



United Nations
Educational, Scientific
and Cultural Organization

Secondary Education Reform


*Towards a Convergence
of Knowledge Acquisition
and Skills Development*

Secondary Education Reform

**Towards a Convergence of Knowledge
Acquisition and Skills Development**



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For Further Information

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Introduction

It is widely recognized that accelerating globalization and developments in information and communication technology (ICT) are presenting young people today with more life choices and opportunities than ever before. At the same time increasing social dislocation, particularly among the young, is evident in both developed and developing countries. In order to help young people to cope effectively with these challenges, be they positive or negative, secondary-level education systems need to focus on enabling them to develop into productive, responsible personalities well equipped for life and work in today's technology-based, knowledge society. It is clear that for individuals to adjust and compete in the rapidly changing environment of the contemporary world they need to have a repertoire of life skills that includes among others, analytical and problem-solving skills, creativity, flexibility, mobility and entrepreneurship.

Following the primary level, secondary education is in most countries the phase in the education continuum responsible for the development of the young during their adolescence, the most rapid phase of their physical, mental and emotional growth. It is at this very education level, particularly in its first cycle, where values and attitudes formed at primary school are more firmly ingrained alongside the acquisition of knowledge and skills. Lower secondary education, then, lies conceptually within 'basic education' which is widely acknowledged as a minimum educational requirement for personal and social development. Hence, in many areas of the world basic education is compulsory and state-funded.

Yet too often, General Secondary Education (GSE) seems to have been designed almost exclusively to prepare young people for higher education, though in reality only a small selection enter institutions of tertiary learning. On the other hand, Technical and Vocational Education and Training (TVET) at the secondary-level is seen as the domain of those others whose academic capabilities are deemed inferior. In such systems the acquisition of "knowledge" often remains distinct from the acquisition of "practical skills". A secondary education system that maintains the distinction between the two streams must certainly fail to maximize the effectiveness of its graduates when they take their place in societies that increasingly require individuals to possess a combination of knowledge and practical and social skills.

Thus the challenges confronting secondary education are critical and diverse. Increasing realization of this situation has led education policy makers and managers in countries with widely differing socio-economic circumstances to pay far greater attention to articulation between GSE and TVET with the objective of bringing the two 'streams' closer in curriculum and in organizational terms. This articulation will be facilitated by building upon the educational foundations shared by GSE and TVET, in particular curricula founded upon essential generic competencies. Tracking young people into general and vocational streams are to be deferred for as long as possible, and transition points provided to allow 'seamless' transfer back and forth between streams (horizontally) and into higher education (vertically)¹.

UNESCO's objective in developing this paper is to summarize some recent trends in secondary education policy in its Member States and to propose a model for this crucial phase of education that integrates many of those innovations. The paper addresses education policy-makers in countries initiating a process of secondary education reform as well as those in countries that are continually reviewing the effectiveness of their education systems, so that they may adopt the proposed model in its entirety or in part, according to their particular social and economic development needs .

1. Raffe et al (2001, 2002, 2003), cited in *Combining General and Vocational Education*. <http://www.b.shuttle.de/wifo/III/bc.htm>

The Need for Convergence of Knowledge and Practical Skills

Currently, significant numbers of primary school graduates in many developing countries do not make the transition to the secondary level. In 2001, the average gross enrolment ratio (GER) at secondary school in developing countries was only 57%. And the vast majority of young people in both developed and developing countries are unlikely to graduate from secondary level education into any institution of higher learning.

Table I shows the shortfall from secondary to tertiary enrolment in all countries. Thus, it is abundantly clear from this data that a secondary education system designed principally to prepare learners for higher education is grossly ineffective because a) only a minority of its graduates proceed to tertiary education institutions and b) it fails to provide adequately for the societal and livelihood needs of the majority that does not go on to receive higher education.

Table I: Enrolment in Secondary Education and Tertiary Education (school year 2001/2002)

	Secondary education: Gross enrolment ratios (%)	Tertiary education: Gross enrolment ratios (%)
World	63.7	23.2
Developed countries	105.9	54.6
Countries in transition	90.6	36.5
Developing countries	56.6	11.3
Arab States	63.7	22.0
Central and Eastern Europe	90.1	37.7
Central Asia	87.1	30.7
East Asia and the Pacific	68.7	13.4
Latin America and the Caribbean	86.2	25.7
North America and Western Europe	107.6	57.0
South and West Asia	48.3	---
Sub-Saharan Africa	26.8	2.5
Source: EFA Global Monitoring Report 2005 UNESCO		

Furthermore, in many countries young people who enrol in secondary school are 'channelled' into different streams or tracks pre-determining their educational and career prospects. GSE students have little opportunity to acquire practical skills even if they demonstrate an interest in these areas. Similarly, students in TVET encounter great difficulty in reverting to academic studies even if they feel inclined to do so at a later stage. These systems fail to cater to the needs of late developing students, contribute to the social segregation of the two streams and reinforce the perception that vocational training is the inferior career pathway frequented by students from the more disadvantaged sections of society.

The enrolment distribution between these two streams (GSE and TVET) varies within and across regions². In some countries, three types of institutions co-exist: those offering exclusively GSE or TVET, and those offering a combination of the two (so-called diversified schools or comprehensive schools offering both academic and vocational courses).

Table 2: Distribution³ (percentages) of secondary school enrolment by type of education in each region, 1997⁴

Region	General Secondary Education (%)	Vocational Education (%)
Arab States	92	8
Asia/Oceania	75	25
East Asia/Oceania	91	8
Europe	69	31
Latin America/Caribbean	84	16
North America	100	0
South Asia	100	0
Sub Saharan Africa ⁵	94	*6

Table based on data from World Education Report, UNESCO (2000)

The social consequences of an education system that prematurely polarizes the student body through academic criteria into high achievers and those suitable for 'blue collar' professions, while being irrelevant to the societal and work aspirations of the vast majority, are evident in many communities in the following forms:

- large numbers of young people being frustrated because they are neither adequately prepared for higher education nor equipped for entering the world of work and for social integration;
- employers having difficulty in recruiting appropriately skilled, productive and flexible workers;
- education budgets being ineffectively utilized; and,
- the burden on welfare services being accrued.

Some of the challenges facing secondary education systems as they attempt to overcome these inadequacies are summarized in Box I.

Box I: Some Challenges Confronting Secondary-Level Education Systems

- 1) Changes in society, the economy and the world of work place pressure on secondary schools to consider *new approaches to learning*;
- 2) *Preparing young people* for higher education is no longer an exclusive or adequate objective, especially with so many moving directly from secondary school to employment, to TVET or to unemployment;


2. In Sub-Saharan Africa, the distribution rate varies from less than 1% in Malawi to around 20 % in Angola (EFA Global Monitoring Report 2003/4).

3. The figures shown are the unweighted averages for the countries in each region for which data are available.

4. Or latest year available.

5. Figures for Sub-Saharan Africa are taken from UNESCO Institute for Statistics Regional Report 2001.

*This figure includes both technical and vocational education.

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- 3) Because traditional institutions such as the family and religious organizations are progressively less available as guarantors of support for younger generations, there is a need to encourage *transition from a culture of dependence* to a culture of autonomy, independence and interdependence;
 - 4) The inclusion of many additional subject areas has created an *overcrowded curriculum* that may have reinforced a prejudicial tradition of learning by rote and/or avoiding linkages across curricula;
 - 5) The need to impart in a holistic way the knowledge, skills and attitudes that will enable young people to be effective in *life and work*, including being able to deal with paradox and conflict generated by change, being agents not just recipients of knowledge, skills and attitudes and being lifelong learners and members of a flexible workforce.

In identifying solutions to the perceived inadequacies of secondary-level education, systems need to be devised that will be more effective in helping young people to better realize their potential at work and to take their place in society as productive, responsible and democratic citizens. In other words secondary-level education should provide effective preparation for those proceeding to academic or professional tertiary education as well as for those entering the world of work either as trainees, wage employees or as self-employed entrepreneurs, while inculcating the social skills for productive and peaceful life in today's interdependent communities. Such an education must necessarily comprise a harmonious balance of academic disciplines, generic practical and social skills and civic responsibility. In an example of this type of reform, the Lao People's Democratic Republic, Mali, Nepal and Senegal, in collaboration with UNESCO Headquarters and the Organization's International Institute for Educational Planning (IIEP),⁶ have reviewed their "skills development" policies and concluded that existing secondary-level and non-formal vocational education programmes do not meet individual and societal economic needs. These countries are now moving actively towards policies that integrate "skills development" in basic education programmes.

6. UNESCO: *Promoting Skills Development: Report of an International Seminar, Paris 22-23 January 2004*. UNESCO Publishing, 2004.

EFA Goals and Lower Secondary Education

The World Education Forum (Dakar, Senegal 2000), which mobilized the international community to renew its commitment to Education For All (EFA) has engaged education stakeholders world-wide in programmes designed to ensure free access to basic education for all learners. While the weight of the international EFA movement is currently being directed towards enrolment in primary education, the need for its extension to secondary-level enrolment and systemic reform with a view to improved access, quality, relevance and effectiveness is an equal imperative. Since April 2000, UNESCO's first organizational priority has been the coordination of the global movement to achieve the basic education goals of EFA. These goals enshrined in the Dakar Framework for Action, include two that are directly relevant to GSE and TVET:

- ensuring that the learning needs of young people and adults are met through equitable access to appropriate learning and life-skills programmes; and
- eliminating gender disparities in primary and secondary education by 2005 and achieving gender equality in education by 2015.

The 2005 edition of the EFA Global Monitoring Report describes the “multiple challenges that will have to be tackled simultaneously if EFA is to be assured”⁷, citing continuing “severe educational deprivation” in South and West Asia, and some Arab States. Expanding the secondary education supply (schools, teachers, learning materials) while targeting specific groups that still lack access to primary education is an increasingly urgent task in many developing countries. Developing and revising EFA National Action Plans, or strengthening EFA components in existing sectoral plans, to address the needs of lower secondary school grades is an important first step.

In line with their EFA commitments, many countries have already begun reform initiatives that would ultimately have the effect of enhancing the flow from primary to lower secondary schooling. It is here at the lower secondary level, in the context of ‘basic education’, that students may be expected to follow, more or less, a ‘unitary’ curriculum. Nigeria, for example, has established a Universal Basic Education (UBE) Commission in an attempt to co-ordinate all agencies involved in curriculum and textbook development at the primary and lower secondary levels. The ‘UBE vision’, established within the context of EFA, aims to “consolidate the gains of traditional disciplines of language, maths and science, social science, pre-vocational subjects and technology to the goals of basic education in the junior secondary classes... The subject disciplines highlighted should be used to consolidate literacy, numeracy, life-skills, and learning-to-learn skills”⁸.

The consensus of opinion among educationists is that providing a sound foundation of knowledge in a cluster of essential generic competencies at secondary school is an effective means of shaping an individual’s personality. This process will build on the work of primary schools, instilling knowledge, inculcating values and identifying a learner’s talents and aptitudes. Curricular or learning contents will consist of core competencies as well as other optional competencies depending on the particular needs of the community. Core competencies such as literacy and numeracy will be reinforced and further developed and complemented with civic responsibility and citizenship. Cross-cutting competencies will include areas such as communication skills, team spirit, entrepreneurship and computer literacy.

7. UNESCO. *Education for All: The Quality Imperative. EFA Global Monitoring Report 2005*. Paris: UNESCO Publishing, 2004

8. Pillai, Sharmila (ed). *Strategies for Introducing New Curricula in West Africa. Final Report of the Seminar/Workshop (Lagos, Nigeria, November 12-16, 2001)*. Lagos: Federal Ministry of Education; Geneva: UNESCO International Bureau of Education, 2003.

Recent Trends in Upper Secondary Education

At the upper secondary level, European countries are experimenting with various approaches to the articulation of GSE and TVET. These include diversifying the curriculum, raising the status and qualifications of teachers, improving progression to employment, and facilitating the links with higher education⁹. 'Double-qualifying pathways' are intended to meet the requirements of tertiary education and of the labour market¹⁰. The "Leonardo Project" has identified four models of upper secondary education systems for promoting 'parity of esteem' between GSE and TVET¹¹:

- a) the '*distinctive*' model, found in Germany and Austria, seeks to 'enhance' vocational education by emphasising the characteristic content of its curriculum and links with employers.
- b) the '*cooperative*' model, evidenced in Finland and Norway, seeks to facilitate 'mutual enrichment' and cooperation between vocational and general upper secondary schools 'while simultaneously preserving their distinctive character'.
- c) the '*linked*' model attempts to establish a more formal relationship between vocational and general education through a common qualification structure. This tends to be the route being explored in France and England.
- d) the '*unified*' model deploys a single post-16 education system 'requiring all students to study certain common general subjects'. Examples may be found in Sweden and in Scotland.

In a parallel initiative, a report to the Inter-American Development Bank by Castro, Carnoy and Wolff (2000) attempted to identify ways of improving the transition from school to work for students in Latin America and the Caribbean¹². They recommended the following measures:

- 1) Separate job training from formal secondary education
- 2) Move technical education to the postsecondary level
- 3) Create tracks within formal secondary education
- 4) Develop a single national curriculum with electives
- 5) Build 'academic elements' into vocational subjects
- 6) Blend 'office technology' into academics
- 7) Maintain a few elite secondary technical schools that are closely linked with industry.

With the same objective, Norway has since 1976 "...a uniform upper secondary school, combining general theoretical education and vocational training and giving equal status to practical and theoretical education. General theoretical education and vocational training are offered side by side in 501 upper

9. Young (2000), cited in **Combining General and Vocational Education**. <http://www.b.shuttle.de/wifo/III/bc.htm> Other examples of good practice are also given here in a review by Manning (2000) cited in Combining General and Vocational Education.

10. Durand-Drouhin et al (1998, 1999) and OECD (1998, 2000) cited in **Combining General and Vocational Education**. <http://www.b.shuttle.de/wifo/III/bc.htm>

11. Volanen, Matti Vesa. **European Strategies for Parity of Esteem Between Academic and Vocational Education: The Strategy of Mutual Enrichment**, Institute for Educational Research, University of Jyväskylä, Finland. Paper Presented at the European Conference on Educational Research, Lahti, Finland, 22 - 25 September 1999.

12. Castro, Claudio de Moura; Carnoy, Martin; and Wolff, Laurence. **Secondary Schools and the Transition to Work in Latin America and the Caribbean**. Sustainable Development Department Technical Papers Series. Washington DC: Inter-American Development Bank, 2000.

secondary schools (2002 data), often in the same building. Vocational education and training, including apprenticeship training, is a fully integrated part of upper secondary education and is not provided by specific schools or training centres. Almost 90% of all students leaving compulsory education choose to enter upper secondary school. The goal of the Government and the Storting is that at least 50% of the entrants choose a vocational path, which should be within reach. The individual schools may allow students to swap from Initial Vocational Education and Training (IVET) to general education even at points during the first two years, if they prove the necessary motivation and obtain suitable results. This is made possible because of the amount of compulsory general theory embedded in all IVET courses.”¹³

The Government of the Netherlands has currently under ‘trial’ (2004 - 2007) reforms which it plans to implement in 2008 whereby the education system is to become more competency oriented. Pre-vocational secondary education (VMBO) will be given more freedom in the area of planning the curriculum, course programmes, dual courses combining study and work experience, the structure and testing/completion of education, teaching time, special needs support structure and continual learning lines, and the lump sum funding of employment-oriented training. The policy encourages “contacts with individual companies, business associations, the Chamber of Commerce or other institutions at the local and regional levels ... to find practical training positions or apprenticeship jobs for VMBO pupils or to find positions for a social-service practicum”¹⁴.

A more traditional model is based on the German primary school (Grundschule) from which students are tracked on the basis of academic achievement and personality characteristics into one of three types of secondary school: the Gymnasium, offering a rigorous academic programme; the Hauptschule, leading to “part-time enrolment in upper-secondary vocational schools combined with apprenticeship until the age of 18”; and the Realschule, leading to “higher vocational schools”¹⁵. The German Dual System is thus:

a ‘combination of practical and theoretical vocational training at two places of learning with different legal and structural characteristics: in-plant and in-school training’ ...Ashwill noted that the Dual System ‘is world renowned’ for its ‘dual’ combination ‘of part-time general education and on-the-job vocational training for ...graduates of the Hauptschulen and Realschulen streams of lower-secondary education’ (Ashwill, 1995, p1, cited in Wilson 2000).

Wilson (2000) reviewed micro case studies of attempts to adopt the German model in Botswana, Costa Rica, the Dominican Republic, India, Indonesia, Lebanon, Seychelles, Singapore, and Sri Lanka. He concluded that integration of academic and technical-vocational curricula is extremely difficult (particularly in nations where technical and vocational education and training is perceived as a second-class education) and further, that Germany’s culture of in-firm training may be the attribute of the Dual System likely to be the most difficult to replicate in both developed and developing nations. Despite many imitators, only Singapore has actually been able to match the German participation rate (64%-81%) of 16- to 18-year-olds.

In the Czech Republic, after leaving basic schools, pupils can choose from among three main types of secondary school, two of which offer full time education programmes with a dual orientation. All three types of educational programmes provide students with a complete secondary vocational education and possible access to higher education. There is full equivalence for these graduates with those from general secondary education¹⁶.

13. A paper presented by Norway in 2004 to the European Centre for the Development of Vocational Training (CEDEFOP).

14. **Secondary Education in the Netherlands: Agenda for 2010.** “*The Pupil Captivated, the School Unfettered*”. The Hague: Government of the Netherlands, nd

15. Wilson, David N. **The German ‘Dual System’ of Occupational Training: A Much-Replicated but Oft-Failed Transfer.** Paper presented at the Annual Meeting of the Comparative and International Education Society, San Antonio, Texas, March 8-12, 2000. 29pp

16. Vicenik, Petr and Virolainen, Maarit. **The concept of vocational qualifications. Changes in the scope of individual VET qualifications considered against the background of different features and educational concepts underlying national VET schemes.** nd. <http://www.b.shuttle.de/wifo/duoqual/=base.htm>

Since the mid-1980s, the Government of the People's Republic of China has introduced many measures to develop vocational education¹⁷, the new pattern being that “ordinary education (should) go along with vocational and technical education”. Increased numbers of students have been enrolled in existing secondary vocational and technical schools. Some middle schools were transformed into vocational high schools or modified to offer vocational training courses. In 1990, the students of secondary vocational and technical schools made up 46 percent of all senior middle school students. By 1998 this figure had risen to 55 percent (compared with only 18.92 percent in 1980).

Lee, Cho and Tau¹⁸, responding to a request from the South African Government, were impressed by South Africa's “work experience learnership system” which they characterized as a “shift from education for employment to education for employability”. On the other hand, they proposed that the Korean system of private enterprise support for education might be a useful additional element for South Africa to consider in implementing its model. “Among factors that could improve both systems are: (1) flexible educational delivery systems; (2) implementation or continuation of a national qualifications framework; (3) ensuring relevance between education and training; and (4) greater cooperation between government, employer organizations, labour unions and educational institutions”.

Further analysis of “post-16 reform strategies” may also be found in Stenstrom and Lasonen (2000)¹⁹.

These initiatives, in countries at different stages of development, illustrate attempts by secondary education policy-makers to respond to profound social and economic change by better preparing young people for integration in the world of work and society at large. They consist, in large part, of measures to impart fundamental knowledge, skills, attitudes and social values in all students to ensure that the widest range of career options is available to them. Close inter-action with the community, especially with employers, is emphasized at all stages of education, as are public-private partnerships.

17. ChinaGateway. Vocational and Technical Education: Contribution to Improvement of the Structure of Secondary Education. *Development Gateway*, nd. www.chinagateway.com.cn.

18. Lee, Young-Hyun; Cho, Jeong-Yoon; Tau, Alfred; Pereira, Clarence A. *Vocational Training and Technical Qualification Systems in Korea and South Africa*. Seoul: Korea Research Institute for Vocational Education and Training, 2002

19. Stenstrom, Marja-Leena, Ed.; Lasonen, Johanna, Ed. *Strategies for Reforming Initial Vocational Education and Training in Europe*. Final Report of the Project. Leonard da Vinci/Transnational Pilot Projects: Multiplier Effect, Strand III.3.a. Sharpening Post-16 Education Strategies by Horizontal and Vertical Networking (1997-2000). University of Jyväskylä: Institute for Educational Research, 2000.

Vision for the Future: Shared Foundations and Articulation

The convergence of knowledge and practical skills is an imperative for life in the twenty-first century. The choices and decisions an individual is required to make demand an increasing level of knowledge and skill in a variety of fields. At the International Conference on Secondary Education for a Better Future: Trends, Challenges and Priorities (Oman in December 2002) UNESCO's Director-General Mr Koïchiro Matsuura declared:

“The question of skills development for entry into the labour market is not simply an issue for technical or vocational secondary education, but also for general education – not least because solid, broad-based knowledge and generic skills, such as the ability to communicate and engage in teamwork, form the basis of all essential work tasks.”

Furthermore, the “Bonn Declaration” adopted at a 2004 UNESCO meeting of international education experts on the theme: “Learning for Work, Citizenship and Sustainability”, affirmed that “...skills development leading to age-appropriate TVET should be integral to education at all levels and can no longer be regarded as optional or marginal. It is especially important to integrate skills development in EFA programmes and to satisfy TVET demand created by learners completing basic education.”

In fact, as the Delors Report²⁰ argues, young people need ‘values-oriented anchors’ and the knowledge, skills and understanding that will enable them to find effective ways of coping with the tensions, pressures and contradictions in their societies and in their daily lives. Maintaining a suitable balance between these tensions is essential if the nature and value of secondary-level education is to be given its broadest meaning, and not reduced to utilitarian ends alone. Secondary-level education needs to be much more than skills training or civics: it should be concerned with the holistic development and empowerment of the total human person in a societal context.

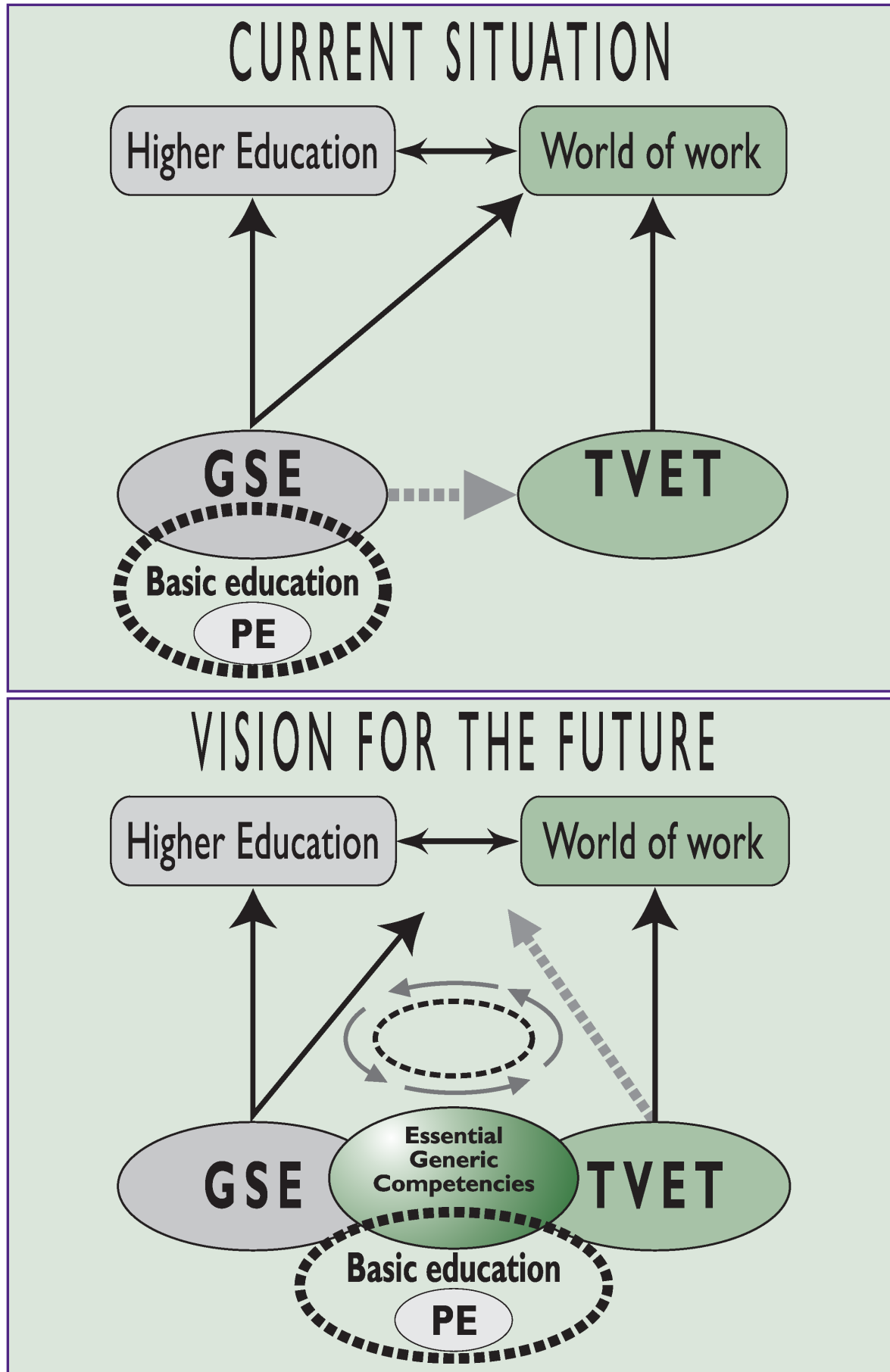
It is thus possible to propose a model of secondary-level education that is better suited to the preparation of young people for today's world. However, there is no single model that suits all countries or even all communities in a given country. Nor should such a model be static. Secondary-level education policy should be under continuous review and frequently updated to keep in step with scientific, economic and societal changes. Nonetheless, the proposed model should provide the following fundamental elements:

- 1) diversity in content and flexibility in delivery;
- 2) a solid foundation of knowledge in a cluster of essential generic competencies and non occupation-specific practical skills;
- 3) deferral of channelling into general and vocational streams for as long as possible – for increased intellectual and social maturity and greater inter-cultural understanding and tolerance;
- 4) counselling and mentoring programmes; and,
- 5) seamless transitions back and forth between general and vocational streams and to higher education.

Figure 1 illustrates the current situation in secondary education as well as a proposed model for the future, consisting of shared foundational learning, articulation between GSE and TVET and access to higher education.

20. UNESCO. *Learning: The Treasure Within*. Report to UNESCO of the International Commission on Education for the Twenty-first Century. Paris: UNESCO, 1996

Figure 1: GSE and TVET articulation: Current situation and vision for the future



KEY: GSE = General Secondary Education TVET = Technical & Vocational Education & Training
PE = Primary Education

According to this model, channelling (streaming or tracking) students into general and vocational streams will be deferred for as long as possible to ensure that all learners benefit from a shared foundational period to acquire a sound core of essential generic competencies and practical skills. Moreover, creativity, analytical skills, lateral thinking, problem solving, the ability to learn independently as well as to work in a team will be stimulated and encouraged at this stage. Greater emphasis will be placed on knowing how to use the tools for seeking and processing rapidly growing bodies of knowledge, rather than merely acquiring knowledge for its own sake. The deferral of channelling may have positive effects also in helping overcome social inequity.

**Box 2: Expected Positive Outcomes from the Application of a
'Shared Foundations and Articulation' Model at Lower Secondary Level**

- Strong social skills that enable individuals to conduct themselves responsibly in the community, particularly without gender and ethnic bias;
- Strong lifelong learning (learning to learn) skills;
- The knowledge and behavioural skills to protect themselves against societal scourges such as HIV/AIDS and substance abuse;
- An understanding of the nature and purposes of general education among the whole age cohort so that when streaming does eventually take place, movement back and forth between streams is possible and even encouraged;
- A reduced possibility of streaming learners into areas for which they have little aptitude;
- A satisfactory level of attainment among all learners in essential generic competencies such as languages, mathematics, science (including the social sciences) and technology and civics;
- Knowledge of crosscutting areas such as computer literacy, entrepreneurship and environmental issues;
- A better state of preparedness for higher education among beneficiaries of both GSE and TVET; and,
- A better state of preparedness for the choice of a vocational orientation and for entering the world of work and an orientation to occupations and employment among all beneficiaries of secondary-level education.

Streaming, then, when it does take place, will occur at the higher levels of secondary education and will be based not only on academic performance but also on an individual's talents, aptitudes and inclinations. Guidance and counselling programmes will project objective and realistic images of the career possibilities for both streams based on accepted sociological studies and labour market projections. The tracking or streaming should not be viewed as an irrevocable step. Consistent with concepts of 'a second chance' and lifelong learning, such a system will provide for seamless transitions back and forth between the streams without loss of academic credentials or school years.

The TVET stream will provide generic technical principles and practical skills that may be applied in a variety of occupations or recreational pastimes, rather than highly specialised training for a single trade. The ability to learn independently together with the non occupation-specific training received in the vocational stream will ensure that the individual has the flexibility to respond to the demands of the workplace by acquiring new trade skills as older trades become obsolete. Such a programme may attract interested learners from the GSE stream, which in turn, will enhance parity of status. Accreditation obtained by learners in both GSE and TVET streams must contribute towards requirements for enrolment in institutions of higher education. Furthermore, linking TVET with information technology and entrepreneurship as well as with quality and aesthetic concerns may serve to improve public perception of this stream while preparing its graduates to be more versatile contributors in the workforce.

Implementation Issues

Needless to say, a secondary education system that envisages reform of its structure and curriculum involving diversified course content and a shared foundational period instilling essential generic competencies will be fraught with its own implementation difficulties. However, education systems may turn to their advantage the very circumstances compelling them to adjust. Some of these issues of implementation are considered below.

Student capability

Differences in cognitive abilities, attention spans and subject preferences are certain to present challenges in the classroom. Teaching-learning material that is sufficiently absorbing and progressive in complexity will need to be devised with a view to holding the interest of the entire class.

Information and communication technology

The forces of globalization and ICT that enable the rapid transmission of vast amounts of information may be used as vehicles for accessing new curricula and introducing innovative teaching methods. Chile is one of many countries making ICT the 'key to modernization' in its education policies. Though access may not be evenly shared among all societies, the Internet provides the ability to obtain cutting edge knowledge in most disciplines, even for developing countries whose trained human resources may not match their development aspirations. Thus learners could be motivated with stimulating material and an awareness of the possibilities beyond their own communities.

Marginalized groups

In any reform initiative, due attention should be paid to the values and issues surrounding gender, ethnicity, family social status, and/or disability. It is known that "staying in school is a key element in girls' ability to achieve high-wage employment" (Milgram and Watkins, 1994, cited in Annexstein, 2003). It is also known that 'career and technical programmes have a positive effect on dropout rates'²¹. Of eighty-three developing countries reporting with data in the EFA Global Monitoring Report 2005, only "half had achieved gender parity at primary level, fewer than one-fifth at secondary and only four at tertiary"²².


A study of 10 countries (Argentina, India, Mexico, Republic of Korea, South Africa, Spain, Sweden, Turkey, United Arab Emirates, and Zambia) found that enduring social and cultural attitudes toward women's role create a gap between policy and practice in providing equal opportunity and access for females through vocational guidance (Miller and Vetter, 1996, cited by Wonacott 2002)²³. Adubra (2005)²⁴ reached similar conclusions in an evaluation study of a TVET policy in favour of women in Togo. The lower secondary phase of schooling needs to ensure that all learners, not merely a select few, are launched on a path of intellectual and social maturity complementing their physical and emotional development.

21. Annexstein, Leslie T. "Opening the Door to Career and Technical Education Programs for Women and Girls", in Scott, Michael L., Ed.; Annexstein, Leslie T; Ordovery, Eileen L; Esters, Levon T; Bowen, Blannie E; Reeve, Edward M. **Equity Issues in Career and Technical Education**. Information Series. Columbus, Ohio: ERIC Clearinghouse on Adult, Career, and Vocational Education, 2003.

22. UNESCO. **Education for All: The Quality Imperative. EFA Global Monitoring Report 2005**. Paris: UNESCO Publishing, 2004

23. Wonacott, Michael E. **Equity in Career and Technical Education**. Myths and Realities No. 20. Columbus, Ohio: ERIC Clearinghouse on Adult, Career, and Vocational Education, 2002.

24. Adubra, A. L. **Non-Traditional Occupations, Empowerment and Women: A case of Togolese Women** London and New York, Routledge. 2005.



Castro, Carnoy and Wolff²⁵ concluded that the essential element in implementing such a model is the 'progressive separation' of vocational from academic streams, that is to say, 'streaming' should occur gradually over time and not at a specific irreversible 'break point'. They further concluded that the maintenance of close ties or even physical links between schools and industrial establishments is critical to success.

The teaching force

No education reform could succeed without the provision on a continuous basis of highly qualified and motivated teachers. The articulation of GSE and TVET calls for creative ways of developing, mobilizing and providing continuous training for such a teaching force. With the involvement of industry and communities, issues of certification and remuneration will certainly arise. On the other hand garnering the advantages of alternative modes of training are likely to prove both valuable and cost-effective. Secondary schools can adopt flexible learning and scheduling patterns and local industrial, agricultural and service enterprises can be involved through work-study, co-operative education and apprenticeships.

Normative instruments

UNESCO's normative instruments or standard-setting documents the "Revised Recommendation concerning Technical and Vocational Education (2001)" and the "Convention on Technical and Vocational Education" provide useful guidelines for implementing education reform and better aligning education with the world of work.

25. Castro, Claudio de Moura; Carnoy, Martin; and Wolff, Laurence. Secondary Schools and the Transition to Work in Latin America and the Caribbean. Sustainable Development Department Technical Papers Series. Washington DC: Inter-American Bank, 2000.

UNESCO's Role: A focus on EFA

Since the World Forum on Education held in Dakar in April 2000, UNESCO's actions in GSE and TVET have been re-focused to contribute towards achieving the EFA goals. The effort to achieve EFA is conceived within a sustainable and well integrated sector-wide framework, taking into account the inter-relations between different levels and types of education. The extension of basic education to the early years of secondary education is considered vital as this phase of education is at the centre of key questions of transition, linkage and articulation in the entire education system.

The strong focus on EFA will also affect secondary-level education through renewed impetus towards cooperation and networking. This implies the development of more diverse partnerships and collaborations involving national and local government, non-governmental organizations, community groups and the private sector, with support from international and regional organizations where necessary, to reach the EFA goals.

Upstream approach

By influencing policy decisions at the highest levels of national Ministries of Education, UNESCO adopts an 'upstream' approach that leads to a cascading or multiplier effect facilitating systemic renewal whose ultimate impact is on the learner in the classroom. In its role as the United Nations Specialized Agency for education, UNESCO adopts the five following strategic modalities to deliver programme actions in its Member States:

- *laboratory of ideas* - identifying new trends, challenges and priorities for secondary education reform consistent with sustainable development²⁶.
- *international standard-setter* – developing, diffusing and advocating normative instruments or standard-setting documents such as conventions and recommendations. These include the *Convention on Technical and Vocational Education (1989)* and the *Revised Recommendation concerning Technical and Vocational Education (2001)*.
- *clearing house* - experimenting, innovating, conducting pilot projects, diffusing and sharing information, best practices and guidelines related to secondary-level education reform, renewal and expansion.
- *capacity-builder in Member States* – promoting policy dialogue among decision-makers and other stakeholders through international and regional conferences and seminars with the objective of enhancing national policy-making capabilities to implement secondary education reform.
- *catalyst for international cooperation* – bringing together policy-makers in Member States, technical expertise and funding sources to assist with the reform and revitalization of national education systems.

A coordination role: The Interagency Consultative Group

UNESCO's Division of Secondary, Technical and Vocational Education coordinates the work of the Interagency Consultative Group on Secondary Education Reform and Youth Affairs, which began its work in 1999. The Group provides a forum for United Nations and other international and regional agencies and NGOs concerned with issues affecting secondary education reform. During its last two meetings in March 2002 and June/July 2004, the Group worked towards identifying the main implications of the Dakar Framework for Action for the secondary level initiatives of each of the member organizations.

26. "Learning for work, citizenship and sustainability" was the theme of UNESCO's International Meeting of Technical and Vocational Education Training Experts, held in Bonn in October 2004

Conclusion

In order to prepare young people for life and work in a rapidly changing world, secondary-level education systems need to be re-oriented to impart a broad repertoire of lifeskills. These skills should include the key generic competencies, non occupation-specific practical capabilities, ICT, the ability to learn independently, to work in teams, entrepreneurship and civic responsibility. They may be best instilled through a shared foundational learning period and by deferring the tracking of students into academic and vocational streams for as long as possible. When streaming does occur, there should be articulation between GSE and TVET to ensure the free movement of students between the streams depending on their aptitudes and inclinations. Accreditation in one stream should have equal recognition in the other as well as for access to higher education.

Such a model of secondary education is expected to equip young people with multiple skills so that they are prepared to enter and re-enter the workforce several times in their working lives, if necessary, as wage employees or self-employed entrepreneurs, to re-train themselves when their skills become obsolete and to contribute to their personal economic and social development and that of their communities in a sustainable way.

While UNESCO advocates this model of secondary-level education, it recognizes that there is no single model that will suit all countries, or even all communities in a given country. In any case, such a model must necessarily be dynamic, and secondary-level education policy should be under continuous review to keep in step with scientific and technological, economic and societal change. The cumulative experience from UNESCO's long-standing involvement in education policy issues at the international, regional and national levels and its wide network of specialized Institutes and field offices places the Organization in a unique position to propose broad principles for making secondary-level education more responsive to the needs of young people. These principles may be used as guidelines and adapted by each country to suit its particular social, cultural and economic situation. UNESCO's Member States are encouraged to adopt all or parts of this proposed model as suits their particular needs and to undertake this reform as part of their national EFA implementation process.

Box 3: Points of consensus from the forums convened by UNESCO in recent years on secondary-level education

- Secondary-level education is about preparation for life and should reflect the reality of life in the twenty-first century, encompassing a seamless transition between continued learning and the world of work.
- Education should take a 'non-utilitarian' approach, contribute to the participants' personal well-being and sense of self-fulfilment and ensure their social insertion.
- A multi-sector approach involving government ministries, NGOs, local communities and industries etc, is essential for successful implementation of this kind of education.
- Reform initiatives on GSE and TVET should not be carried out in isolation. They should facilitate bridges between the two streams and the formation of individual itineraries for life-long learning.
- Greater flexibility needs to occur between vocational and academic education including the mutual recognition of qualifications.
- Instead of accentuating the differences between so-called academic subjects and vocational subjects, secondary-level education should focus on links between these subjects and their interdependence.
- It is important to ensure the initiation of young people into technology and the world of work within the context of general education. Real technological training should be introduced in the learning curricula between the 12th and 14th years of age.
- Tracking students to either GSE or TVET should be deferred as long as possible (until they are at least 14 years old) to allow for solid, common basic knowledge.
- Gender equity must be ensured and special emphasis should be put on the full inclusion of girls in both GSE and TVET.
- Guidance and counselling services should be at the disposal of learners to help them make informed decisions about the education and career options available to them.
- TVET should be designed so that it may be freely and positively chosen as an alternative and equal form of education which is valid and valued just as much as general education.
- There is a need to give more importance to general learning and languages as part of TVET courses.
- The emerging role of teachers (notably as facilitators), their status, integrity and commitment are essential for implementing lifeskills education successfully.
- The quality of pre-service and in-service teacher training is critical in this regard.
- All teachers in TVET, including instructors/trainers who teach practical skills, should be considered an integral part of the teaching profession and should be recognized as having the same status as their colleagues in GSE.
- There is a need to give greater recognition to the role of educational leaders in the successful implementation of change in educational organizations and the quality of their selection and development.
- There is a need to ensure that groups such as university 'gatekeepers' accept that vocational education can be cognitively complex and should be valued; and success in vocational programmes should enable transfer into academic streams. More post-secondary technical and vocational institutions offering higher-level diplomas should be created.

References

- Aubra, A. L. **Non-Traditional Occupations, Empowerment and Women: A case of Togolese Women.** London and New York, Routledge. 2005.
- Annexstein, Leslie T. "Opening the Door to Career and Technical Education Programs for Women and Girls", in Scott, Michael L., Ed.; Annexstein, Leslie T; Ordober, Eileen L; Esters, Levon T; Bowen, Blannie E; Reeve, Edward M. **Equity Issues in Career and Technical Education.** Information Series. Columbus, Ohio: ERIC Clearinghouse on Adult, Career, and Vocational Education, 2003.
- Atchoarena, David; and Caillods, Françoise. **Technical Education: A Dead End or Adapting to Change,** in Prospects. Quarterly Review of Comparative Education, Vol. XXIX, no. 1, March 1999.
- Briseid, Ole; Caillods, Françoise. **Trends in Secondary Education in Industrialized Countries: Are they relevant for African countries?**, Policies & Strategies for Secondary Education, International Institute for Educational Planning, 2004.
- Carnoy, Martin; Castro, Claudio de Moura; and Wolff, Laurence. **Secondary Schools and the Transition to Work in Latin America and the Caribbean.** Sustainable Development Department Technical Papers Series. Washington DC: Inter-American Development Bank, 2000.
- China Gateway. Vocational and Technical Education: Contribution to Improvement of the Structure of Secondary Education. Development Gateway. www.chinagateway.com.cn.
- Durand-Drouhin et al (1998, 1999) and OECD (1998, 2000) cited in **Combining General and Vocational Education.** <http://www.b.shuttle.de/wifo/III/bc.htm>
- Dutch Ministry of Education, Culture and Science. **Secondary Education in the Netherlands: Agenda for 2010.** "The Pupil Captivated, the School Unfettered". The Hague: Government of the Netherlands.
- Eurydice. Vocational Education and Training at Around Age 14 in a Selection of European Countries. January 2002. <http://www.eurydice.org/Eurybase/Application/eurybase.htm>
- ILO. **Learning and Training for Work in the Knowledge Society.** Geneva: ILO, 2002.
- Lee, Young-Hyun; Cho, Jeong-Yoon; Tau, Alfred; Pereira, Clarence A. **Vocational Training and Technical Qualification Systems in Korea and South Africa.** Seoul: Korea Research Institute for Vocational Education and Training, 2002.
- Norway. A paper presented to the Knowledge Management System of the European Centre for the Development of Vocational Training (CEDEFOP), 2004.
- OECD. **From Initial Education to Working Life: Making Transitions Work.** Paris: OECD, May 2000.
- Pillai, Sharmila (ed). **Strategies for Introducing New Curricula in West Africa.** Final Report of the Seminar/ Workshop (Lagos, Nigeria, November 12-16, 2001). Lagos: Federal Ministry of Education; Geneva: UNESCO International Bureau of Education, 2003.
- Raffe, David. **Bringing academic education and vocational training closer together.** ESRC Research Project on the Introduction of a Unified System. Working Paper 5. Edinburgh: CES, University of Edinburgh, 2002.
- Raffe et al (2001, 2002, 2003), cited in **Combining General and Vocational Education.** <http://www.b.shuttle.de/wifo/III/bc.htm>.
- Stenstrom, Marja-Leena, Ed.; Lasonen, Johanna, Ed. **Strategies for Reforming Initial Vocational Education and Training in Europe.** Final Report of the Project. Leonard da Vinci/Transnational Pilot Projects: Multiplier Effect, Strand III.3.a. Sharpening Post-16 Education Strategies by Horizontal and Vertical Networking (1997-2000). University of Jyväskylä: Institute for Educational Research, 2000.

- Sultanate of Oman. **International Conference on the Reform of Secondary Education. Secondary Education for a Better Future: Trends, Challenges and Priorities**, 22-24 December 2002, Muscat. Secondary Education Reform Document, Ministry of Education.
- UNESCO. **Education for All: The Quality Imperative**. EFA Global Monitoring Report 2005. Paris: UNESCO Publishing, 2004.
- UNESCO. **Promoting Skills Development**: Report of an International Seminar, Paris 22-23 January 2004. UNESCO Publishing, 2004.
- UNESCO. **Interagency Consultative Group on Secondary Education Reform and Youth Affairs**. Fourth Meeting. 30 June-2 July 2004, UNESCO headquarters. Final Report. Paris: UNESCO.
- UNESCO. **International Expert Meeting on General Secondary Education in the Twenty-first Century: Trends, Challenges and Priorities**. Final report, Beijing, People's Republic of China, 21-25 May 2001. Paris, UNESCO, 2001.
- UNESCO. **Learning: The Treasure Within**. Report to UNESCO of the International Commission on Education for the Twenty-first Century. Paris: UNESCO, 1996.
- UNESCO. Technical and Vocational Education and Training for the Twenty-first Century – UNESCO and ILO Recommendations (2001).
- UNESCO-BREDA and the World Bank, **The Renewal of Secondary Education in Africa**. Proceedings of a Regional Workshop Mauritius: 3-6 December 2001, Dakar: UNESCO BREDA, 2003.
- U.S. Department of Education. National Center for Education Statistics. **Vocational Education in the United States: Toward the Year 2000, NCES 2000-029**, by Karen Levesque, Doug Lauen, Peter Teitelbaum, Martha Alt, and Sally Librera. Project Officer: Dawn Nelson. Washington, D.C.: 2000.
- Vicénik, Petr and Virolainen, Maarit. **The concept of vocational qualifications Changes in the scope of individual VET qualifications considered against the background of different features and educational concepts underlying national VET schemes**. nd. <http://www.b.shuttle.de/wifo/duoqual/=base.htm>
- Volanen, Matti Vesa. **European Strategies for Parity of Esteem Between Academic and Vocational Education: The Strategy of Mutual Enrichment**, Institute for Educational Research, University of Jyväskylä, Finland. Paper Presented at the European Conference on Educational Research, Lahti, Finland, 22 - 25 September 1999.
- Wilson, David N. **The German 'Dual System' of Occupational Training: A Much-Replicated but Oft-Failed Transfer**. Paper presented at the Annual Meeting of the Comparative and International Education Society. San Antonio, Texas, March 8-12, 2000. 29pp
- Wonacott, Michael E. **Equity in Career and Technical Education**. Myths and Realities No. 20. Columbus, Ohio: ERIC Clearinghouse on Adult, Career, and Vocational Education, 2002.
- Young (2000), cited in **Combining General and Vocational Education**. <http://www.b.shuttle.de/wifo/III/bc.htm>

Abbreviations and Acronyms

CEDEFOP	European Centre for the Development of Vocational Training
EFA	Education for All
GER	Gross Enrolment Ratio
GSE	General Secondary Education
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
ICT	Information and Communication Technology
IIEP	International Institute for Educational Planning
ILO	International Labour Organization
IVET	Initial Vocational Education and Training (Norway)
NGO	Non-Governmental Organization
TVET	Technical and Vocational Education and Training
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNEVOC	International Centre for Technical and Vocational Education and Training
VMBO	Pre-vocational Secondary Education (The Netherlands)