to improved life opportunities and vocational outcomes,

However this presupposes a level of skills for sustainable practice in rural areas, and the capability of personal transformation to work towards a wide variety of goals: to reduce poverty, increase food and water security, decrease conflict, maintain culture, and protect and rehabilitate the natural environment. Rural development

must be couched in terms of the rural transformation of people, communities and industries, in a way that results in narrowing equity gaps between rural and urban people. This new way of thinking and acting must be at the forefront of government policy formulations. This is not just about development, it is about helping people live better lives, now and in the future.

Under the old paradigm, the ideology of economic development through capitalism did not necessarily help the rural poor. Indeed, capitalism, with its credo of Darwinist 'survival of the fittest' and individualism, typically discriminates against the marginalized. Bottom-line economic principles of 'development at all costs' in the old paradigm need to give way to a transformation economics which depends upon the Keynesian principle of the 'marginal propensity to consume' as its driving force. Central to this, and an integral part of the necessary shift in thinking, is personal transformation. To operationalize this philosophy, people need to have disposable income and leisure time to spend. This requires a different way of conceptualizing work, production and leisure, and people's roles in rural transformation. In all aspects these roles need skills development at a variety of levels (Cavanagh and Marriner, 2005).

Governments must be the major sponsors of this view of rural transformation, ensuring that policy is set in a way that guides sustainability, protection and rejuvenation of the environment, and individual citizen transformation, as well as ensuring the good of the nation and all of people, rural and urban. At the local community level, government officials need to collaborate in programmes with schools and their principals and teachers, and with community elders and other decision-makers. Expertise may need to be brought into communities to advise and support, in the short term, but in the long term such transformations need to be directed and implemented by the communities themselves.

At the school level, the school principal will have a changed and changing role. In educational institutions (including schools) principals are the key to providing local leadership, and their roles as change agents are critical. Inevitably, school principals too will experience perspective transformations and be transformed. This requires competency training and appropriate assessment so that the principal's personal transformation becomes the enabling device for engineering the needed

transformational changes in the school and community.

Programmes at night, which sometimes operate with different staff, need to be conducted after the teachers identify community needs. These may be related to the needs of the farming community: for example, training in tractor maintenance, breeding practices, low-tillage harvesting, sustainable irrigation practices and water conservation. On the other hand the skills development may be related to the urbanization of the rural environment or the skills needed for new industry. Under the new paradigm, the skills development must be related to personal transformation as the key principle of rural transformation, and the school or evening-class principal can play a leadership role in this.

Of course at the teacher training level pre-service teachers need to be familiar with this new philosophy of transformation literacy, and on-going professional development is needed for teachers, to ensure their ability to facilitate learning and personal transformations. University lecturers who have spent time working on farms to familiarize themselves with likely scenarios of transformation will have undertaken enabling experiences themselves, that give them the knowledge required to run appropriate pre-service programmes.

At the in-service level, principals, teachers, children and youth need to visit farms and community enterprises together to weed, pick and pack. Outsiders from other communities with expertise, and trainers from within TVET colleges, need to undertake training to provide them with the knowledge and skills to work under this new paradigm.

Celebrating personal and community development and achievements will further strengthen and add value to rural transformation. Communities each year could organize various celebrations such as a market day, fair or festival to showcase their transformations to other communities. Governments need to play an increasing role, including providing subsidies, bonuses and incentives that encourage rural people to attend courses and gain TVET competencies. Certification needs to form an integral part of the assessment of programmes. Communication at all levels of government, in policy documents and implementation strategies, needs to be explicit, with appropriately trained and committed people to carry the tasks out under national goals and frameworks for rural sustainability and transformation. TVET for capacity

building at all levels of professional and personal development will play an increasing role in this new conceptualization of rural change.

5 Conclusion

Numerous publications over the last decade have focused on the issues of rural transformation to bring about poverty alleviation and to meet various developmental goals from the point of view of policy (for example, UNESCO-INRULED, 2001; Atchoarena and Gasperini, 2003; Chinapah, 2011). While we recognize the importance of appropriate and good policy, it is our view that when policy is focused on a developmental approach which seems development as something that is done to people and focused on large groupings of people, on the scale of regions or even a whole nation, it will have limited success.

Rural transformation that has as its rationale and focus the improvement of people's lives must occur at the community level, and be focused on the transformation of individual lives. It is through the transformation of individuals that families are transformed, and they in turn collectively transform communities. TVET is about providing skills to people individually so that they may improve their current vocational activities or branch out into new activities or employment. TVET is also about providing people with knowledge and skills to not only respond to changes occurring in their communities and adapt to different communities when they migrate, it is also about empowering people with knowledge and skills so that they can themselves be catalysts for community change.

Fundamental to bringing about rural transformation to improve the lives of people and to halt and reverse environmental degradation is a paradigm shift in the ways that we apply education and training. The old paradigms are often not effective, as is evident from the failure so far to meet education and training developmental goals. New and pressing challenges require new paradigms. However, bringing about such changes in perspective and practice is not easy, as we are typically grounded in our

cultural, philosophical, political, historical and personal experience base. Yet the lives of millions of poor, often found in rural locations, depend upon our applying new paradigms to resolve old and some new problems.

Rural poverty reduction requires a cross-sectoral or multi-sectoral approach, and few governments or aid donors take this approach. When it comes to public funding in rural communities, it is funding of agriculture that still dominates. The new paradigm of rural development addresses agriculture as just one of a host of other rural industries (actual and potential) that are important for the improved livelihood of rural people (Ellis and Biggs, 2001).

Acronyms and abbreviations

CLC	community learning centre
EFA	Education for All
ERT	education for rural transformation
GNP	gross national product
MDG	Millennium Development Goals
NGOs	non-government organizations
TVET	technical and vocational education and training
UN	United Nations
UNESCO	UN Educational, Scientific and Cultural Organization
UNESCO INRULED	International Research and Training Centre for Rural Education

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