

Chapter 3

Vocationalisation of Secondary and Tertiary Education: Challenges and Possible Future Directions

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Introduction

This chapter examines the change of vocationalisation over time from ‘educational’ to ‘functional’. It analyses social and economic debates and the ways economic competitiveness is viewed in relation to human resource development and some implications for vocationalisation. The chapter argues that change from education-driven to a functional model of skills development within secondary schooling can be observed in the Asia-Pacific region. A number of trends associated with this change are analysed. The chapter also includes two examples of vocationalisation policies in the region to illustrate these trends. It is argued that the development of employability skills within the context of specific occupations and the inclusion of general education in TVET programmes can be viewed as being amongst the main directions for the vocationalisation of secondary schooling. The diversification of postsecondary TVET and its close links with industry is another example of the employability emphasis in training that is examined in this chapter. Vocationalisation of higher education is analysed through the different levels of debate as to whether tertiary education is becoming too focused on preparing individual for employment. Some examples of bridging academic and vocational learning are used to illustrate implementation practices.

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Changing Rationale Behind the Process of Vocationalisation

Social Role of Vocationalisation

The introduction of vocational content and courses into the school curriculum has its own supporters and critics. One argues that the introduction of vocational programmes in schools has the potential to create a more inclusive environment for disadvantaged students (e.g. Kelly and Price 2009) by providing career-focused, experiential learning. In Indonesia, upper-secondary vocational schools cater more to the poor than to general secondary schools, drawing 21% of their students from the lowest income quintile, compared to only 13% for general secondary schools (ADB 2007a: 30). Studies in OECD countries also provide evidence of this trend. They report that a 10% increase in the share of upper-secondary students in vocational and pre-vocational programmes is associated with a 2.6% increase in the secondary school graduation rate and a 1.9% increase in the proportion of 15–19-year-olds in school (Bishop and Ferran 2005). This data demonstrates the social role of TVET that is closely related to the ‘original’ process of vocationalisation that began in the 1970s with the aim to *promote the social inclusion of less privileged groups in education and training, to narrow educational gaps and to avoid social fragmentation* (Lauglo 2005; Lauglo and Maclean 2005). Vocational skills were viewed as a coherent part of the overall education system. The massification and diversification of secondary education and the expansion of access to vocational and technical education have helped to retain more students in school. This social function of vocationalisation led some youths to stay in school longer than they might have if they only had the choice of an academic curriculum.

However, others who criticise vocationalisation believe that it leads to the stratification of society and the replication of socio-economic structures. Young (2010a) argues that a vocational approach to curriculum design leads to the situation when learners remain fixed in their life experiences and are unable to move to a different social status. This partly relates to the attitudes towards TVET in many societies: ‘the vocational is at the bottom of a hierarchy of knowledge and value, it is a stream of learning available to the ‘lower achiever’ (Stevenson 2005: 335–336). This negative stigma attached to VET creates a ‘vocational habitus’ (Taylor 2008) where students stay and which in turn develops their aspirations. As a 2002 Australian Council of Education study (referred to in Dalley-Trim et al. 2008) highlights, profiles of Australian students in vocational education programmes include low achievers, residing in rural areas, attending government schools, from an English-speaking background and having parents who do not have tertiary education. VET content in schools leads to reproducing social structures as students are not challenged to go beyond their experiences (Lehmann 2005).

These arguments about the social role of TVET have been overshadowed by the economic arguments that relate TVET (and education) to the economic paradigm where the concept of economic competitiveness became the main reference point for many educational reforms.

Economic Competitiveness

Over the last two decades, globalisation has come to the fore, and the focus of countries has shifted from social to economic issues. Nations have been transformed into competition states, and now competitiveness is at the top of the political agenda internationally. Institutions like the World Economic Forum (WEF) define national economic competitiveness¹ and measure it to provide comparative statistics for 'evidence-based' policy. The WEF classifies countries according to the stage of development: factor-driven economies (stage 1), efficiency-driven economies (stage 2) and innovation-driven economies (stage 3) with a transition phase between each stage.

The composition of the Global Competitiveness Index produced by the WEF includes human capital components. In the 2007–2008 Global Competitiveness Index, 18 indicators or 15.9% of all indicators (Sabadie and Johansen 2010) were related to human capital² which focuses on individuals' capacities to be developed through education and training. Education related factors have different a weighting at various stages of development. Human capital accounts for more than 24% of the national economic competitiveness score for countries in the innovation-driven stage, and for 16.3% at the factor-driven stage in the WEF Global Competitiveness Index 2007–2008 (Sabadie and Johansen 2010: 244). This data as well as other studies (e.g. Mankiw et al. 1992; Barro 2000; Krueger and Lindahl 2001) shows that human capital leads to economic growth. In addition, Sabadie and Johansen's (2010) modelling demonstrates that 'in all selected countries, increases in the GCI score through human capital are much higher than what can be gained through improvements in macroeconomic stability' (pp.249). Therefore, an improvement of education and training systems is even more important to the enhancement of economic development than is 'macroeconomic stabilisation, although the latter is routinely considered a key factor of development' (pp.249).

Internationally, the human resource development (HRD) concept has attracted more and more attention compared to human capital, although the meaning of these two concepts is quite close. In its broad definition, HRD includes health and standard of living, together with education and vocational training; in its narrower definition, the focus is on upgrading skills in order to maximise the effectiveness of economic activities. Therefore, although human capital constitutes only the economic dimension of HRD, 'in recent years the narrower definition of HRD has 'tended to prevail'' (Kelly 2001), and both concepts have been used interchangeably.

An expansion of the narrower agenda of HRD has influenced the reorientation of secondary and higher education towards individuals' employability (Kelly 2001)

¹ Economic competitiveness – 'the set of institutions, policies and factors that determine the level of productivity of a country' (Sala-I-Martin et al. 2009: 4).

² Definition of human capital: 'the knowledge, skills, competencies and attributes embodied in individuals that facilitate the creation of personal, social and economic wellbeing' (OECD 2001: 18).

	Lower secondary		Upper secondary		Post - secondary non-tertiary		Total number of countries
	1999	2009	1999	2009	1999	2009	
South and West Asia	0	0	4	3	4	5	9
Central Asia	0	0	7	7	4	4	9
East Asia and the Pacific	5	3	13	11	10	7	33
Total	5	3	24	22	18	16	

Fig. 3.1 Number of countries in which vocational programmes are available (Source: UNESCO Institute for Statistics database 2010)

and productivity to achieve development goals through income generation. In this new debate, vocationalisation is viewed to be an instrument for HRD that can be effective in increasing economic competitiveness and reducing poverty through improving productivity and employability. Vocational skills are considered as an effective way to develop human capital that emphasises the economic purposes of education and training.

Therefore, in terms of vocationalisation, the move is from *education-driven to a functional model of skills development within secondary schooling*: that is, from vocationalisation as an inclusion of TVET content into schooling to a more broad interpretation that takes in the vocational stream at school. Karmel (2007) stated that over the last decade, the Australian VET system has become industry led ‘rather than educationally driven’ (pp.104).

Vocationalisation Agenda in the Region

The vocationalisation of secondary schooling is present in the Asia-Pacific region. Out of 41 countries included in UNESCO statistics, 22 provide vocational programmes at the upper-secondary level and 16 at the postsecondary, non-tertiary (see Fig. 3.1) that prepare students for direct entry into a specific occupation. These statistics do not include the vocational content of schooling delivered through the academic part of curriculum. The variations across different regions within Asia-Pacific and amongst countries in the regions are significant. For example, in India, only 1.8% are enrolled in the upper-secondary TVET, and in Indonesia, it is 38%, whilst in the People’s Republic of China (PRC), 50.7% are enrolled in pre-vocational studies (OECD 2010).

In accord with the HRD argument, many governments establish high targets for the proportion of secondary students they want to enrol in vocational studies. For example, targets for secondary vocational programme enrolments, set up by the governments of Indonesia and the PRC, were 70 and 60%, respectively (Copenhagen Development Consult A/S 2005: 7). India targeted 25% (World

Bank 2006a: ii) and Bangladesh 20% of all secondary students to be enrolled in the vocational/technical secondary stream (World Bank 2007: 12). Pakistan planned to add technical/vocational streams in secondary education and aimed for half of all secondary students to enter those streams (World Bank 2006b). These targets could provide implementation challenges for these governments. As a reflection on Australia's expansion of VET system over the past 20 years revealed, an increase in funding by government's played a key role in this process (Snell and Hart 2007). Currently, 61.2% of upper-secondary students pursue pre-vocational or vocational programmes in Australia (OECD 2010: 300).

A number of trends related to vocationalisation which may be observed in the region will now be discussed.

Trends in the Vocationalisation of Secondary Education

Expanding the Basis for Vocationalisation

As argued above, 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 'vocationalisation', together with general and 'pre-vocational' options. Functional aspects of this training that are relevant to labour market needs (e.g. technological knowledge, flexibility, better productivity) become increasingly more important than are educational achievements. Employers across different countries when surveyed (e.g. Turner 2002; Australian Industry Group and Deloitte 2009; Jiang 2008) consider employability skills to be the most important factor for employing graduates. Although a list of employability skills varies across countries,³ they are nevertheless related to the general skills valued by employers and the ones that help individuals gain employment and progress successfully through a working career. This functional approach to skills development provides some directions for TVET programmes developed at the upper-secondary level that should mainly be focused on general/employability skills, within the context of specific occupations. These skills, variously referred to as core, employability, generic, key or life skills/competencies, are playing a significant role in ensuring that young people have the necessary qualities to enter and participate in the workforce. In 2008, an Asia-Europe Meeting (ASEM) research network on core competencies (2008) was established to identify core competencies and to explore the ways in which these competencies operate in diverse contexts.

³ Australian framework identifies eight main employability skills: communication, teamwork, problem solving, initiative and enterprise, planning and organising, self-management, learning and technology (Australian Chamber of Commerce and Industry and the Business Council of Australia 2002). Key competency groups, the NZ: thinking, using creative, critical and metacognitive processes; using language, symbols and texts; managing self; relating to others; and participating and contributing appropriately as a group member (Ministry of Education 2007).

In 2006, the Singapore Workforce Development Agency identified ten foundational skills that are applicable across all industries.⁴ Since then, courses are offered in these areas, particularly for those who do not have any formal qualifications, in order to provide an alternative entrance requirement for National Innovation and Technology Certificate (NITEC) courses. Since 2001, qualifications in the Philippines have been based on three types of competencies: basic (generic work skills), common (industry specific) and core (occupation specific). Some examples of basic competencies are leading workplace communication, leading small teams, developing and practising negotiation skills and solving problems related to work activities. In the Philippines, life skills were integrated into SIYB competency standards. A recent study by Bowskill (2012) suggests that after several years following graduation, school graduates in New Zealand valued more the development of employability skills through their TVET courses rather than subject-specific and specialised skills.

Merging TVET and General Education

The call for the development of employability skills underpins another trend, that of an increasing convergence between academic and vocational education at the upper-secondary level (Pavlova 2005). More emphasis on the general component of education, particularly in developed countries, has contributed to more effective performance within the high-productivity sectors. In the Republic of Korea, about 40% of secondary students are currently enrolled in TVET, and in some schools, academic and vocational students share almost 75% of the curriculum. By doing this, the government is opening up new pathways for TVET students onto higher education (UNESCO 2005) as well as responding to the industry needs. A recent Australian Industry Skills Council's (ISC) report (2011) identifies language, literacy and numeracy (LLN) as the essential skills that underpin people's ability to be effective in employment, continue life learning and participate fully in the life of their society. This report describes LLN as being contextual and often closely linked with specific vocational skills, so that for effective learning to occur, general competencies need to be taught within the context of specific competencies.

This trend is observed in countries located at the innovation-driven stage of economic development and could be applicable for all countries on a proportional basis that aims at the development of some sectors with a high-skill demand.

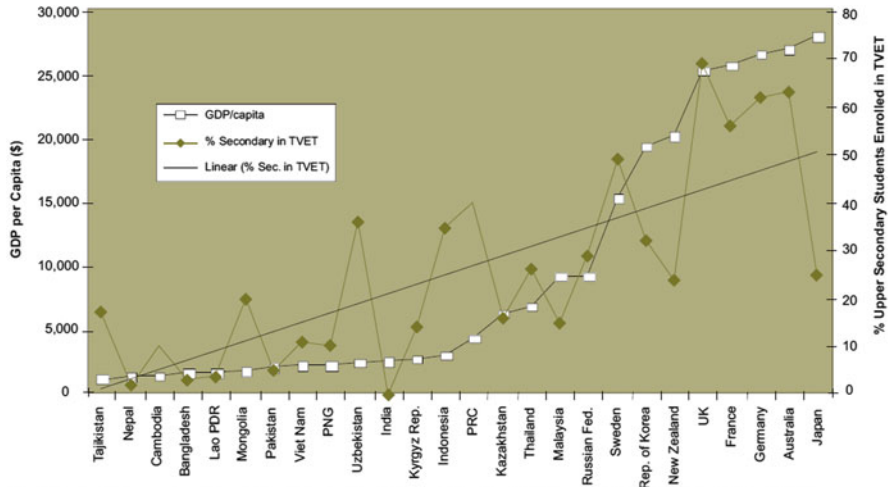
⁴ Workplace literacy and numeracy, information and communication technologies, problem solving and decision-making, initiative and enterprise, communications and relationship management, lifelong learning, global mindset, self-management, work-related life skills, health and workplace safety.

Quality and Delivery of Vocationalisation

Another issue that relates to the question of what type of training should be provided at the upper-secondary level within the vocationalisation agenda is the quality of teaching and its delivery. In Australia, for example, the learning of students is guided by training packages built around competencies specified by industries. However, Polesel (2008) concludes that the bulk of vocational programmes offered in Australia at the upper-secondary level are of poor quality and do not provide students with either specific or generic competencies. Most students do not go straight into the labour market, but if they do, they work mainly in casual, part-time and low-paid jobs in the retail sector. Many studies highlight the need to find a balance between on-the-job training and off-the-job training, where students develop knowledge that underpins their practice and where they acquire transferable skills (Snell and Hart 2007). The similar concern of excessive on-the-job training is observed in the UK (Winch and Clarke 2003). It is important to broaden the learning experiences of students through their engagement into a coherent programme that helps to develop knowledge, skills and their application (ibid). So there is a need to include a component of general education and which focuses on the development of general/employability skills in TVET training, as well as linking theory and practice to develop a holistic understanding of practices by the students.

The Move from Specific Job-Skills Training ('A Career for Life' Reality) to Flexible Training ('No Lifetime Job Security' Reality)

The slow change of available technologies in the 1960s and 1970s favoured specialised skills development and more or less guaranteed a career for life. The more rapid pace of technological change, particularly in developed countries, has contributed to the increasing importance of general education that helps workers to perform within the high-productivity sectors. Therefore, a move from specific job-skills training ('a career for life' reality, immediate and long-term relevance to occupational requirements) to flexible training ('no life time job security' reality, rapidly re-deployable labour force requirement) has been observed. In this context, the vocationalisation of general education has become more and more important for these economies, and the role of general human capital is increasing. The distinction between general and specific training/knowledge closely relates to technologies and could be described in terms of general and specific human capital (GHC; SHC). This 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 properly balance the development of general and specific human capital to ensure the adaptation and diffusion of new technologies.



Fed. = Federation, GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic, PNG = Papua New Guinea, PRC = People's Republic of China, Rep. = Republic, Sec. = Secondary, TVET = technical and vocational education and training, UK = United Kingdom.

Fig. 3.2 Percentage of upper-secondary students enrolled in TVET programmes in selected countries, 2002 (Note: this is the most recent year for which this comprehensive information is available) (Source: ADB 2009b (calculated from enrolment data in International Centre for Technical and Vocational Education and Training, UIS-UNEVOC 2006))

Observable Relationship Between TVET Enrolment and GDP

The emphasis on employability skills aligns education to the ‘real world’ (the world of economy). Vocationalisation has been viewed as an instrument in increasing economic competitiveness through improving productivity and employability as has been argued above, with countries at all levels of economic development benefitting from the development of human capital. Figure 3.2 presents data on relationships between upper-secondary TVET enrolments and GDP.

Countries at any economic stage will benefit from an improvement of human capital. As modelled by Sabadie and Johansen (2010), the country positioned last in the Global Competitiveness Index, by improving its human capital score, would improve its competitiveness ranking close to 25% and move from its last in the world position to 109, similar to the current rank of Albania. However, the benefit of education and training becomes greater with the higher rate of technological change, since the higher level of human capital relates to the higher level of technology it can adopt.

This correlation between the GDP and secondary TVET encourages governments in the region to consider the process of vocationalisation seriously, although the costs involved in establishing TVET at the secondary school level are high.

Costs Involved in Establishing TVET

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 due to factors such as smaller classes, the cost of equipment and supplies. In the PRC, for example, specialised 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: 41). In Indonesia, vocational secondary schools cost 25% more per student than general secondary schools (ADB 2009b). The unit cost of vocational education in India is about 60% higher than that 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% of TVET graduates were employed, whilst in the case of female graduates, this was just 5%. About 45% of graduates were unemployed and 45% were pursuing further education (World Bank 2007: 29). In addition, those with vocational qualifications who were employed received lower wages than did graduates of the general education system (World Bank 2007: 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, 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 and 17.3%, respectively). A majority of general education graduates were employed as unskilled workers. Therefore, wage difference, relative to vocational or general secondary education, can be observed. It is important to note that traditionally a sizable proportion of the TVET curriculum in Tajikistan includes general studies so the TVET graduates have an additional advantage compared to academic graduates.

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

Another ADB report (2009a) suggests that considering costs, and the difficulty of implementation, vocationalisation 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 (which are useful for broad occupational segments)

- Entrepreneurship training to enable school graduates to plan, start and run a business in order to boost self-employment

It is important to note that the nature of secondary TVET (a proportion of general studies) is equally important to consider with regard to increasing returns on the vocationalisation of secondary education. As was suggested above, the development of human capital/HRD contributes significantly to economic growth at each stage of economic development. TVET is an important factor in this process, particularly considering its changing nature at the level of secondary education within ‘new’ vocationalisation.

A well-regarded study by Psacharopoulos 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. And *although the INEM academic and commercial programmes cost more than their control counterparts, they also substantially boost achievement* [italic added]. (pp.93)

Similar results were found for Tanzania. Although diversified schools cost more, there was a substantial increase in both academic and vocational knowledge, over that of the academic control group (ibid, pp.179). Therefore, the investment in diversified schooling did boost learning both in the vocational subjects, explicitly targeted, and also in general academic subjects.

Implementation Initiatives

The vocationalisation of secondary education is currently taking a new form and aims at increasing students’ employability through developing their personal employability characteristics, general competencies and specific vocational skills. The emphasis on particular components depends mainly on the level of economic development that predetermines the required skills.

Vocationalisation occurs at both the 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. This section illustrates current practices and policy plans of two countries in the region.

Malaysia

In Malaysia, the government is considering whether to introduce vocational subjects at the lower-secondary level. The programme is targeting 13–15-year-old students and is proposing a preparatory programme in helping learners to enter

upper-secondary technical schools that train students towards the Malaysian skills certificate. This preparatory programme consists of three blocks (master electives, general/instructional subjects and a character-building program) (Kasih 2010). This approach is consistent with the principle of employability skills development, within a context of specific occupations, and with the argument developed by Pavlova and Huang (2012) on the importance of character building.

In terms of vocationalisation at the upper-secondary level, the Ministry of Education (MOE) has approved twenty-two elective vocational subjects to be included in the curriculum offerings of academic schools.⁵ This has been stated as an important measure in the Education Development Master Plan (EDMP) 2006–2010. These twenty-two courses relate to five broad occupations: engineering services, construction, home economics, agriculture and computer applications. The Ministry of Education (MOE) has also set up the *National Key Performance Indicators (NKPI)* that include an increase in the number of TVET students in both academic and technical schools at the upper-secondary level over the next 5 years (2010–2015) with the aim of reaching 100% participation.

Data collected through a tracer study by the Johor State Education Department (JSED) in 2004 presents the destinations of the students who graduated after the completion of vocational subjects. 14.29% (15 people out of 105) of students who took part in that study pursued education in the same area in both public and private institutes of higher education; 8.57% of graduates (9 people) pursued careers in the field of their training. Although 45.7% of students were not engaged in careers relevant to their vocational studies at school, only 16.19% of students were unemployed.⁶

These results raised a number of important questions. Some possible reasons for low continuation of careers in the areas of training could include inadequate career counselling arrangements, provision of only work-related knowledge without well-established links to the general principles that underpin practices, a lack of motivation, poor quality and low relevance of courses and the need for an update of content and the poor quality of teaching.

Another tracer study of secondary technical and vocational graduates in Malaysia by ADB indicated 90% of technical graduates moved on to polytechnics, whilst the remaining 10% (mostly secondary vocational school graduates) proceeded to specialised vocational institutes. A telephone survey in 2006 by the Malaysian Employers Federation indicated satisfaction with graduates' technical knowledge, but employers wished to see a greater emphasis being placed on soft skills, such as problem solving, communication and work ethics (ADB 2007b: 16–17).

⁵ Based on paper by Minghat et al. (2010).

⁶ Source: The Technical and Vocational Education Unit, Johor State Education Department (2007) cited in Minghat et al. (2010). 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 example of Malaysia illustrates a political will to vocationalise secondary education at both lower-secondary and upper-secondary levels to enhance economic growth. To achieve success in this initiative, the quality and relevance of the courses should be improved as well as more emphasis being placed on soft/employability skills development. These vocationalisation policies are underpinned by different rationales which include:

- Social: to keep potential dropout students within school, to provide greater accessibility to skills development and character building, to achieve an increase in attainment
- Economy-related: to develop occupation-specific skills to improve the quality of human resources

However, to move the country's economy to the next level of development, employability skills should be explicitly addressed as well as that of developing higher order thinking skills, and problem solving, to help students adapt to the fast changing technological environment.

India (Government of India 2010)

The government makes a distinction between work-centred education, called 'vocationalised education', and 'vocational education', at the upper-secondary level. Currently, there is no relationship between these two components. Work education is included in the primary standards (grades 1–8) to help make students aware of the concept of work. At the lower-secondary level (grades 9–10), pre-vocational education exists which 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 1976–1977 and revisited in 1992–1993 as a way to diversify educational opportunities, enhance individual employability and reduce the mismatch between the supply of and demand for 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 vocation and academic education at the level of policy plans has been recognised by the Indian government. On the one hand, a need to reconstruct the entire school curriculum (from preprimary 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, is stated. A set of work-related generic competencies (basic, interpersonal and systemic) are planned to be addressed at all stages of education and will be included in assessment. Amongst 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 recognised as an important development. Vocational programmes are to provide sound basic knowledge in humanities and sciences, preparing students to work in various occupations, teaching them to be problem solvers and encouraging students to engage in lifelong learning.

Currently, vocational education in schools at the upper-secondary level is mainly offered by government schools, although in some states, private schools are also offering these courses. There are now about 9,583 schools (as of 2007) offering approximately 150 educational courses of 2 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 Government of India 2010). Despite the fact that the 11th Five Year Plan aimed to double the number of schools offering VE (from 9,583 to 20,000, so that the intake capacity will increase from 1 million to 2.5 million), change has been very slow. The report (Government of India 2010) questioned the quality and relevance of VE provided at the upper-secondary level for equipping school children for the requirements of the world of work. Most courses are school-based. However, some of these have been perceived as a collaborative model with industry. The theory part of courses and some basic skills are developed in schools with there being a further refinement of skills in the actual industry.

India is amongst the countries with the lowest proportion of trained youth, 80% of new entrants to the workforce having no opportunity for skills training. The existing training capacity is 3.1 million per annum compared to 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 (Government of India 2009) provides a direction for skill development in the country.

Diversifying Postsecondary TVET

Many countries have taken steps to improve the articulation of secondary vocational education with higher education in order to open more options for students and to meet the increasing demand for skills and qualifications at ISCED Levels 4⁷ (non-tertiary postsecondary) and 5 (first stage of tertiary studies) which are designed for employment in technical, managerial and professional occupations. As the demand for enrolment at the postsecondary and tertiary levels has increased

⁷ Lower secondary (ISCED 2), upper-secondary level (ISCED 3), postsecondary non-tertiary education (ISCED 4) and tertiary-type B programmes (ISCED 5B) are typically shorter than those of tertiary-type A and focus on practical, technical or occupational skills for direct entry into the labour market, although some theoretical foundations may be covered in the respective programmes. They have a minimum duration of two years full-time equivalent at the tertiary level (OECD 2002).

in most countries, pressure has grown for diversification of the types and modes of provision at these levels. 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 preemployment 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, 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 postsecondary, non-tertiary level.

In many countries, this has led to the proliferation of new vocational programmes at Levels 4 and 5 such as 4-year institutions in Japan, 2-year community colleges with high vocational content in the United States and 2- or 3-year junior colleges in the Republic of Korea. In the Republic of Korea, 'junior colleges' (jeonmun daehack) were established in 1979 due to rapid industrialisation in the Republic of Korea and an increasing demand for middle-level technicians with both a theoretical understanding and practical skills (Goodman et al. 2009). 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, active work of industry/college cooperation committees and curriculum development at the industries' request, college graduates are highly valued in the Republic of Korea. Out of 80% high school graduates perusing further studies, 45% enrolled in colleges (Korean Council for College Education 2005: 41).

A comparable diversification has occurred in vocational tertiary programmes. As demand for tertiary education has increased, so many countries have substantially extended the range of the short- and medium-length vocational programmes available at ISCED 5B.⁸ 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 the form of traditional university environments. However, for the most part, they have been developed in polytechnic-type tertiary vocational institutions. Community and technical colleges in the United States have developed *post-diploma* programmes to deliver such 'newer' skills to both degree and nondegree graduates, as well as for 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 has the range of types in terms of provider institutions and modes of delivery. Many countries, most notably Malaysia and the Republic of Korea, have developed very extensive systems of open

⁸ Tertiary-type B programmes (ISCED 5B) are typically shorter than those of tertiary-type A and focus on practical, technical or occupational skills for direct entry into the labour market, although some theoretical foundations may be covered in the respective programmes. They have a minimum duration of two years full-time equivalent at the tertiary level (OECD 2002).

university distance education provision, both in general areas and TVET, although the latter is largely limited to what can be learnt without highly specialised and expensive equipment. The United States has also developed 'open college' TVET programmes. It is interesting to note that much of the new programmes are delivered by private providers, especially in Asia. They are often licensed and subsidised by the state but increasingly also include entirely independent providers, particularly at Level 4.

Vocationalisation of Higher Education⁹

Historically, vocational education and higher education emerged from opposing traditions, with the university producing systematic scientific knowledge and vocational education, training for specific occupations. As a result, university outputs were evaluated on the basis of their contributions to the respective scientific discipline (Klüver 1995) whilst 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 established to train doctors, teachers and lawyers have been developing complex relationships within countries around the globe. Even countries within the European Union, such as Germany and the UK, which have market economies, have different approaches towards higher and vocational education. As stated by Hoelscher (2005), in Germany, higher education is more vocationally oriented than it is in the UK, and vocationalisation is more related to the development of specific skills that are tied closely to a particular occupation. In the UK, particular higher degrees do not lead into specific occupational fields because 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 specialised, short-term programmes offering vocational qualifications.

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

⁹This section is drawn on the background paper for UNESCO (2011) produced by the authors.

Levels of Debate

As argued elsewhere, 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 human resource development issues and the need to increase employability, as discussed earlier in this chapter. Currently, the speed of transformation is far more intense than it has been in the past. As stated in the *life-based learning report* (Staron et al. 2006): ‘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’ (pp.23). At the political level, the ideology of the detachment of university degrees, and their academic curricula, from labour markets, can be regarded as a negative trend in university development. It overlooks one of the important elements of any university: that of 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 the basis for establishing close links between higher and vocational education.

At the epistemological level, the discourse on what is knowledge, and in particular 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 experienced-based, the search for truth versus the utilitarian and context-free versus context-dependent) position university knowledge much closer to the individual than to the discipline, and to 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: 24). Recent research on TVET (ibid) 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 learning benefits for both the individual and the organisation’ (ibid, pp.49). This model suggests using diverse, adaptive, self-facilitated approaches, 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, at 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' (pp.5). To achieve this, the development of regulatory mechanisms and frameworks that could shape particular policies needs to be developed. Structural changes, requirements of the globalised economy, interpretation of knowledge, the repositioning of the individual and his/her actions in the centre of the educational process, all need to be considered in order to harmonise higher education within countries' economies. An Australian study on learning pathways within and between TVET and higher education (Harris et al. 2006) identified five pathways within the overall framework of lifelong learning, these being:

- *Interest chasers*: when describing this pattern of movement, the terms used might be 'multidirectional', 'searching' or 'yo-yo': that is, bouncing between different fields of interest.
- *Career developers*: some participants showed a 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 due to a practical factor, which obliged them to undertake a particular course, such as affordability, location or entry requirements. This might appear to be 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 whilst studying. (pp.10)

These results highlight the role of personal choices, where an individual has autonomy to choose their pathway. The study also revealed that approximately 40% of all sectoral moves were within the same field of education. There were more movement within VET, 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 those countries where articulation between TVET and HE is in place, there is a freedom of movement between two sectors that are beneficial for students.

Issues with Statistics

Currently, it is difficult to capture TVET-related enrolments at the tertiary level. UNESCO's Institute for Statistics (UIS) focuses primarily on public provision and

in so doing distinguishes tertiary education by (1) programmes that lead students to further levels of education and are normally general education and (2) programmes that lead to the labour market and out of formal education.

Conservative estimates of tertiary education (Adams 2007) that is labour market-oriented hover around 25%. At the top end of the range are countries like Belgium (51.4%), Kenya (49.9%), Malaysia (47.3%), Mauritius (55%) and Slovenia (48.8%). At the low end are countries such as Finland (5.6%), Germany (15.2%), Italy (2.4%), Mexico (2.9%), the Netherlands (1.5%) and South Africa (14.3%).

Challenges and Issues

The main challenge is to link higher education with the constantly changing needs and opportunities of contemporary society and the economy. This is seen as an increasingly important issue by universities and politicians (European Commission 1995). 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. Griffith University 2002; Dewar 2005). At the level of *structural change* in that respect, the following three trends can be seen as important:

- 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 vocational education and training, through developing it within the university sector, is seen as one way of establishing a close relationship between higher and vocational education. Higher vocational institutes in the PRC are an example of this approach, having 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, that are 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).

- Lifelong learning as a way of responding to rapid knowledge development and market change is considered as being 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 personalised in the following ways: it should be self-directed, context-based, achieve work/life integration, holistic, learner as designer, adaptable and sustainable (Staron et al. 2006: 50).

A number of concerns expressed by both TVET and higher education practitioners¹⁰ are:

- Changes in the nature of societies which relate to global economic competition and a request for graduates relevant to the needs of economies.
- Quality and standards. The distinction should be considered between a 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 vocational 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 vocationalisation of higher education will be different in different contexts.

Implementation Modes

Different ways of implementing vocationalisation include incorporation of more vocationally oriented content and the provision of work-based learning/work experience; the delivering of cross-faculty courses and establishing of interdisciplinary research centres to overcome a segmented approach to knowledge development and acquisition; development of new programmes more oriented to market needs; inclusion of employability enhancing activities that are not related to content teaching; teaching towards attributes acknowledged by employers; recognition of prior learning for both vocational and higher education programmes, particularly as part of an increasing stress on the importance of lifelong learning; arrangements for the articulation and provision of enabling or bridging courses for those lacking knowledge and skills for the higher education programme; and inter-institutional collaborative arrangements between universities and colleges.

¹⁰ As discussed at Bonn seminar on vocationalisation of higher education, 2005.

Many examples of successful vocationalisation programme can be found in the region. At Griffith University, Australia, the Industry Affiliates Program (IAP)¹¹ is a work-integrated learning programme designed to integrate undergraduate and post-graduate students into the workplace. This programme provides final year students with an opportunity to develop work-ready skills through the completion of an industry-based project designed to deliver meaningful outcomes for organisations. Through the IAP, industry can engage talented final year science, environment, engineering and technology students ready to contribute to their organisation. Amongst the essential characteristics of WIL are opportunities for students to experience highly authentic expressions of workplace practice, which are systematically built into the curricula. This integration of theoretical knowledge with practice could prepare students better for their future jobs. Although work-integrated learning (WIL) programmes have become increasingly popular in many countries, there is a lack of empirical evidence on the impact of WIL on students' preparedness for work or professional practice across multiple disciplines. The current project at Griffith University (the first of its kind in the Australian context) is assessing the impact of work-integrated learning (WIL) on student work-readiness.

Trends, concerns and examples of the vocationalisation 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 achieving the harmonisation of universities with the country's economy.

What Is Next and Conclusions

The rapid transformation of societies in social, political, economic, technological and education spheres has changed perspectives on the need for, and nature of, vocational skills. The historical change of views on vocationalisation, from more educational to more functional (where the development of employability skills became the main focus), broadens the nature of vocationalisation and includes 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% of content.

Countries in the region include the vocationalisation of both secondary and tertiary education in their educational policy agendas, considering the close correlation between upper-secondary TVET enrolments and countries' GDP, and the high demand for middle-level technicians and tertiary graduates with some vocational skills and experiences.

Considering the diversity of vocationalisation pathways at the secondary education level, and the variety of contexts, there is a danger of overgeneralisation.

¹¹ <http://www.griffith.edu.au/industry-affiliates-program>

However, it is clear that investments in vocational and technical skills at the level of secondary school can be an important factor in contributing to economic development and growth. To increase returns on investment, *demand-driven approaches* to vocationalisation need to be developed which are relevant to the particular stage of economic development, the type of economy and regional specificities. The nature of training also needs to be considered. For example, for countries at the innovation-driven stage level, such as Australia, the model of the training packages, and the competency-based training used in the country, might hinder effective innovation since this model focuses on current competencies rather than future innovation (Dalitz et al. 2011). It is important to include the development of employability skills in TVET training.

It has been argued that such trends as the expansion of the basis for vocationalisation, the merging of TVET and general education, enhancing the quality and delivery of vocationalisation and the move from specific job-skills training to flexible training can be observed in the region and need to be taken into account when developing policies and implementation processes for vocationalisation. The degree to which vocationalisation occurs, and its nature, depends on both the level of economic development and on cultural traditions. Social, economic and technology rationales are used by governments to decide on particular vocationalisation policies.

Countries which are not ranked highly in terms of the GDI ‘can achieve large gains in competitiveness if they successfully implement reforms that improve their human capital’ (Sabadié and Johansen 2010: 253). On the other hand, countries with a high ranking need to continue to pay attention to their human capital development in order to retain their competitive edge. Vocationalisation at the secondary level needs to provide students with skills, knowledge and judgments essential for a productive economy, with skilled labour. It should focus on the development of adaptable and transferable occupational skills, rather than on job-specific skills. At the postsecondary level, close links with industry are important, and the skills that are specific for the future occupation should be emphasised.

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