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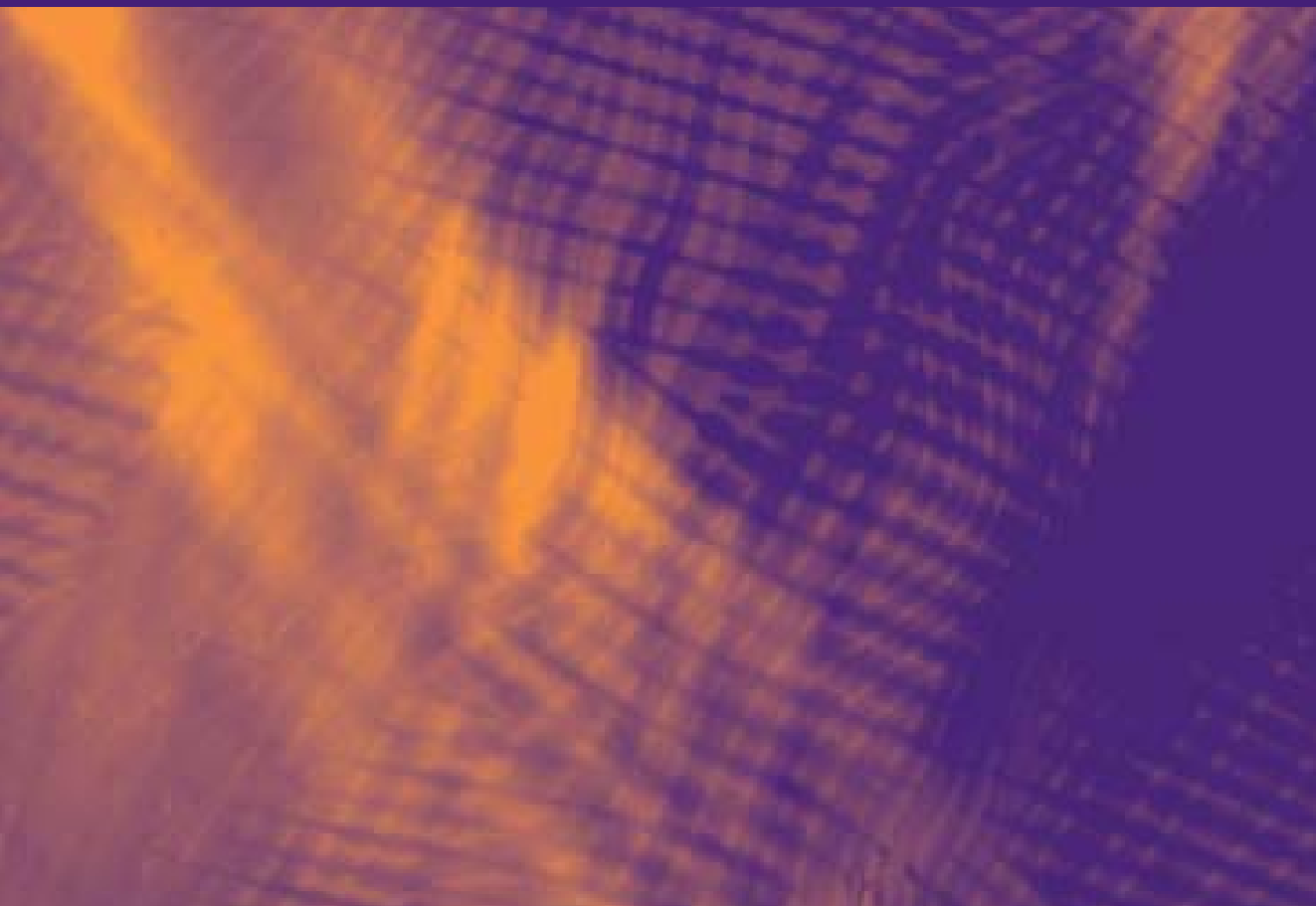
International Developments in Upper Secondary Education

Context, provision and issues

Joanna Le Métais



International Developments in Upper Secondary Education

Context, Provision and Issues

Joanna Le Métais
Head of International Project Development,
National Foundation for Educational Research (NFER)

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24, Merrion Square, Dublin 2.

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Contents

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Preface

This paper has been sponsored by the National Council for Curriculum and Assessment (NCCA) in the Republic of Ireland. The NCCA is a statutory body that advises the Minister of Education and Science in matters relating to curriculum and assessment for early childhood, primary and post-primary education.

The International Review of Curriculum and Assessment Frameworks (INCA) project

As part of its work in monitoring the curriculum in England, the Qualifications and Curriculum Authority (QCA) has commissioned the National Foundation for Educational Research in England and Wales *(NFER)* to undertake an international review of curriculum and assessment frameworks in 18 countries[1]. The project, which began in 1996, is ongoing and the information it provides is intended to support QCA in its evaluation of different methods of curriculum organisation.

The aims of the project are:

- to build an accurately researched and ready-to-use resource, comprising a succinct description of the educational aims, structure and organisation, and of the curriculum and assessment framework in each country, collectively referred to as the *INCA Archive*[2]
- to help QCA analyse the outcomes of international comparisons
- to provide comparative tables and factual summaries in specific areas of interest
- to provide detailed information on specific areas to enable QCA to evaluate the English National Curriculum and assessment frameworks.

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1 Australia, Canada, England, France, Germany, Hungary, Ireland, Italy, Japan, Korea, the Netherlands, New Zealand, Singapore, Spain, Sweden, Switzerland, the USA and, since 2002, Wales.

2 O'Donnell, S. *et al* (2002).

Reactions to international comparisons

Reactions to international comparisons vary, but generally take one of the following five forms:

1. *'Quick fix'* searches for *the* key action or government regulation, which may be transplanted from another country and, when implemented, will transform the nation's pupils into high performers. This approach lacks realism because it ignores the different social, economic, cultural, religious and family contexts and influences within which educational systems operate.

2. *Understanding other systems,* through a study of the characteristics that are perceived to contribute to the relative success of high-performing countries, is a more constructive approach. However, whilst this approach makes it possible to learn about the *interplay* of different goals and other variables, it may merely confirm cultural differences without bringing about improvements.

3. *Exploring the causes* of one's own country's relative position in international tests approaches the issue from a different angle. For example, Wang *et al.* (1990) identified classroom/psychological variables as among the most important influences on learning. However, changes in these variables may be difficult to implement, they may have significant ramifications for the curriculum and they may involve choices between different resource priorities.

4. *Informed self-review,* using international indicators, relative success or weakness and contributory causes to evaluate progress from a national perspective, may result in a set of ideas and priorities for action. External evidence of *relative* performance, based on pupil outcome differences, helps to avoid two weaknesses of self-

review: uncritical acceptance of traditional problems and traditional solutions, and undue influence of local and current priorities. Because it looks for solutions to problems *within one's own context,* it does not pursue the task of understanding other systems as a substitute for action at home.

5. *Linking progress to purpose* is essential. The race to be 'top of the league' may not be in students', nor in a country's, best interest. There is enormous scope for demotivation, given that only one country can 'win'. Moreover, educational *purpose* is an important determinant of progress. It is therefore necessary to use the comparative information on possible outcomes, in order to address questions such as:

   What does the nation want its achievements to be?

   Does the nation want to do (equally) well in all subjects?

   Can performance be improved in all subjects, or only in one at the expense of others?

   What effect would pursuing higher performance in (for example) science, English and mathematics have on the overall breadth of the curriculum?

Steps 4 and 6 on this list provide the most effective rationale for the use of the International Review of Curriculum and Assessment Frameworks project.

Thematic studies

Thematic studies are conducted into specific themes to provide:

- richer descriptions of practice in the countries concerned
- clarification of context
- an analysis of fundamental issues, related to the English framework.

They draw on the *INCA Archive,* but involve an in-depth thematic study of the literature and/or a seminar, which brings together QCA officers, the project team and invited participants from most of the contributing countries. Preparation for the seminars includes verification and completion of the *INCA Archive* information by seminar participants. It is fundamental to the seminars, as it is to the *INCA Archive,* that diversity be respected and that all seek to learn from a deeper understanding of such diversity. Through such understanding, it should become easier to predict the ramifications of changes that any country might be considering.

Although all of the thematic studies are initiated from the national perspective of the commissioning body, the involvement of educators from other countries in the information gathering and the seminars broadens the perspective and the usefulness of the reports. Readers should note that responsibility for education in the UK lies with the national education departments and ministries, namely the Department for Education and Skills in England (http://www.dfes.gov.uk/index.htm), the Department of Education Northern Ireland (http://www.deni.gov.uk), the Scottish Executive Education Department (http://www.scotland.gov.uk/who/dept_education.asp), and the National Assembly for Wales Education Department (http://www.learning.wales.gov.uk).

This paper constitutes the eighth of the thematic studies. The previous studies, available on-line at http://www.inca.org.uk/thematic.asp, are:

Le Métais, J. (1997). *Values and aims in curriculum and assessment*. London: SCAA.

Tabberer, R. (1997). *Primary education: expectations and provision*. London: SCAA.

Ruddock, G. (1998). *Mathematics in the school curriculum: an international perspective.* London: QCA.

Kerr, D. (1999). *Citizenship education: an international comparison*. London: QCA.

Greenaway, E. (2000). *Lower secondary education: an international perspective.* London: QCA.

Sharp, C. and Le Métais, J. (2000). *The arts, creativity and cultural education: an international perspective.* London: QCA.

Bertram, T. and Pascal, C. (*forthcoming* 2002). *Early years education*. London: QCA.

INTRODUCTION

Introduction

The end of the 20th Century has seen education rise to the top of the political agenda in developed and developing countries alike. It is interesting to note the increase in the rate and scale of reforms which have been, or are being, introduced to enable nations and individuals to meet the challenges of the 21st century. As the time for elections draws near[3], so the pressure to solve economic, social and other problems through education increases. However, whilst there are many similarities in the perceived needs and even in the terminology used to identify the solutions, the purpose and approaches adopted differ according to national context and heritage. For example, examination reforms in England and the Netherlands have contrasting objectives, namely to increase flexibility and the breadth of studies (England), and to limit student choices and focus their attention on a narrower range of subjects, in preparation for higher education (the Netherlands).

In this context, there have been many changes in the organisational structure and in the nature, content, and assessment of learning at upper secondary level in most of the countries[4] participating in the International Review for Curriculum and Assessment Frameworks *(INCA)* project.

[3] For example, France (President and Parliament), Ireland, the Netherlands, and New Zealand.

[4] At the time this thematic study was commissioned they were: Australia, Canada, England, France, Germany, Hungary, Ireland, Italy, Japan, Korea, the Netherlands, New Zealand, Singapore, Spain, Sweden, Switzerland and the USA. Representatives from Northern Ireland, Scotland and Wales also attended the seminar, but their systems are not described.

This thematic study aims to stimulate reflection and inform debate, by identifying the main issues facing upper secondary education and exploring aims and models of provision and experiences in a range of countries. For this purpose, upper secondary education is taken to mean the education of young people aged about 15 to about 19 years of age, within the school sector (see Appendix 1).

Section 1, Context and provision, outlines the aims, organisation and content of upper secondary education, which serve as a basis for the discussion of issues and implications in Section 2. It draws on the *INCA Archive* (O'Donnell, S. *et al,* 2002) additional documentation, and the international seminar held in Dublin Castle from 20-22 February, 2002.

SECTION 1

Context and provision

Context and provision

Introduction

This section sets out, in summary form, current policies for the provision of upper secondary education in the INCA project countries under the following headings:

- Definition of upper secondary education
- Aims
- Organisation
- Essential learning areas
- Assessment and certification.

The comparison of educational outcomes is complex, since national statistics are collected in different ways and for different purposes. Those submitted for international comparisons (e.g. UNESCO, OECD and EUROSTAT) may therefore differ from national reports. It has not been possible to find comparable statistics for all of the countries involved and readers are therefore advised to consult national statistical sources for those countries that interest them.

1.1 Definition of upper secondary education

Upper secondary education caters for students aged 15/16 to 18/19, and may be offered in a range of establishments. This study focuses

on the education of young people aged about 15 to about 19 years of age, within the school sector *(see Appendix 1)*. There is a trend towards requiring or encouraging universal attendance until age 18.

In most countries, compulsory education ends in the year in which students reach the age of 15 (most states in Australia, most provinces in Canada, Ireland, Italy, Japan and Korea[5]) or 16 (Tasmania in Australia, England, France, Hungary, New Zealand[6], Singapore[7], Spain, Sweden, Switzerland, and the USA).

In Germany, full-time education is compulsory until the age of 15/16. Thereafter, young people are required to attend school at least on a part-time basis until they reach the age of 18/19 years.

In the Netherlands, students who leave full-time education at the age of 16 must continue in at least part-time education until the age of 18; this does not apply to students who continue in full-time education until the age of 17.

Public sector upper secondary education is free in all countries except Italy, Korea, and the Netherlands, where fees are charged to those above compulsory school age[8]. However, parents whose income falls below a specified amount may apply for a reduction or remission of the fees.

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5 Participation in upper secondary education (i.e. age 15-18) is virtually universal.

6 Students with an early leaving exemption may leave school at age 15; many of these enter youth training courses or courses offered by other tertiary providers.

7 Education is not compulsory, but there is universal attendance until the age of 16. Upper secondary education caters for students aged 16/17 to 18-20.

8 In Italy, education is free for students aged 6 to 15. In Korea, education is free for one year of pre-compulsory and nine years of compulsory education, i.e. age 5 to 15. In the Netherlands, education is free during the period of compulsory full-time education, i.e. students aged 4-16.

1.2 Aims

As countries increasingly encourage young people to remain in education beyond the minimum school leaving age, educational aims and purposes are expressed for education in general (early years through to upper secondary) or for the whole secondary phase. Upper secondary students can exercise the greatest level of choice between subjects according to their particular talents and aspirations. However, mobility of individuals within and between countries means that attention must be given to comparability and recognition of upper secondary and higher education qualifications.

In general terms, aims and objectives may be grouped into five main areas, as follows:

- *Individual/personal:* developing individual potential; character education.

- *Economic:* employability or meeting employers' needs; productivity and enhancing the national economy, particularly in relation to European or international competitors. In New Zealand, competitiveness is one of the essential skills, alongside cooperation, which students are expected to develop.

- *Social and cultural:* inclusiveness, developing a fair society, social justice; recognising the cultural and linguistic diversity of society; recognising bicultural heritage (especially in Canada and New Zealand[9]); promoting democracy or citizenship education.

[9] Recent changes to the National Education Guidelines require schools to strengthen links with their communities, be more responsive to Mäori students and focus on raising Mäori achievement. Initiatives include: measures to attract more Mäori teachers; continued support for the development and use of Mäori language; and development of teaching materials providing a more meaningful learning context for Mäori students.

- *Knowledge, skills, standards:* raising standards; stimulating creativity; stressing the importance of maths and science; preparation for the Information Society[10].

- *Extending learning:* raising participation in post-compulsory education; preparing for lifelong learning.

1.2.1 Phase-specific aims

In many of the countries in the study, educational aims apply to all phases, or are implicit in the required areas of learning (for example, breadth of study, study skills). However, eleven countries identify explicit aims for the upper secondary phase.

In England, the government has recently made proposals for 14-19 education to be treated as a single continuous phase, with greater opportunities for individualised learning.

This aims to respond to the needs, talent and aspirations of each student by ensuring that

- young people are enabled to choose pathways among a range of academic, vocational, and workplace learning opportunities

- the pathways available allow young people to move between them as their talents and interests change

- able students are encouraged to take qualifications earlier than their peers

[10] In many countries, schools are (being) linked to the Internet, and there are initiatives to identify effective teaching practices using ICT, involving partnerships between schools, and between schools and businesses.

- the range of vocational qualifications is strengthened and given parity with GCSE (General Certificate of Secondary Education)[11]
- consideration is given to increasing the time available in the 14-16 curriculum for vocational study
- clear ladders of progression are provided, supported by appropriate high quality qualifications. (DfEE, 2001).

In France, the overall aim of general education is not presented in terms of employability, even if this must be achieved, but rather in the perspective of personal development. However, one aim is to promote integration into working life, and to establish the principle that every young person must be given the opportunity to take up vocational training before s/he leaves the education system, regardless of the level of education he or she has completed.

In Ireland, *senior cycle* education (age 15-18) aims to prepare students for life in a rapidly changing society, and to integrate developments in the area of vocational training with general education policy, to encourage and facilitate students to continue in full-time education during the post-compulsory period by providing a stimulating range of programmes suited to their abilities, aptitudes and interests. The objectives are to develop each student's potential to the full, and equip them for work or further education. Leaving Certificate programmes place a particular emphasis on the preparation of students for the requirements of further education or training, for employment and for their role as participative, enterprising citizens.

The aim of general upper secondary education in Italy is to prepare students for university and other forms of higher education in the

[11] GCSE examinations are normally taken at age 16.

classics, science, medicine, and in the fine arts. The aim of technical and vocational branches is to prepare students for work. All schools have to produce an educational plan taking into account the economic and socio-cultural demands of the local area. In upper secondary schools, this plan must also include students' desires/proposals. The active participation in decision-making is seen as helping students to prepare for adult and working life.

In Korea, upper secondary education aims to build on middle school education and provide advanced general and specific education to help students (age 15 to 18) to acquire abilities essential for progressing along their chosen career path and developing as world citizens. It aims specifically

- to help students develop a well harmonised character, along with a sound body and mind, and a mature sense of identity
- to help students develop the abilities and aptitudes of logical, critical and creative thinking required for academic pursuits and life
- to enable students to obtain knowledge and skills in diverse fields, so that they will be able to carve out a career in accordance with their aptitudes and interests
- to encourage students to work to develop Korean traditions and culture in a way appropriate for the global setting
- to help students endeavour to build and develop the national community and to develop an awareness of, and appropriate attitudes for, global citizenship.

The New Zealand Curriculum Framework addresses the aims of education for students of compulsory and post-compulsory age, to prepare them for adult and working life and to lay the foundations for lifelong learning. There is particular concern about the number of students leaving with no, or limited, qualifications (increasing from 16 per cent in 1991 to 19 per cent in 2000) and, within this number, the relative over-representation of Mäori and Pacific Island students and students of low socio-economic status.[12]

Recognising that the wealth of Singapore is her people, major educational objectives include equipping people with a broad set of skills to respond to opportunities in the new economy. The mission statement of the Singapore education service 'Moulding the Future of the Nation' sums up and reflects the role of the education service as a force in shaping the character and economic capacity of the people, while enhancing their national and cultural consciousness and ensuring their commitment to their family, their community and nation. The national education programme aims to ensure that young people remain rooted in Singapore even if they leave in later life to work elsewhere. Upper secondary education programmes aim to teach young people to *lead* Singapore, following on from primary education's aim to teach children to *love* Singapore, and lower secondary education to *know about* Singapore. Accordingly, Singapore is currently implementing an ability-driven (instead of efficiency-driven) paradigm, which allows for greater flexibility in secondary school streams and courses, according to individuals' talents/aspirations.

[12] In 20 years time, Mäori/and/or Pacific Island students are projected to comprise over a third of all secondary students. Mäori students and Pacific Island students currently form between 22-25 percent of all school leavers, yet between 36 and 39 percent of school leavers with no qualifications.

Spain expresses separate objectives for general and vocational education. General upper secondary education (leading to the *Bachillerato*) complements compulsory lower secondary education, helps students attain personal and intellectual maturity and prepares them for university education, vocational studies or for employment. Specific vocational training is designed to prepare students for relevant occupational qualifications and to facilitate their transition to working life, to contribute to continuing training for all citizens and to meet industry's demand for skilled employees. Since 2000, priority in vocational studies is being given to greater relevance in course content and in-company work placements, and scientific and technological development, intended to promote effective integration into the work-place.

In Sweden, the fundamental values underpinning education stress the individual rather than society. The system strives to maintain a balance between democratic and basic values on the one hand, and the development of knowledge and skills (whether in general or vocational tracks) essential for the economic prosperity of the individual and society, on the other. Upper secondary education builds on compulsory education in order to

- deepen and develop the knowledge of students to prepare them for further learning and working life. Changes in working life, new technology, internationalisation and the complexity of environmental issues impose new demands on people's knowledge, ways of working, and adaptability
- develop a desire to learn, self-confidence, the skills to manage change, and the ability (as independent learners) to feel secure in situations of uncertainty, as a foundation for lifelong learning, in formal, non-formal or informal environments

- help students develop their personalities, and an interest in culture and the humanities and provide the general education necessary to play a full and responsible role as citizens in a democratic society.

A parliamentary committee, Committee 2000, is currently reviewing the upper secondary system.

In Switzerland, despite cantonal autonomy in matters of education, there is some federal collaboration in upper secondary education, formulated in the Federal Rule on Vocational Training and the Federal Maturity Regulation. Upper secondary education aims to support students':

- personal development
- socialisation, in the sense of integrating the younger generation into the local, national, and to an increasing extent, into the European and global society, by means of introducing them to essential and cultural values
- achievement of an economic (i.e. professional) qualification.

In the USA, the federal Educate America Act of 1994 set a series of goals, including that

- …all students will leave … Grade 12 [at age 17/18], having demonstrated competency over challenging subject matter including English, mathematics, science, foreign languages, civics and government, economics, arts, history, and geography ….

- … all students learn to use their minds well, so they are prepared for responsible citizenship, further learning and productive employment in the nation's modern economy…
- … by 18 years of age students will be prepared for, and able to afford, college.

1.3 Organisation

Upper secondary education is often provided in a range of different establishments. These, and the qualifications offered, are described below and in *Appendix 2,* in order to provide a comprehensive context. However, the description of essential learning areas and assessment, and the discussion of issues and implications in this report focus principally on education in schools and comparable institutions, which leads to upper secondary leaving certificates and grants access to theory-based or other types of post-secondary education[13].

1.3.1 Grouping by age

Distinctions may be made between schools that offer *only* upper secondary education (for example, some states in Australia, Canada, France, Italy, Japan[14], Korea, Singapore and Sweden.), and those that combine lower and upper secondary general education within the same institution (for example, England[15], Germany, Hungary, Ireland,

[13] OECD statistics designate as ISCED 3A programmes those primarily designed to prepare students for theory-based studies at tertiary level (Tertiary Type A studies) and as ISCED 3B those which prepare students for other forms of post-secondary education (Tertiary Type B).

[14] A number of experimental all-through secondary schools, for students aged 12-18, were introduced in 1999.

[15] Of the 3170 secondary schools, around 1800 also have sixth forms catering for young people of post-compulsory age up to age 18+.

the Netherlands, New Zealand, Spain[16], Switzerland, the USA). Structural arrangements mean that, to complete compulsory education, students who have not repeated a year during the lower secondary phase are required to transfer to upper secondary school for at least one year in France and Italy (since 1999) or two years in parts of the USA.

In addition, many countries offer upper secondary education in non-school establishments, where young people and adults may take general or vocational education courses on a full-or part-time basis.

1.3.2 Grouping by curriculum

A second distinction may be made between *integrated* systems, where schools offer both general and (pre-) vocational education within the same institution, and *segregated* systems, whose schools offer mainly one type of education (for example, academic, technical, artistic, vocational, in Italy).

In some countries (for example, England, New Zealand[17]), students may obtain the same qualifications regardless of whether they attend a school or another educational institution.

Only two countries offer a transition or orientation year after the conclusion of lower secondary phase. In France, all students (unless they have repeated a class in lower secondary education) must transfer to the orientation year *(seconde)*, which simultaneously marks the start of upper secondary education and the final year of

[16] There are some *Bachillerato* schools catering solely for students aged 16-18, but these are rare.

[17] Access to a wider range of further training opportunities over the last few years, has meant that New Zealand students are increasingly choosing to do their learning in institutions other than schools

compulsory schooling. This is intended to help students choose between the various academic and vocational tracks leading to the *baccalauréat,* other forms of education and training, or employment. In Ireland, the Transition Year is optional. In the current review of the senior secondary cycle, consideration is being given to the potential offered by this structure to allow students to reflect on and consolidate their knowledge, before making further educational or career choices.

a) Integrated systems

Canada: In most jurisdictions, *senior high schools* comprise Grades 10-12 (age 16 to 18)[18]. In British Columbia, they include only Grades 11 and 12 and in Quebec, they end in Grade 11, which is followed by two or three years at a general and vocational college. In Ontario, *High Schools* cater for 14 to 18 year-olds, of which only the final year is post-compulsory. Students may take a range of courses.

England: 16 to 19 year-olds may continue their education in the sixth forms of secondary schools and/or in further education institutions (which cater for students of all ages over 16). Both offer courses leading to general or vocational qualifications. Specialisation is currently being encouraged

[18] Due to differences between provinces, *senior high school* may start at age 15 or 16 and end at age 17 or 18.

in secondary schools (age 11-16, or 11-18)[19] and there are further education institutions (age 16+) specialising in agriculture and horticulture, or art, design and the performing arts.

Ireland: Upper secondary education is offered in secondary schools, vocational schools, community schools and comprehensive schools. This comprises an optional Transition Year and courses leading to three forms of leaving certificate: the Leaving Certificate (Established), Leaving Certificate (Vocational) and the Leaving Certificate (Applied).

New Zealand: Most secondary schools provide post-compulsory upper secondary education for those aged 16 to 18 (Years 12 and 13). There is a trend for students to transfer to college for the upper secondary phase, even though this requires them to pay fees. The National Qualifications Framework is increasing opportunities for students to combine studies in school, college and private institutions. Some specialisation is being encouraged through the development of academies, for example, sports academies, defence force

[19] There are currently Technology Colleges, Languages Colleges, Sports Colleges and Arts Colleges. The government is seeking to increase the number of specialist secondary schools in England to 1,000 by 2003 and to 1,500 by 2006, in addition to broadening the range of specialisations offered within the programme.

academies, electronics academies. The main innovations over the last ten years have been the development of alternative and non-traditional courses to improve the retention and meet the needs of students staying on in Years 12 and 13 and to facilitate their smooth progression from school to tertiary education or employment. It is becoming increasingly possible for students to take some subjects in a senior secondary school, some in a polytechnic and/or some in a private training establishment, as part of a 'seamless' programme.

Spain: Most secondary schools provide compulsory secondary education (age 12-16) and post-compulsory, upper secondary education. Courses leading to four types of *Bachillerato* as well as courses leading to Intermediate Level vocational qualifications are offered in the same establishments, to promote parity of esteem (between general and vocational education), and to promote equality and enhance opportunities (between students from different backgrounds). Specialist art colleges offer full-time education for those moving to higher education in the arts.

Sweden: Upper secondary education is integrated within municipal gymnasieskola, so that all 17 programmes (of which 15 are primarily vocational) offer access to higher education. Specialised studies in agriculture, forestry, horticulture and certain caring professions take place in schools run by county councils.

USA: Upper secondary education is provided in *High Schools* catering for students aged 14 to 18 (varies by state and district). In addition to normal *High Schools,* some states have introduced magnet schools, which offer a particular educational philosophy or curricular speciality. There are also, in some states, *Vocational* or *Technical High Schools,* which concentrate on trade and industrial courses, and whose facilities are available for (re-)training adults.

b) Segregated systems

These countries make separate institutional provision for general and vocational education.

Australia: In some states, students remain in secondary school; in others they transfer at around age 16 to a senior secondary college[20]. These colleges provide mainly general education, and have sometimes been created to allow for

[20] In the Australian Capital Territory, all public sector schools end at Year 10 and there is government-funded provision in Technical and Further Education (TAFE) Colleges.

greater curricular diversity than would be possible in small, all-through secondary schools. Vocational education is usually provided in technical and further education *(TAFE)* colleges.

France: Education leading to the *Baccalauréat* is offered in general and technological *lycées* and vocational *lycées.* Both cater for students aged 15 to 18 and cover the final year of compulsory education *(seconde),* followed by two years of post-compulsory education.

Germany: Full-time general education leading to the Abitur is offered in the upper classes of the *Gymnasium (gymnasiale oberstufe).* The *Berufliche gymnasium* or Fachgymnasium offers upper secondary preparation in career-oriented subjects such as business studies, engineering, agronomy, etc. which grant access to higher vocational education. Other vocational education courses, both full-time and part-time, are offered in a range of vocational establishments, where students continue to receive some general education.

Hungary: Upper secondary education is offered in secondary grammar schools, secondary vocational schools, or vocational training schools.

Italy: Different types of *licei* offer upper secondary education courses in general humanities, general science and fine arts education. Separate *istituti* offer technical and vocational education. In the context of devolved responsibilities to school level, there has been a trend towards merging academic/vocational provision in order to reduce social differences.

Japan: Upper secondary education is offered in academic senior high schools, colleges of technology, special training colleges, or miscellaneous colleges. It should be noted that, in Japan, post-compulsory upper secondary courses provided in any institution other than the senior high school, are often classified as higher education.

Korea: There are two categories of schools. General high schools cater for 64 per cent of students. This category includes special purpose high schools, for students who are talented/gifted in the arts and music, athletics, foreign languages and science. Vocational (and comprehensive) high schools cater for 36 per cent of students, who normally go into employment. However, students from vocational schools are also tending to continue their studies in higher education.

Netherlands[21]**:** The post-compulsory classes of secondary schools offer general education leading to *VWO* and *HAVO* qualifications respectively. Outside the schools sector, *MBO* institutions offer vocational education and training. *VWO* leads to university studies, and *HAVO* and MBO qualifications grant access to non-university higher education.

Singapore: Upper secondary education is offered in four types of institution. *Junior Colleges*[22] (two-year courses) and *Centralised Institutes* (three-year courses) cater for the 25-30 per cent of students who take the Singapore Cambridge *GCE A Level* and go on to higher/tertiary education. Outside the schools sector, Polytechnics offer three-year courses (for some 40 per cent of students) leading to a Diploma, and Institutes of Technical Education cater for the 20 to 25 per cent who go into employment.

[21] Secondary education is divided into three types, named according to the final qualification for which each prepares its student. *VMBO* provides general pre-vocational education for students aged 12 to 16 and grants access to an intermediate vocational education establishment *(MBO). HAVO* prepares students aged 12-17 for the general upper secondary education certificate, which grants access to non-university higher education. *VWO* (pre-university) prepares students aged 12 to 18 for university entrance. This is further subdivided into three streams according to whether the student specialises in classical studies, languages or social sciences.

[22] Junior Colleges are currently under review

Switzerland: The *Gymnasium (Maturitätsschule)* provides general education in preparation for *Matura* examination and university entrance. Other general, academic schools prepare students for non-university professions, for example, paramedical and social welfare. French-speaking *collèges* in certain Swiss *cantons* offer a common curriculum leading to the *maturité fédérale*. This pan-cantonal curriculum was introduced in 1995 and is expected to be fully operational by 2002. Some 70 per cent of young people attend separate institutions of vocational education, including those providing initial teacher training for teachers of pre-compulsory and primary school pupils, which is currently classified as upper secondary education.

1.4 Essential Learning Areas

Approaches to ensure that the 'essential' elements are included in school curricula include:

- **Student entitlement.** This may be expressed in terms of time allocation (for example, in Sweden) or subjects to be offered, but which students can choose not to take (for example, religious education in Italy).

- **Establishing compulsory requirements.** A distinction must be made here between required experiences (for example, attendance at specified courses, participation in activities) and conditions for graduation. In terms of experiences, whilst

students are expected to compile a programme of study that covers a minimum number of hours per week, the degree of choice varies considerably. Most countries require students to study the national language[23] and mathematics[24], and many also insist upon the study of a science subject, a humanities subject and an arts subject. Physical education constitutes part of the school week in most countries, although it is not usually part of the examination programme[25]. The countries that prescribe fewest subjects are England (none[26]) and Ireland (Irish).

There is wide variation in the requirements for the qualification awarded at the end of upper secondary education and which normally determines access to higher education. At one end of the continuum, neither the number of subjects, nor the disciplines to be studied for accreditation are prescribed (for example, students in England may achieve accreditation at upper secondary level in a single subject of their choosing) whilst at the other, Korea prescribes nine areas, as well as guidance and military training. Graduation requirements in parts of Canada and the USA include community service.

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[23] England: There are no *GCE Advanced Level* qualifications in English language (the subject studied is English literature). Students develop their English language skills through the study of other disciplines and their ability to express their ideas has traditionally been assessed through written essays. However, since 2000, specific attention is paid to communication skills as part of the *Key Skills* programme.

[24] Not compulsory in England, Ireland, Singapore or Spain.

[25] Except in Spain, where theoretical study is also required.

[26] Schools must offer religious education, but students may be exempted at the request of their parents, or, if they are aged over 18, at their own request.

- **Mobilising 'consumer' pressure.** Subject offerings and student choices tend to be driven by the (perceived and known) expectations of universities and of industry. One way of securing student and institutional commitment to (non-examined) key skills *(see 1.4.4)* is for higher/further education institutions and employers to list these among their requirements.

The compulsory elements at upper secondary level are often determined by the requirements of the qualification to be obtained. Students in countries with multiple upper secondary tracks (for example, Germany, the Netherlands, Switzerland) are subject to different regulations depending on the targeted final qualification. However, virtually all countries identify subject, content and/or skill areas that are deemed essential preparation for adult and working life *(see Appendix 3)*. In most cases, these are a combination of the following elements:

- areas of general study, including non-examination subjects, which are compulsory for all students
- compulsory elements within a chosen specialisation or track
- elective subjects (general or specialist)
- cross-curricular or key skills
- information and communication technologies
- independent study
- guidance and personal planning
- work or community experience
- religious and moral education.

These elements may be combined into a prescribed upper secondary 'curriculum package' common to all students, or tailored according to disciplinary specialisation. However, there is a trend towards modular learning programmes (for example, Australia, England, New Zealand, Sweden and the USA), allowing students to select combinations of subjects at different levels. Thus, while all students may be required to study the national language(s) and mathematics, the content may vary according to the students' ability or specialisation.

New areas of learning, such as information processing, thinking and communication skills, and inter- and intra-personal skills (including citizenship and character education) are being added to meet the expressed or perceived expectations of higher education and employment.

The importance of fostering diversity and creativity is being recognised, not least because of the perception that these skills will be essential in the future economy. As a result, curricula and teaching methods are being adapted, for example, in Singapore.

1.4.1 Compulsory areas of general study

In most countries, these generally build on the core curriculum determined for the compulsory phase and include the national language(s), mathematics, humanities (history, geography, social studies and, increasingly, citizenship education), physical education/sport (including, in some countries, health). In some cases students are also required to take a science subject (or integrated science), an arts subject (art, music, dance, drama) and a foreign language. Not all subjects studied are examined.

In England and New Zealand there are no prescribed examination subjects, but both countries require students to meet literacy and numeracy requirements *(see 1.4.3)*.

Concern is being expressed in a number of countries, (including Ireland, Korea, Spain and the USA) that mathematics and science are losing popularity. In France, special attention is being given to modern foreign languages and art/creativity, which were previously relatively neglected.

1.4.2 Compulsory elements within a chosen specialisation or track

In France, Ireland, Italy, the Netherlands[27], Sweden and Switzerland, upper secondary general education is subdivided into disciplinary tracks. In addition to the common core, there are compulsory elements according to the specialisation (or subject grouping) chosen. Subjects are generally grouped into: classics; languages; maths, sciences and technology; social sciences and economics; and fine arts and music.

1.4.3 Elective subjects

This component allows students to deepen their study within a given area, through more advanced modules in a specific subject, or by adding related subjects, such as an additional foreign language or a further science. Alternatively, it offers breadth by encouraging students to take subjects outside their dominant field. However, this option is not always taken up. For example, in Ireland, students tend to choose additional subjects within their chosen field.

[27] Over the past 10 years, secondary education been restructured. An evaluation has found that the aim of broadening education has not been achieved and that the curriculum is overloaded and fragmented.

England: The National Curriculum arrangements apply to students aged 14-16.[28] The only compulsory element for 16 to 19 year-olds in schools (but not in colleges) is religious education. Students programmes in this age range are likely to comprise courses leading towards GCE A levels, GCE AS levels, Advanced Vocational Certificates of Education (AVCEs, known as vocational A levels) or General National Vocational Qualifications (GNVQs) at all levels. Further education colleges offer courses leading to the above qualifications, and to a vast range of vocational qualifications. *There are proposals for reforming education provision for 14-19 year olds, including an overarching matriculation diploma at age 18/19.*

France: Education Minister, Jack Lang has introduced measures to encourage students to start, or continue, learning classical languages at upper secondary schools (*lycées,* age 15+ to 18).[29]

[28] At key stage 4 (14-16), the National Curriculum comprises: English; mathematics; science; design and technology; information and communication technology (ICT); a modern foreign language; physical education (PE) and, from September 2002, citizenship. Since 1998 there has been greater flexibility within the National Curriculum at key stage 4. Current proposals seek to extend this flexibility. Religious education is compulsory, except where parents request a dispensation.

[29] Source: http://www.education.gouv.fr/discours/2001/langanccp.htm (French) 27/11/01

Japan: A key feature of the centrally defined curriculum being implemented[30] is the increase in choice accorded to secondary students (age 12+), with a view to developing their individuality, creativity and independence as learners. The new curriculum places greater emphasis on the learning of English and information technology, introduces general studies and allows teachers more timetable flexibility. The time allocated to each subject has been adjusted as the school week is reduced from six to five days.[31]

Korea: The Seventh National Curriculum, being implemented between March 2000 and 2005, features an increase in the number of optional courses for students in Years 11 and 12. The subject content will be reduced at all levels to increase discretionary time for schools. This is intended to encourage schools to adapt the curriculum to local needs, and to encourage students' self-directed learning, independent studies and creative activities.

New Zealand: The *National Certificate of Educational Achievement (NCEA)* has no prescribed national courses, so schools may offer shorter

[30] Implementation in senior *High School* education (pupils aged 15-18) will start from April 2003.

[31] http://www.mext.go.jp/english/news/1998/07/980712.htm#top

courses, combine subjects and combine levels. Besides traditional courses in academic subjects, they can offer courses that lead to National Certificates (for example, drama, automotive engineering) and these credits also count towards the NCEA.

1.4.4 Cross-curricular or key skills

Academic knowledge is complemented by the development of skills and the application of knowledge and, even where students enjoy freedom of choice concerning the subjects to be studied at upper secondary level, they are increasingly required to demonstrate their competence in the basic skills. These skills may be developed either in preparatory (access) courses or transition year, or concurrently within or alongside the main programme.

Core or key skills are explicitly mentioned in the curricula of nine countries, variously described as key competencies, essential learnings (in the plural), foundation studies, core objectives, essential skills, skills for success, goals for lifelong learning, or areas of applied knowledge. However, other countries include similar skills within the subjects or learning areas of the curriculum. The most common areas include:

- **Numeracy/application of mathematics**
- **Literacy and communication**, which generally comprises oral and written communication, but also visual, through mathematical symbols and aesthetic expression. Competence in more than one language is stressed in Singapore (English and mother tongue) and it forms a requirement in the curriculum for

those following academic courses in several countries (Germany, the Netherlands and Switzerland), without being separately listed as a key skill.

- **Information skills, including ICT:** collection, organisation and evaluation of information for example, acquire information and meaning through observing, listening, reading and experiencing, *(see 1.4.5)*

- **Problem solving,** critical/logical thinking and decision making by applying basic principles and processes of the sciences, arts and humanities, often through extended project work

- **Study skills,** self-evaluation and improvement, in preparation for **lifelong learning and self-management**

- **Interpersonal skills,** social skills and teamwork. Only New Zealand explicitly lists competitive skills

- **Citizenship** and an awareness of civic responsibilities, **social and cultural values** (sometimes taught through religious education, moral education or ethics) and **heritage,** sustainability, and understanding the world as a set of related systems

- **Work-related knowledge and skills, employment and entrepreneurial skills**

- **Creativity, creative thinking/imagination,** futures thinking, the ability and will to change and transferring knowledge and establishing links between material/ideas from courses and/or modules

- **Health and physical development.**

Key skills are formally assessed in several countries:

England: There is a voluntary *Key Skills Qualification* in communication, the application of number and the use of ICT. Intra- and inter-personal skills, and problem solving are not separately assessed, but a draft framework exists to help teachers and students to establish principles, set objectives, and check the skills to be developed. Quality assurance mechanisms will be used to identify the skills and activities, and the process.

New Zealand: Literacy and numeracy are a pre-requisite to achieve Level 1 on the *NCEA*

Singapore: Key skills are assessed through the compulsory general paper at GCE Advanced Level. In addition to the teaching of the key skills of literacy and communication, problem solving and creative thinking through the compulsory General Paper, Interdisciplinary Project Work which was introduced in 2001 and which will be a requirement for university admission from 2005, will reinforce these skills and foster those for collaborative and cross curricular learning. Other key skills like the use of Information Technology are infused into subjects across the curriculum.

USA: Several states assess key skills for *High School* graduation. For example, learning, thinking, communication, technology and interpersonal skills (Maryland), thinking and communicating, gaining and applying knowledge, working and contributing from the learning, teaching and assessment process (Massachusetts), and the five areas of applied knowledge, namely, the application of basics, ability to think and imagine, communication, production of quality work, and connections with the community (Wisconsin).

1.4.5 Information and communications technologies

Education policies are increasingly geared to the use of ICT. This is partly because of a commonly held view that: 'schools must prepare students to live and work in a complex society where there is a vast flow of information and rapid change' (Sweden). The strength of this view is indicated, for example, by the high level of investment in the Netherlands, despite evidence that suggests that many Dutch students learn computer skills 'mainly at home'.[32]

A recent report on the incorporation of ICT into European Education Systems[33] identifies the most common aims of national ICT projects for secondary (including upper secondary) schools in England, France, Germany, Hungary, Ireland, Italy, the Netherlands and Sweden as:

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[32] Students' responses to the upper secondary review, in the Netherlands.

[33] Covering the 15 European Union member States, the three EFTA/EEA countries and the 12 pre-accession countries in central and Eastern Europe. See: EURYDICE, 2001.

- supply of equipment
- acquisition and distribution of software
- development of teachers' skills
- development of students' skills
- help in the development of (educational) software
- use of the internet.

As a comparison, the dimensions of the IT Masterplan, initiated in Singapore in 1997, include:

- physical and technological infrastructure, networked computers for teachers and students to receive high-speed multi-media services
- learning resources to meet curriculum needs
- training for serving and trainee teachers in the purposeful use of IT for teaching
- a curriculum redesigned to achieve a better balance of factual knowledge and mastery of concepts so as to encourage pupils to engage in more active and independent learning
- assessment realigned modes to measure abilities in applying information, thinking and communicating.

Whilst the objectives may transcend national borders, the specified learning outcomes vary. The EURYDICE survey (EURYDICE 2001) mentions the ability to use the computer as a tool (a universal goal in primary education) and the ability to write computer

programmes (included in the upper secondary curriculum of over 15 European countries). Students may also be expected to make appropriate and skilful use of specific applications (text, data, graphics, design and manufacture, communications) relevant to the subject area.[34]

1.4.6 Independent study

Increasingly, documents are making reference to the importance of independent study as a means of encouraging students to develop study skills and effective work habits. The development of relevant skills is fostered implicitly within subject studies, explicitly as key skills *(see 1.4.4)* and through special projects.

In France, Ministers have introduced initiatives to encourage a cross-disciplinary approach to secondary education, as well as increasing personal working contact between pupils and teachers by means of *travaux personnels encadrés (TPE),* whereby a group of pupils works with one or several teachers on a cross-disciplinary issue. This approach is compulsory in *seconde* (age 15-16) and *première* (age 16-17), but is still optional in *terminale* (age 17-18). However, given the strong subject bias of French teachers, *TPE* are strongly resisted.

The Seventh National Curriculum in Korea allows students in the tenth grade to spend 34 instructional hours each year on discretionary activities. The Ministry of Education strongly recommends that these should focus on cross-curricular or self-directed learning activities.

[34] Note: The OECD Programme for International Student Assessment (PISA) will seek to assess ICT skills in 2006.

The new upper secondary curricula in the Netherlands include 10 per cent of time for independent guided study. The overall study load of 1600 hours per year (which includes contact time, homework and independent study) is being reduced in response to parental pressure.[35] Independent study is beginning to be introduced, as schools are gaining greater autonomy to extend the allocation. The desired transition from passive to active, independent learning requires a change in teaching methods.

In New Zealand, one of the driving principles of the curriculum is the development of knowledge, skills and attitudes to empower students to take responsibility for their own learning. Schools promote social and cultural learning as well as academic achievement, and seek to provide students with satisfying and worthwhile experiences that will motivate them to continue learning throughout life. New technologies and online learning offer potential for flexible learning, but this requires broadband access and a pedagogical shift on the part of teachers.

The Interdisciplinary Project Work initiative, introduced into all Singapore schools from 2000, encourages cross-disciplinary work to allow students to explore the relationships between subject-specific knowledge, to integrate knowledge, skills and values learnt from different subject areas and learning experiences, and apply them in real life situations and meaningful contexts. In this process, students will acquire communication and collaboration skills and develop self-directed enquiry and life-long learning skills.

[35] Secondary education for students aged 12 to 18 has been restructured over the last 10 years. A review of the restructuring has identified an overloaded and fragmented system. The aim, to make education broader, has not been achieved. As a result, some streamlining is taking place.

Personal study is also an element in the proposals for the new *maturité* examinations in the French-speaking *cantons* in Switzerland.

1.4.7 Guidance and personal planning

Individual guidance and educational and career planning are explicitly mentioned as an important element in most countries. Increasingly, this is linked to the development of study skills, personal work habits and the evaluation of personal performance *(see also 1.4.4)*.

In England, although there is a statutory requirement for careers education to be included in the curriculum for 13 to 16 year-olds this does not apply thereafter.[36] However, schools and colleges are expected to include personal and social education provision, including personal and learning support, in all programmes. This is particularly important in a system where post-compulsory curricula are not prescribed.

The requirement that students in upper secondary schools in the Netherlands choose between four main curricular profiles has increased the requirement for student guidance, but this has not yet been fully implemented in schools.

[36] The Connexions Service is a major recent government initiative, designed to offer a range of guidance and support for 13- to 19-year-old students, to facilitate transition from school to adult life. It will absorb and expand the work of existing careers services.

1.4.8 Work and community experience

In addition to citizenship, social responsibility[37] or similar courses, some countries (for example, Canada, USA) require students to undertake 30-40 hours of community service to meet *High School* graduation requirements. Such practical service is a common element in courses leading to the International Baccalaureate, versions of which are beginning to be considered as alternative, portable, qualifications by some state schools in a number of countries.

Even if not compulsory, community experience is being encouraged and accredited elsewhere. For example, in New Zealand, the pathway for senior secondary students from school to work-based education is being strengthened[38] through opportunities to: participate in work-based learning, including assessment and recognition of that learning (normally through unit standards); integrate work-based learning with the general curriculum; and test different arrangements for structured work-based learning, involving different environments, and different groups of students. The Ministry of Education negotiates national and regional level brokerage contracts for school enterprise links, to provide a context for students to see the relevance of their school work to the wider world within authentic contexts, and to give insights into the demands of the workplace, particularly in relation to knowledge/skill levels. However, the constraints of school timetables may hamper the general academic advancement of those involved in mainstream work-based education.

[37] In the Netherlands, social responsibility has recently been introduced as a separate (internally assessed) subject at upper secondary level for one hour weekly over two years.

[38] The Gateway pilot programme was introduced in 2001.

Similar schemes exist in other countries. For example, community service and work-related experience are important dimensions of the proposed reforms for 14-19 education in England.

However, this dimension is not viewed in the same light in all countries. In France, general education at upper secondary level *(LEGT)* is intended to provide a general all-round education, basic knowledge and culture, as a foundation for more specialised knowledge and skills. As a result, work-related education and work experience are not considered important, and employers are not involved in the development of *LEGT* curricula. This contrasts with provision for vocational education in the *lycées professionnels.*

1.4.9 Religious and moral education

Moral or ethics education forms an implicit element of education in most countries *(see also 1.4.4),* but is taught as a separate compulsory subject in Japan, Korea and Singapore.

Religious education is compulsory in England (although students may be exempt) and Germany. Schools must offer religious education in Spain and Italy, but it is optional for students. Religious education is banned in public-sector schools in France[39], New Zealand and the USA. State-subsidised denominational schools exist in Australia, Canada, England and the Netherlands.

1.5 Assessment and certification

Even where students attend a single school type, different courses may be offered according to their ability or interests. These courses may lead to different levels of qualification, and therefore grant access to different educational and employment opportunities.

[39] Except in the areas of Alsace and Lorraine, which were formerly part of Germany.

Within a school type the students may be directed towards different tracks leading to a similar qualification.

Most countries offer upper secondary diplomas based on satisfactory achievement in a core of common subjects, a block of subjects specific to the chosen area of study, and a range of elective subjects. However, in England[40], New Zealand and some Australian states, students may combine different courses leading to individually accredited qualifications, within an overall framework. Sweden and the USA offer credit-based models, in which each course provides a set number of points that may be accumulated over the course of the programme towards *High School* graduation.

The functions of qualifications in relation to higher education studies differ. In some countries (for example France[41], the Netherlands[42] and Germany), they serve as a form of accreditation, which entitles holders to a place in higher education, whereas elsewhere (for example, Australia[43], England, Ireland), they are an element in the selection process, and admission depends on the student's performance relative to other applicants. Germany is alone in offering dual (general and vocational) certification at upper

[40] Because qualifications need to be transferable between the constituent countries of the UK, and also within the European Union, the Qualifications and Curriculum Authority (QCA – in England), the Northern Ireland Council for the Curriculum, Examinations and Assessment (CCEA) and the Qualifications Curriculum and Assessment Authority for Wales (ACCAC) are collaborating on a national qualifications framework. See QCA, CCEA and ACCAC (2000a, 2000b and 2001).

[41] Admission to the *grandes écoles* is controlled by competitive examinations known as *concours.*

[42] Admission to 'numerus fixus' courses is subject to an average of over 80% and others by lottery

[43] Standards referenced (criterion) assessment is being introduced in New South Wales, Australia, (replacing cohort/norm referenced) to serve as a predictor of future performance based on demonstrated past performance.

secondary level, although in other systems, universities are accepting vocational qualifications for admission to some courses.

Australia: As education is not a federal responsibility, each state has its own upper secondary school leaving examinations. The requirements vary between states in terms of subjects to be studied and modes of assessment. Some states award credits towards the upper secondary school leaving qualification over a period of two to three years. Not all courses qualify for Tertiary (or university) Entrance. A recent development is the de facto dual recognition of programmes at the end of Year 12 (age 17/18) whereby universities consider whether specific vocational courses or elements (for example, business studies) provide adequate preparation for related university studies. This approach does not seek generic parity of esteem or equivalence between academic and vocational education, but enables students to take a combination of general and vocational subjects at a range of levels according to their interest and abilities.

Canada: Each province has its own upper secondary school leaving examinations, but there may be some similarity between them.

England: In 2000, post-16 qualifications were revised to broaden the range of post-compulsory studies without reducing the depth of *A Levels.*[44] In all cases certificates are issued even if students pass only one subject at the relevant level. General and vocational qualifications can be combined with key skills and other credits gained in work placement or a part-time employment. A qualifications framework provides a basis for comparison. Amidst concerns about student workload and heavy assessment, a review of the implementation of these reforms has resulted in some changes. From September 2002, *Advanced Extension Awards* (AEAs), will allow the most able advanced-level students to demonstrate a greater depth of understanding and critical thinking in, without changing the curriculum content of, selected *GCE A Level subjects. Proposals for further reforms are currently under consideration.*

France: There are three categories of *Baccalauréat:* the general, (which was reformed in 2000 and offers three options: literary, science, social science), technological (which offers seven

[44] Reforms introduced in August 2000 aimed: to encourage students to study up to five subjects for one year to *GCE Advanced Subsidiary level* and continue their study of three of the subjects during the second year to *GCE Advanced Level;* to combine vocational and academic study; and to study the key business skills of communication, application of number and information technology for a Key Skills qualification.

options, and is currently subject to review), and vocational (which was introduced in 1987 and offers over 40 options). There are a number of common subject areas across the three *Baccalauréats* (in French, mathematics, history, geography etc) but the programmes of study are not the same across the three tracks. The *Baccalauréat* model is popular because the general/academic and technological streams offer a passport to higher education and the vocational option has increased participation rates.

Other vocational qualifications which may be taken in the vocational *lycée (lycée professionnel)* include the *BEP (brevet d'enseignement professionnel* or vocational training diploma) and, to a lesser extent, the CAP (*certificat d'aptitude professionnelle* or vocational aptitude certificate), normally at the end of the second *lycée* year.

Lycée reform (phased in over three years from September 1999) is intended to reduce the workload for students to a maximum 35-hour week including homework and personal projects. It also extends the common core curriculum (French, combined history/geography, mathematics, civics, PE/Sport and art and music) to all students, regardless of specialisation (although the content is not the

same for all), and provides class time for students to discuss matters that are important to them as a class.

Proposals to include a proportion of continuous assessment in the *Baccalauréat* are being strongly resisted by teacher unions. One reason given is that the *Baccalauréat* is a national qualification, entitling those who pass to a place in higher education and the examination, should therefore be the same for all.[45]

Germany: There is no national system of assessment for students receiving general education. However, the Standing Conference of the Ministries of Education and Cultural Affairs of all the *Länder* (constituent states) has established a national agreement, which aims to ensure uniformity in the level of ability required to pass the *Abitur,* (the upper secondary leaving certificate/higher education entry qualification). The Standing Conference has also adopted standard

[45] France has, for the first time, published university league tables, based on the success rates of students taking the *dîplome d'études universitaires générales* (DEUG), the initial university qualification designed to be completed in two years of study. The tables also take into account how effective universities are at accommodating students' diverse social backgrounds. Most universities obtain pass rates of more than 75 per cent. The results suggest that students who have specialised in science subjects for the *baccalaureate* (upper secondary qualification) and those from professional backgrounds are the most successful. Times Higher Education Supplement (THES) 26 October 2001 Egalitarian France measures success

examination requirements for 33 subjects in the *Abitur*. The qualification awarded depends on the school attended. The *Gymnasiale Oberstufe* ends with the *Abitur* examination and successful students receive *Allgemeine Hochschulreife* (general higher education entrance qualification) after 13 or 12 years[46]. Successful students at the *Berufliches Gymnasium* or *Fachgymnasium* receive the *Allgemeine Hochschulreife*. Those who have completed dual qualification courses, also receive a nationally-recognised vocational qualification *(anerkannte Ausbildungsberufe)*. Successful completion of the *Berufsfachschule* leads to the qualification of *Staatlich geprüfter Assistent* (state-certified assistant) in the relevant occupation.

A recent (1997) agreement of the Standing Conference allowed the *Länder,* among other things, to introduce fast-track schemes in order to reduce the overall duration of the course leading to the *Abitur* examination from nine to eight years (students usually commence the course which leads to the *Abitur* at around age 10), or the length of compulsory education as a whole from

[46] In some *Länder,* the general higher education entrance qualification can be awarded after 12 years of school, either generally or within the scope of pilot projects in schools. To guarantee the mutual recognition of the *Abitur* obtained after this shorter course, these *Länder* have to ensure teaching of a total of at least 265 weekly periods in the lower secondary level and the *Gymnasiale Oberstufe*.

around 13 to around 12 years. However, the required minimum number of hours of taught time remains the same. The *Land* of Rhineland-Palatinate, for example, has introduced a scheme that reduces the overall duration to around eight-and-a-half years, and therefore allows students to enter higher education slightly earlier.

Hungary: On completion of upper secondary education (usually the *secondary grammar school* at age 18, Year 12), there is one national, centrally controlled examination, called the *maturity examination* or *matriculation examination (érettségi)*. The secondary vocational school can also lead to: the *maturity examination* (at age 18), the combined vocational and *maturity examination,* the skilled workers examination, or the technicians examination. However, from 2004, a new two-level *maturity examination* is to be introduced, which can be taken either at the end of Year 12 (age 18) or on completion of Year 13 (age 19) of upper secondary education. Both compulsory and optional subjects will be tested in the examination.

Ireland: There are three types of qualification: *Leaving Certificate (established), Leaving Certificate Vocational Programme (LCVP - an intervention within the Leaving Certificate (established)), and the Leaving Certificate Applied (LCA),* which is intended to meet the needs of those who choose not to opt for/are not adequately catered for by other Leaving Certificate programmes. The *Leaving Certificate (established)* is currently being reviewed.

Italy: The *scuole superiori* (which include *licei* and *istituti*) prepare students for the upper secondary state exam *(Esame di Stato)*, the title of which may indicate the specialisation (for example, *Esame di Stato di Liceo artistico*). After a three-year course in *istituti profesionnali,* a vocational diploma is awarded *(diploma di qualifica professionale).*

Japan: On completion of *senior high school* education, students receive the *Certificate of Upper Secondary Education* from the school principal (head teacher) and the grade awarded is based largely on teacher assessment. There is no external moderation. Graduation certificates indicate the option chosen, i.e. general, vocational or integrated, but do not show the grades obtained, and are accepted by employers.

Revisions for upper secondary education aim to reduce the total number of credits for compulsory subjects and to give schools and students more freedom of choice, so that each student can further develop individuality and become independent.

Korea: On completion of upper secondary *High School* education, successful students receive the diploma of *High School* education. The nationwide government-set *College Scholastic Ability Test (CSAT)* is the normal qualification awarded.[47] The CSAT is to be reformed by 2005 to fit the new curriculum. Students of vocational *High Schools* take national exams for the National Certificate in the area of their study.

Netherlands: The secondary school tracks are named according to the qualification awarded on successful completion namely *VMBO* (four-year secondary, age 16, normally leading to further vocational education), *HAVO* (five-year secondary, age 17, leading to non-university higher education), and *VWO* (six-year secondary, age 18 pre-university). The requirements for the *HAVO* and *VWO* have

[47] A new higher education entrance examination system was introduced in 1994, to broaden the autonomy of colleges and universities and to standardise *high school* examination-bound education. This system gave a 40 per cent weighting to upper secondary *high school* achievement and, in addition, universities could consider the *CSAT* scores and/or administer their own examination.

recently been reformed, channelling student choice into one of four disciplines (science and technology; science and health; economics and society; and culture and society). The new *HAVO* and *VWO* are awarded on the basis of a national examination held in the final year and a school assessed component. For some subjects there is no external examination.

In contrast with other countries, upper secondary education reforms, phased in between 1999-2001, *reduced* students' freedom of choice of *HAVO* and *VWO* examination subjects. It introduced a curriculum comprising a compulsory core (50 per cent) and a choice from four broad subject combinations, each having compulsory (30 per cent) and optional (20 per cent) units.[48] This aims to ensure that students follow a coordinated study programme and are better prepared for higher vocational education *(HBO)* or university. The reforms also stress independent study – to be carried out under the guidance of a teacher - but this is only just being implemented.

[48] The total study load of 40 hours for 40 weeks per year, comprising class work, homework and private study, is being reduced as a result of parental pressure.

New Zealand: The *National Certificate of Educational Achievement (NCEA),* the main senior secondary qualification, is being phased in between 2002-04 and is intended to provide a more comprehensive record of what students achieve while they are at school and provide a better launching pad for students' ongoing learning and their future careers. It is standards-based and complements external assessment with internal assessment in all conventional school subjects at three levels (Level 1 *NCEA,* Level 2 *NCEA,* and Level 3 *NCEA,* broadly equivalent to Year 11, Year 12 and Year 13). However, it is not time-bound and students may choose to study each subject at the level that best meets their needs. National standards, in each area of learning, have four performance grades: no credit, achieved with credit, achieved with merit, and achieved with excellence, of which the last three qualify for the award of *NCEA* credits. When 80 national standard credits have been accumulated, the student is awarded the *NCEA.* At least 60 of the credits must be at, or above, the level of the qualification awarded (that is, Level 1, Level 2 or Level 3). A National Scholarship (Level 4), designed to motivate the more able students, will be available from 2004.

Employers/admissions tutors will have to examine the qualification to identify the nature and content of the individual's achievement, which may include one or more of: academic courses and/or strands, vocational courses and/or strands or industry/workplace learning.

Singapore: At the end of upper secondary education students may take the *Singapore Cambridge General Certificate of Education Advanced Level (UCLES GCE A Level)* examinations. The most able students (typically the top 10 per cent of the *Junior College* cohort) may take Special (S-level) papers in addition to *GCE A Level* examinations. The Ministry of Education has imposed a normal limit of two S-level papers per student, but exceptions may be made. Assessment modes will also be aligned with the teaching of thinking skills. New modes of assessment include case studies, source-based studies and school-based assessment of practical skills for science subjects.

Changes at pre-university and university level aim to prepare young people better for the challenges of the future. Accordingly, from 2003 the university admissions system is moving away from sole reliance on one examination to a more holistic evaluation of

the individual. The weighting for A level applicants will be as follows: GCE A levels (75%), Scholastic Assessment Test 1 (25%) and up to 5% bonus points for co-curricular activities (CCA), making a potential total of 105%. From 2005, project work will also be taken into consideration for university admission.

Spain: Students prepare for the *Bachillerato* (in one of the arts; technology; sciences of nature and health; or social sciences and humanities) leading to university, work, or advanced specific vocational training. Alternatively, specific vocational training qualifications (modular courses according to the relevant field) offer access to advanced vocational training or employment. The LOGSE reforms, implemented progressively throughout the 1990s, raised the status of vocational education by introducing it into general, as well as specialist, secondary education.

Sweden: Upper secondary schools offer 17 nationally determined programmes, of which 15 are primarily vocationally oriented, two primarily academic and a new national programme for technology. National tests exist to exemplify teacher assessment at upper secondary level, to ensure that teacher

judgments are fair and to assist teachers in making these judgments. It is not necessary for all upper secondary students to take the national tests. A Parliamentary Commission review of the organisation of courses and study routes in upper secondary education (including the offer of fewer, but broader, programmes) and of the need for an upper secondary examination (which does not currently exist) is expected by 30 April 2002. It is possible that the proposed examination law may relate to 'major project work', which requires students to take a cross-curricular approach to address the issues that arise, and to demonstrate that they have transcended individual subject areas.

Switzerland: There is no national system of assessment in Switzerland and therefore no central assessment agency. However, nationally recognised standards apply to the examinations for the *Maturität* certificate and for the DMS diploma. In addition, many upper secondary schools offer the national Swiss *Matura* examination. Organised by the Swiss Confederation, this is held twice a year and any student, regardless of his/her school career, is eligible to take part. Successful completion usually entitles the holder to enter university level education. The

Diplommittelschule (DMS – middle school diploma) is awarded on completion of vocational education. The French-speaking *cantons* are developing an inter-cantonal *Baccalauréat*.

USA: Individual states set criteria for *High School* graduation. These comprise a combination of course grades (determined at school level), standard assessment task (SAT) scores and community service. Current debates centre around the problems of comparing grades awarded by different institutions on the one hand, and the perceived injustice of requiring students in disadvantaged areas to meet state- or district-wide criteria on the other.

SECTION 2

Issues and implications

Issues and implications

Introduction

During the past twenty years, there has been a general trend towards the devolution of responsibility to school level, and the introduction of a consumerist approach to education. This has been accompanied by regulation through curriculum and assessment frameworks and prescribed classroom practice, for example, to speed up the achievement of qualifications targets or organisational restructuring. In some cases, governments have set targets for student participation and achievement. Whilst such regulation might serve the functions of securing minimum entitlement and safeguarding national cohesion, it does not necessarily lead to higher standards of performance[49] and might also be seen as undermining institutional autonomy.[50]

As outlined above, upper secondary education is subject to widespread review and reform, even in France and England, where the lower secondary phase is considered to be the weakest link.

[49] The findings of the Programme for International Student Assessment (PISA) survey of 15 year-old students' achievements in language/literacy, mathematics and science, (OECD, 2000) suggest that there is no significant correlation between centralised curricula and high student performance in reading, mathematical and scientific literacy. Indeed, a perception that centralised curricula might prevent schools from meeting the needs of individual students has led to reduced prescription, for example, in England (Curriculum 2000), the Netherlands (revised *Basisvorming*), Singapore and Spain *(LOGSE)*.

[50] For example, the centrally-organised upper secondary courses and examinations in the Netherlands are perceived to undermine school autonomy, as laid down in the Constitution and reaffirmed by government policy.

The issues and their implications will be considered under six headings:

- Purposes and priorities: responsiveness and inclusion
- Participation and engagement in education
- Models of delivery: diversification and differentiation
- Content: relevance, coherence and manageability
- Teaching and learning
- Assessment and certification.

2.1 Purposes and priorities: inclusion and responsiveness

Education and training systems are increasingly required to be more responsive to perceived economic and social change. Among the objectives for socio-economic development are: social inclusion; meeting skills shortages in the labour market; keeping pace with scientific and technological developments; political and civic participation and lifelong learning.

Whilst each of these five priorities is important, they frequently interrelate. For example, links are drawn between lack of skills, unemployment and social and political disaffection and, in some cases, crime.

The specific aims relating to the five priorities are considered below.

2.1.1 Social inclusion and equity

There are high levels of political commitment to social inclusion and equality of opportunity, as the following extracts from policy documents show.

Australia: Education that reflects commitment to social justice; equal opportunities and the development of individual potential.

England: To give everyone the chance, through education, training and work, to realise his/her full potential and thus build an inclusive and fair society and a competitive economy.

France: The overall aim of education is presented in terms of personal development. However, employability and integration into working life are safeguarded by '… the principle that every young person must be given the opportunity to take up vocational training before he or she leaves the education system regardless of the level of education he or she has completed.'

New Zealand: Fostering fairness, tolerance, self-reliance and informed participation in New Zealand society.

Singapore: The mission statement of the Singapore education service 'Moulding the Future of the Nation' sums up and reflects the role of the education service as a force in shaping the character and economic capacity of the people, while enhancing their national and cultural consciousness.

Sweden: The task of the school is to impart knowledge and, in close co-operation with the home, help students develop into responsible persons and members of society. Education and upbringing involve passing on a cultural heritage: values, traditions, language and knowledge, from one generation to the next. Students must also develop the ability to critically examine facts and relationships and appreciate the consequences of the various alternatives facing them.

However, while many students may be motivated to achieve the benefits which educational qualifications are expected to bestow, there is concern about different levels of participation and achievement and, as a consequence, unequal life chances. There are high correlations between specific school types, socio-economic status and student outcomes *(see 2.3.1. implications, below)*.

It could be argued that a 'common schooling experience' makes an important contribution to social cohesion. Even if we acknowledge that within a common system and a common curriculum, there were multiple experiences, the promotion of 'à la carte' courses and

modes of delivery is likely to further fragment the shared experience. Moreover, unless sufficient funding is made available to ensure that all students can take advantage of alternative options, including off-site and electronic learning, the education system may reinforce social disadvantage.

2.1.2 Skills shortages in the labour market

OECD countries register an increase of 5-7% in growth per additional year of education. Many individuals see education as a means to achieving more desirable and better-paid employment. It is therefore not surprising to find an overriding aim, in virtually all countries, to raise standards of education (as a proxy for social capital). However, the benefits for society and individuals are unlikely to be realised if there is a mismatch between education and employment needs.

The 'relevance' of education to employment is therefore a common, and frequently explicit, objective. It is only in France that the focus of general and technological *lycées (LEGT)* remains firmly on providing a general all-round education, with basic knowledge and culture, onto which technical skills can be 'bolted' quite quickly. For this reason, work-related education and work experience are not given the same degree of attention as in other countries.

The following policies and strategies are intended to help young people develop the necessary skills for (self-) employment, either immediately on completion of this phase, or after further education.

Australia: Since the early 1990s, there has been an increased concern regarding the links between employment and education. Government policies at all levels have been concerned to meet changing employment needs and requirements for a productive workforce.

Canada: There has been a steady shift by policy makers towards decisions that reflect a perceived linkage between employability, national productivity and international competitiveness.

England: To support economic growth and improve the nation's competitiveness and quality of life, by raising standards of educational achievement and skill, and by promoting an efficient and flexible labour market.

Germany: Orientation towards the future job market and preparing school students for competition within Europe. Current political debate in Germany tends to focus more on measures to reduce unemployment and improve the budget situation than on school reform.

Hungary: Education aims are driven by the country's intention to join the European Union and the importance of well qualified manpower in international competition, the advancement of democracy and the introduction of a modern market economy. The remaining aim of education is to develop, train and educate the workforce of the future.

Ireland: To contribute to social and economic development.

Japan: Changes in education are intended to prepare students for the society they are to enter as adults. Business leaders have pushed for educational reform, and have blamed the recent economic crisis in Japan on the outdated style of education. It is felt that education currently does not prepare students for work in a world that is increasingly competitive, globalised and computerised. Japan now wants more creative, individualistic and imaginative employees, because the homogeneous, conformist individual, who could easily be moulded for the prosperous corporate post-war period, is not suitable for today's competitive world.

Korea: The power and wealth of a nation and the living standards of its people are determined by the level and scope of the nation's intellectual property, such as its levels of skills, information, knowledge and culture. Intellectual property essentially depends on learning ability and creativity and the development of these depends on education. The quality of education should be raised to a world level.

New Zealand: Contributing to a highly skilled and adaptable and motivated workforce.

Singapore: The people and Government recognise that the wealth of Singapore is her people and therefore major educational objectives include equipping people with a broad set of skills to respond to opportunities in the new economy.

2.1.3 Keeping pace with scientific and technological development

Science and mathematics in secondary level schools are declining in popularity in England, Ireland[51], Korea[52] and the USA[53]. This trend has reduced the pool of specialist science and mathematics teachers. As a result, in some of these countries, there are many non-specialists teaching these subjects, who may not have the expertise or confidence necessary to prepare and motivate students to pursue higher-level studies in mathematics and science. One of the reasons for the increase in on-line science courses in certain states of the USA is the schools' inability to recruit suitably qualified teachers.

The introduction of information and communications technologies (ICT) currently constitutes the most significant investment in schools. At secondary level, there is a tendency for ICT skills to be taught in dedicated ICT lessons, in addition to its use to support learning across the curriculum. If ICT qualifications become a requirement[54], or a university expectation (for example, to enable students to follow courses and provide coursework online), this trend is likely to increase.

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[51] Especially physics and chemistry.

[52] Science and technology, and their ability to create a new culture, are seen as the most critical factors for the immediate future.

[53] Responsibility for the curriculum in the USA is devolved to state and district level. However, two major initiatives in science education, 'Benchmarks for Science Literacy' and the 'National Science Education Standards' have been generated at a national level ,with a view to influencing state policy.

[54] For example, a level 2 pass in ICT is a requirement for the proposed *Matriculation* diploma in England.

2.1.4 Political and civic participation

There is a steady decrease in the numbers of people voting, even in countries where it is mandatory. Those who feel that their views are poorly, or not, represented may question the 'democracy' of the legislature, the legitimacy of its actions and its power to bring about desired changes. As a result, they may not feel bound by the laws, and undermine social order and security. Alternatively, they may resort to different forms of protest or direct action, for example, in support of animal rights or in protest against economic globalisation.

At another level, the promotion of individualism, which has underpinned capitalism, has simultaneously undermined the culture of voluntary public service that has characterised the middle classes for much of the twentieth century. Some governments are already calling for people to devote part of their retirement to voluntary community services, to complement the support provided by the public and commercial sectors. Countries where the community takes precedence over the individual (for example, Singapore) are taking careful steps to harness the 'individualism' which they perceive to be necessary for economic prosperity in the 21st Century to the well-being of the community and the nation.

Attempts to promote students' understanding of, and commitment to responsible participation in, civil and political society are evident in the (re-)introduction of civics and citizenship education in, for example, Australia, France, England, the Netherlands and New Zealand. Specific objectives from policy papers in other countries are outlined in the following extracts:

Germany: Since reunification, urgent priorities have been identified for educating young people to take political responsibility in a democratic system and supporting the new *Länder.*

Ireland: To enable students to develop to their full potential as persons and to participate fully as citizens in society.

Korea: Democracy and citizenship education in Korea are addressed in subjects such as morals/ethics and/or civics/social science, both of which are compulsory in the first year of *High School* (10th grade). One explicit objective for *High School* is to develop an awareness of, and appropriate attitudes for, global citizenship.

Singapore: To nurture children into good citizens, conscious of their responsibilities and ensuring their commitment to their family, their community and country.

2.1.5 Lifelong learning

Many countries make explicit reference to the contribution of upper secondary education to lifelong learning. Measures taken to promote and recognise study skills, motivation and self-directed learning include

- the promotion of independent learning (including through the effective use of information and communication technologies) and the evaluation of one's own performance and learning needs

- more flexible and modularised courses, possibly combining general and vocational education
- bringing together a wide range of education providers, (including the school, other educational institutions, the workplace, the community and distance education providers) who may cater for adult learners as well as young people. Digital education services are being developed to meet the needs of learners based in educational institutions and those who are studying independently.
- the development of a qualifications framework which will accredit knowledge and skills acquired within or outside the formal education system
- the funding of upper secondary education for all (in most countries), or for those who cannot afford the fees.

Spain has identified women as a particularly vulnerable group in terms of lifelong learning, together with ethnic minorities and gypsies.

2.2 Participation and engagement in education

Most countries are seeking to increase participation rates in upper secondary and higher education, especially amongst the less educationally advantaged sectors of the community. However, this does not appear to be an issue in Singapore and Korea, where virtually all students remain in education to the age of 18. In fact, in Korea, there is concern about reducing the numbers of 'perpetual students'.

The main initiatives are in the domains of target setting, motivating students and incentives. Diversification of delivery models, and the curriculum, teaching approaches and assessment are addressed in 2.3 to 2.6 below.

2.2.1 Government regulations or targets

Ten countries have set explicit targets to increase participation in, or achievement at, upper secondary level. Singapore and Sweden have expressed targets in relation to higher education, which requires upper secondary qualifications for entry.

Australia: National targets set for 2001 were that 95 per cent of 19 year-olds will have completed Year 12 of schooling, or an initial post-school qualification, or be participating in formally recognised education and training.

England: The Government's aim is that all young people should continue in learning to age 19. It has set targets for 2002 that 50 per cent of 16 year-olds should achieve five General Certificate of Secondary Education (GCSE) passes at Grades A* to C (or their equivalent) and that 95 per cent should achieve at least one GCSE. By age 19, 85 per cent of young people should achieve five GCSEs at grade A*-C (or their equivalent) and by age 21, 60 per cent of young people should achieve two general or vocational A Levels (or their equivalent).

The proportion of 16 year-olds in England participating in education and government-supported training *fell* from 80.4 per cent in 1995/6, to 76.1 per cent in 1998/9 (Howson, 2002)

France: In 1989, the government 'access rate' target for 2000 was that 80 per cent of each cohort should continue their education to the age of 18, following general, technological or vocational courses leading to the *Baccalauréat*. The remainder should have reached the *(CAP)* vocational aptitude certificate or the vocational diploma *(BEP)* level. However, it is now acknowledged that, despite high levels of investment, 80 per cent may not be attainable.

The access rate stood at 34 per cent in the 1980s, 55 per cent in the 1990s and 70 per cent between 1997 and 2001. The introduction of the vocational *Baccalauréat* may account for part of this increase in participation. Whilst not all students take the examination and, of those who do, 20 per cent fail, 56 per cent of students obtain the *Baccalauréat*.

Germany: Education is compulsory, at least on a part-time basis, until the age of 18.

Ireland: The aim is to encourage at least 90 per cent of students aged 15-18 to complete the *senior cycle,* at least on a part-time basis.

Italy: The school leaving age has recently been raised from 14 to 15. Education or training will eventually be compulsory for 12 years, from age 6 to 18, so that it will only be possible to enter the labour market with an upper secondary school leaving certificate, or an apprenticeship contract, or a vocational qualification. *[Note: the pursuit of these targets was deferred in 2001 by the incoming government.]*

Korea: 99.5 per cent of junior *High School* graduates progress to *High Schools.* Almost all high school students complete their three years of study and rates of absenteeism are extremely low[55] The rate of graduation from upper secondary education increased steadily from 90.9 per cent in 1970 to 94.5 per cent in 1996. Since then, there has been a slight decrease, to 93.2 per cent in 1998.[56] Thereafter, 83.9 per cent of general high-school graduates and 41.9 per cent of vocational *High School* graduates progress to higher education institutions. There is concern about *appropriate* education and government policy aims to increase the

[55] The Further Education Funding Council (FEFC) (1998). *Aspects of further education in the Republic of Korea. International report from the inspectorate 1997-98*. Coventry: FEFC.

[56] Source: Republic of Korea. Ministry of Education (MOE) (1999a) and Republic of Korea. Ministry of Education (MOE) & Korean Educational Development Institute (KEDI) (1998). *Handbook of Educational Statistics.* Seoul: MOE

proportion of middle school graduates moving on to vocational *High School.* In 1980, 31 per cent of *High School* students were in vocational schools; by 1997 this proportion had risen to 41 per cent.

Netherlands: There are no targets because students are required either to remain in full-time education until age 17, or to undertake two years' part-time education after the age of 16. At present, 60 per cent of the age cohort takes the VMBO (at age 16), comprising one general path and three pre-vocational paths. The majority of these students go on to regional training centres (ROC), for at least 2 years of part-time education post-16. 26 per cent of the cohort takes the HAVO (at age 17) and 14 per cent takes the VWO (at age 18). The majority of these students go on to university or higher vocational education.

New Zealand: There is a historic pattern of students' leaving school early with low level qualifications. The percentage of students leaving school without gaining any qualifications increased from 16 per cent in 1991 to 19 per cent in 2000. Just under one-third of these have an exemption to leave school at age 15 and many enter youth training courses or courses offered by other tertiary providers. Government targets aim, in particular, to address the disparity in

participation and achievement rates between Mäori and non-Mäori students by:

- increasing the ratio of Mäori to non-Mäori 16 to 18 year-olds in education from 81:100 to 90:100 by 2011 and reaching parity by 2021
- increasing the achievement rate of Mäori students achieving secondary qualification, by 12 per cent by 2012 and matching the non-Mäori rate by 2020.

Specific performance targets and goals are also being considered in Ministry of Education work on the development of an education and training framework for 16 to 19 year-olds.

Singapore: About 90 per cent of each cohort is enrolled in post-secondary educational institutions, and 21 per cent go on to university. Government educational planning targets are set in line with manpower planning and long-term economic and social development strategies. By stressing an ability driven paradigm and mass customisation, the education system aims to create opportunities for all students to pursue and maximise their potential and encourage them to remain in the system. The targets for the age cohort are:

Junior Colleges or Centralised Institutes (29 per cent), polytechnic (40 per cent) and industrial and technical education (25 per cent).

Spain: Legislation passed in 1990[57] raised the school leaving age from 14 to 16 (1990s) and there has been an upwards tend in the number of 17 year-olds in full-time education, increasing from 59.2 per cent in 1988/89 to 77.7 per cent in 2000/2001. Compulsory education *can* extend to a maximum age of 18. Specific Social Guarantee *(Garantía Social)* programmes are designed for those students who do not manage to obtain a certificate.

Sweden: The Government has increased resources for schools over the period 2001 to 2006 to support the Ministry's goals of raising standards and increasing the numbers of adult learners. It will also support the long-term target that half of any age cohort should begin university level education by the time they are 25 years old. The present rate is 40 per cent.

[57] *Organic Act 1/1990 on the General Organisation of the Education System (LOGSE)*

USA: Those who do not achieve the *High School* graduation certificate (at around age 18) are deemed to have 'dropped out' of education. The Government target for 2000 was that the high-school graduation rate should increase to at least 90 per cent. Recent OECD figures suggest that the figure is around 72 per cent.[58] However, since many complete their education through alternative programmes, such as the General Educational Development Programme, the proportion of young adults having completed *high school* is considerably higher.

Implications

Target setting focuses attention on performance and invites remedial action. Whilst the foregoing figures indicate a general increase in participation rates, this is not universal. Despite numerous initiatives to diversify the content, format and flexible delivery of learning, both England and New Zealand report a downward trend in student participation and achievements at around age 16, and in France, participation appears to have settled at around 80 per cent.

However, target setting can have unexpected, and unintended, consequences. These may include teaching to the test, at a potential risk of limiting both breadth and depth of learning. In addition, increasing student numbers at short notice, to meet government targets, may cause problems for institutions. In this connection, the UK government's objective to attract participation rates, especially

[58] Cornwell, T. (1998a). 'Long slide down the rankings', *Times Educ. Suppl.,* 4 December, 18.

amongst disadvantaged students, has resulted in an informal division into 'selecting universities' (those which are oversubscribed and where students have to compete for places) and 'recruiting universities', which are likely to admit less well qualified applicants. The knowledge and skills of some incoming students may therefore be insufficient for them to complete their degree. There are, of course, numerous other factors affecting the performance of university students, but these fall outside the scope of this study.

2.2.2 Motivating students

Upper secondary education is unique in its diversity. Compulsory education is regulated by the need to secure basic, and common educational entitlement for all; vocational training and higher education serve more readily identifiable groups. The upper secondary student stands on a threshold, open to an array of opportunities. The choices made will have long reaching effects for the individual, and collectively, for society.

However, despite government aspirations, students are unlikely to participate in formal education unless they derive personal benefit in terms of enjoyment or social and economic advancement. Traditional courses may fail to attract several groups of students:

- those who, despite achieving the necessary grades, do not aspire to higher education, and therefore see no point in pursuing upper secondary preparatory courses
- those who, despite high levels of ability, fail to achieve the necessary grades

- young people from low income families or from certain ethnic groups[59], who tend (for a range of reasons) not to stay on post the compulsory phase.

Unless the additional learning is accessible, relevant and recognised, these groups of students are likely to leave school as soon as possible. Whilst recognising that the accreditation of learning gained through personal interests and hobbies might provide a way of attracting young people (back) into formal education (*see* Stepladders *below*), accountability and funding mechanisms mean that upper secondary programmes tend to include relatively few such courses.

Diversification in structure, organisation, curriculum, teaching and learning, and assessment and certification are discussed below.

2.2.3 Certification models

In several countries, lower secondary studies lead to external qualifications, which formerly marked the end of compulsory education. These tended to reinforce the perception that full-time education had been completed.[60] By deferring certification to the end of upper secondary education, authorities might encourage students to remain in education beyond the minimum school leaving age. However, this is a high-risk strategy, which requires students to commit an additional two or three years to education, without the

[59] For example, Aboriginal and Pacific Island students in Australia, African-Caribbean students in England, Mäori students in New Zealand, Hispanic students in the USA.

[60] With the increase in students remaining in formal education beyond this phase (whether voluntarily or because the school leaving age has been raised), it could be argued that the lower secondary qualifications are redundant, expensive and contribute to the sense of 'assessment overload' experienced by students and teachers. However, whilst for some they represent an insurmountable hurdle, for others they may confirm abilities and instil confidence. Their abolition may also remove a qualifications 'safety net'.

certainty of academic and/or economic advancement. The risk increases where certification is used primarily to select students for higher education, rather than as 'accreditation', whereby those who hold the relevant qualification are guaranteed access.

Given the heterogeneous student population, changes in curriculum, assessment and certification are required to ensure that increased participation leads to a corresponding increase in the number of qualified young people. Two main approaches have been adopted to enhance and record the achievements of a more diverse student group.

The first opens access to (variants of) an established qualification, (for example the *Baccalauréat* in France, and the *Leaving Certificate* in Ireland) by means of alternative courses. Whilst this strategy builds on the widespread recognition and prestige of the qualification, it is likely to limit the degree of flexibility that can be allowed, if this status is to be protected. In practice, whilst it increases the number of successful students, this appears to be accompanied in France by a perception that 'standards must have fallen'.

The other strategy extends the range of courses to develop the knowledge, skills and attitudes required for employment and lifelong learning *(see 2.1.5)*. This diversity generally results in a panoply of qualifications, some of which are not widely recognised. Several countries are developing overarching frameworks, which 'locate' qualifications within a hierarchy of achievement and progression.

2.2.4 Other initiatives

There are a number of other strategies that may motivate students to continue their education.

- **Funding.** Educational finance is not covered in this report. However, it should be noted that the charging of fees and the costs incurred, including any foregone income from employment, have been identified in some countries as a deterrent to participation in post-compulsory education. Consideration is being given in New Zealand to the payment of grants to disadvantaged students, to encourage them to continue their education into upper secondary phase. In England, there is a pilot scheme of education maintenance allowances (EMAs) for educationally disadvantaged 16-18 year olds. EMA payments are subject to regular attendance and good behaviour, but are not tied to ability. Early indications suggest that the EMAs increase motivation and reduce the need for students to take part time employment (Maguire, S., Maguire, M. and Heaver, C., 2002).

- **'Stepladders'** Alternative learning routes and the accreditation of prior learning and experience (for example, acquired in the work-place or through leisure activities) may motivate individuals to build on their practical experience by taking some vocational or general education courses.

- **Partnerships and permeability** between schools and complementary organisations, may attract disaffected students and, in some cases, help rekindle positive attitudes towards education. Examples include the Youth Reach programme in Ireland, involving schools and community organisations in workshop partnerships, and holiday and homework clubs run by community agencies/bodies for example, social services, youth services etc.

2.3 Modes of delivery: diversification and differentiation

2.3.1 Educational structures

Within a market model of education, diversification of provision is seen as inherently good. Accordingly, most countries are seeking to meet the needs of a wider student body by means of alternative institutional structures and modes of delivery, sometimes involving the voluntary and private sectors alongside state provision.

a) Grouping by age

Where secondary schools cater for students of both lower and upper secondary age, students can continue their studies in a familiar environment, with known staff, and can provide an example for younger students to emulate. Taking advantage of the intertia factor, this might result in some students simply staying on because it relieves them of the need to exercise a choice. This is particularly likely in the academic schools in selective secondary systems, where the expectations of students, teachers and parents are mutually reinforcing.

The argument that the requirement to transfer to another institution, with its associated social as well as academic readjustments, acts as a disincentive to continue education is not wholly supported by the evidence. Increasing numbers of students enrol in colleges, which they perceive as more adult. Moreover, it offers students the opportunity to make a fresh start. The appeal of this option is apparent in New Zealand, where a decrease in school staying-on rates in 2000 was accompanied by a corresponding increase in tertiary enrolments. It appears that some students are prepared to pay fees to benefit from a less regulated environment.

However, this generally requires students to be more self-disciplined in their learning, not least because such institutions are often larger and individuals less well-known to staff.

In several countries, students must transfer to an upper secondary establishment in order to complete their compulsory education. It is possible that, having made the transition, students will be motivated to complete the upper secondary cycle.

b) Grouping by curriculum

The trend towards 'softening' of the structural divide between general and vocational education may encourage those students who are unwilling or unable to undertake a wholly academic course, to continue their formal education. This may also reduce the stratification by socio-economic status, which is found in binary systems. For example, despite the fact that the first year of upper secondary education in France is a transition year and that parents have the final choice, those attending general/technological *lycées* tend to be predominantly middle class.

Greater integration may also reduce the generalisations, which are often made about academic and vocational education respectively, based on pre-conceptions of student ability and socio-economic status. That these assumptions are sometimes self-fulfilling may be seen from the examples given below.

Implications

Educational structures can influence participation rates. This is particularly striking where school populations differ along socio-economic lines: low participation and underachievement are particularly noticeable among certain ethnic groups, and socio-

economically deprived students. The PISA findings (OECD, 2001) suggest that two students with the same family characteristics going to different schools - one with a higher and one with a lower socio-economic profile - could expect to be further apart in reading literacy than two students from different backgrounds going to the same school.[61] Whilst these findings relate to lower secondary students (age 15), it likely that similar effects will hold good at upper secondary level.

One explanation is that schools with a higher socio-economic intake also seem to have a better disciplinary climate, as reported by students, particularly in Italy, Japan, Spain, the United Kingdom and the USA. However, in France, although there are clear social distinctions between the general/technological *lycées (LEGT)* and the vocational *lycées (LP),* there are reported to be no significant differences in behaviour.

The effect of teacher expectation, referred to above, is demonstrated by an example from Sydney, Australia. Performance of (male) students in Year 10 English and mathematics is broadly comparable, but a marked difference appears in Year 11, according to the courses taken. Assumptions of students' abilities have led to their allocation to different classes, regardless of their actual ability. For example, North Sydney schools (with predominantly middle class students) enrol the top ten per cent of (male) students in Courses 1 and 2; West Sydney schools (with predominantly working class students) enrol the top ten per cent of their (male) students for Courses 4 and 5. Able students in the latter group, unable to demonstrate their

[61] http://www.pisa.oecd.org/knowledge/summary/h.htm., based on Figure 8.4 in the full report.

ability at the higher levels, are reported as under-achieving.[62] Although this phenomenon has complex causes, it underlines the potential link between the socio-economic segregation of students in different schools and the polarisation of students by performance.

2.3.2 Linked and integrated learning pathways

Germany has a long-established programme for integrating the general and vocational education of 80 per cent of students aged 15 to 18. The 'dual system' combines school and workplace education. Other countries are now increasing learning options for students by offering vocational and general education within the same institutions or as part of a programme of linked courses, including work-based learning.[63]

Implications

School timetables may not be sufficiently flexible to accommodate 'seamless' passage between formal school-based and non-formal (including off-site), learning. New contracts may be required to secure staff attendance outside 'normal' hours. In this respect, schools may draw on the experience of adult and vocational education institutions.

Small schools may not be able to offer the full range of academic and vocational curriculum, which could leave students in rural/remote areas at a disadvantage.

[62] B. McGaw, February 2002.

[63] By contrast, upper secondary education in Italy has strict demarcations between academic and vocational schools, but also between the sciences and the arts and humanities.

In the case of off-site learning, the responsibilities of the school, the off-site provider and the student need to be established, for example with regard to health and safety, the design, provision and evaluation of learning, and communication and reporting. Travelling costs and time also need to be considered.

Where educational funding is linked to student numbers, institutions have an incentive to direct students to their own courses, rather than those of alternative providers. If, however, the funding mechanism can be altered so that the institution 'retains' the students on roll for funding purposes, they may be less protective of the location of learning, and more willing to allow the student to go to the most appropriate place.

In terms of system monitoring, how are the contributions of the different partners determined and evaluated?

2.4 Curriculum: relevance, coherence and manageability

Secondary education is intentionally broad-based, stressing core subjects like the languages, mathematics, science, and the humanities to provide a holistic foundation for students' subsequent education. In most countries, the focus shifts from a prescribed curriculum during the compulsory years, to greater freedom of choice in upper secondary education. There is now an increasing emphasis on new 'key' skills and knowledge, to prepare young people for the changing needs of adult and working life *(see 1.4.4)*.

2.4.1 Relevance

The perceived relevance of education is a prime factor for securing student participation and community support for the education service.

a) Relevance for the student

There has been a trend towards modular or credit-based learning, leading to a portfolio of evidence of students' knowledge, skills and understandings, developed over a number of years and in a range of (formal, non-formal, informal) settings. In this way, there can be multiple routes to the highest levels of education.[64] Although there are usually minimum requirements for literacy and numeracy, modular schemes enhance student choice and allow for flexible modes of delivery. They help to sustain motivation by means of early and ongoing reinforcement and prompt intervention where weaknesses are identified. Moreover, instead of requiring irreversible (possibly inappropriate) decisions at the age of 15/16, they allow students to match their choices to their increasing maturity, academic and personal development, and changing aspirations. In this way, students may discover new subjects and/or be persuaded to continue 'difficult' subjects, as part of a more varied educational programme. This is particularly important in England, where early specialisation has characterised post-16 studies and where starting subjects which may not have been available in lower secondary education from scratch (such as psychology, law, economics) represented a high-risk challenge. Above all, modularisation offers

[64] For example, in Singapore, the non-schools sector polytechnics cater for students with technical or commercial inclinations and the necessary O level grades, while those with O level or N level certificates can join technical-vocational courses offered by the institutes of technical education. Students who achieve the requisite grades may proceed from polytechnic to university. Similarly, in the Netherlands, students may progress from higher vocational education to university.

scope for students to adjust the speed and intensity of their workload to match personal circumstances.

b) Relevance for higher education

It is sometimes difficult to strike a balance between breadth and depth of study. Most systems are based around a broad general education, followed by relatively long (4-6 years) degree-level studies.[65] A few others (generally reflecting the English model) introduce a high degree of specialisation from the age of 16[66], which can be completed during a short (3-year) degree course.

It is a common complaint by universities that incoming students are not adequately prepared for the demands of degree studies. This judgement is often based on the amount of work required to get students through their final examinations and may arise from

- a mismatch between prior learning and course demands
- lack of clarity about expectations and requirements
- changes in the nature of higher education.

Changes to traditional examinations and associated curricula may affect the coherence between upper secondary and higher education. The trend towards greater flexibility and students choice (except in the Netherlands) and the promotion of more independent learning,

[65] There has been a trend in European Union member states to shorten the length of first degree studies, from six or seven years to around four years. At the same time, a limited number of courses at English universities take four years, instead of the more usual three.

[66] GCE Advanced Levels are single subject examinations, with no minimum number of subjects required for certification. Traditionally, students have studied two to four subjects, often in a related field. Compared with other OECD countries, the UK rate of entry to higher education (42 per cent) is high, and the median age of graduation (age 22) is young. Changes in the degree of specialisation at school level may affect these figures.

means that students do not necessarily have a common knowledge and skills base. Thus, while students may have the requisite number of 'credits', these may not match the requirements of the specific course, and there is little time in higher education programmes to remedy any gaps in knowledge. The modularisation of university courses may help re-establish continuity between the phases. There is also some evidence of universities' beginning to look at the nature of applicants' learning experiences, rather than simply at the name of the qualification.

Schools argue that universities' expectations are sometimes not clear. Where universities or faculties are specific about their requirements, for example, foreign languages and mathematics, this affects the status and take-up of those subjects. Conversely, where faculties specify that they will 'count' only one certificate in, say mathematics, the take-up of dual pure/applied courses or further mathematics declines among intending applicants to the faculty, but possibly also amongst those who are keeping their options open.

Finally, difficulties may arise from changed circumstances in universities: larger and/or more heterogeneous teaching groups; shorter courses; higher expectations on the part of students, their parents and employers; and the exponential growth of knowledge in many disciplines, requiring choices between breadth and depth of study. The emphasis on outcomes (and, in some cases, its direct link with funding) may make institutions more concerned about the quality of their student intake than they used to be.

c) Relevance for employment

Employers' expectations and requirements include higher levels of skill, and the ability and flexibility to change in line with technological developments and market demands. The realities of the labour market also mean that the traditional academic approach to education does not guarantee success in the modern economy.

As with higher education, the needs of the labour market are not well delineated. Generalisations tend to be made, as though 'employees' were a homogenous category (not *all* employees require *all* skills). For example, it is often claimed that foreign language competence is highly prized by employers. However, two examples contradict this assumption. The first is the fact that recruitment advertisements in London newspapers offer bilingual secretaries salaries which are the same, or only a little higher than those offered for mono-lingual secretaries. Secondly, a survey asked Swedish employers which skills they did *not* want students to be taught at school. The response was: foreign languages other than English.

More significantly, it is difficult to predict the nature of the 'workplace' of the future. Career paths may comprise periods of (self-) employment, unemployment and education and (re)training, in a variety of settings, including the home. Hence, generic competence, transferable skills and an ability and willingness to learn and change are valued.

Implications

Authorities in Germany and Korea, for example, have identified a tendency for students (or their parents) to choose a high-status academic route, in preference to a lower status applied/vocational course, regardless of whether it is in keeping with their abilities or future career needs. A similar conflict may arise when the desire to

excel, and pressure on time, oblige students to choose between theoretical learning (for example, traditional academic subjects) and key skills, derived from practical and life experiences (through co-curricular activities, work-based and informal learning). Inappropriate choices may jeopardise the students' success in either further studies or employment.

What are the needs of industry? Who defines these and how are they kept up to date? Is curriculum change essential to meet generic employment needs? If too much emphasis is placed on employability, possibly at the expense of general education and development, is there is a danger that the outcome will be generations of students with outdated skills?

Implicit in the move towards individualised provision is the assumption that, collectively, the choices made by students will meet the needs, and enhance the well being, of society as a whole. However, increased choice may result in an imbalance between individual needs and those of society.

2.4.2 Coherence

If students are free to choose the content of their learning, there is a danger of fragmentation of learning. For students who undertake most of their learning within a single school or college, personal tutors or advisers are available to monitor their overall experience, within and beyond the institution. However, as the form of delivery changes, and students undertake elements of their learning in a range of institutions and contexts, this may become increasingly difficult.

2.4.3 Manageability

Although it is accepted that students cannot keep abreast of the increasing amount and complexity of information, as well as develop a new range of skills, curricula are often drawn up by subject specialists and there is a marked reluctance to limit the scope of 'essential learning'. New areas of learning and learning methods (for example activity based, explorative, collaborative, constructivist learning methods) are introduced into the timetable, without removing existing subjects or reducing their content. These two trends lead to curriculum and student overload. However, France, Japan, the Netherlands and Singapore have made adjustments to the curriculum to reduce overload.

2.5 Teaching and learning

2.5.1 Individualised and independent learning

The increased flexibility offered by modularised curricula and certification assumes a higher degree of personal responsibility for learning, especially where students are not based in an institution or attached to a learning mentor. This is recognised:

- in the increased emphasis being placed on the development of intra- and interpersonal skills (including self evaluation) and strategies for study, review and improvement
- in provision for independent and cross-disciplinary learning in upper secondary programmes, to help students develop the skills and confidence to organise their own (lifelong) learning, to use a range of sources and methods, and to make links and transfer learning across subject boundaries
- in the restructuring and expansion of guidance services.

However, the pressure on students, teachers and institutions to meet performance targets may discourage independent exploration and the development of creativity, which are time-consuming learning activities without a predictable outcome. In the same way, those aspects of the curriculum that are not externally assessed may receive little attention.

Implications

Teachers need a wider range of pedagogical strategies to enable students of different abilities to move towards becoming independent active learners. It is sometimes difficult to convince teachers (and students) to do things differently, and to adopt new roles in collaborative, interactive and cross-curricular activities.

Implicit in individualised learning is the expectation that teachers will tailor learning materials and teaching/mentoring styles to meet the needs of a wide range of individual learners (rather than the needs of a learning 'group' or class).

Where students choose their own courses, and increasingly direct their own learning, who is responsible if they fail to secure the desired qualification or 'acceptable' employment? (There have already been cases where students successfully sued local authorities for failing to provide education suitable to their needs.)

2.5.2 Computer-based and on-line learning

Whilst distance learning has traditionally been associated with post-school or higher education (for example, Open University institutes in several countries, Polytechnics in Singapore[67]), school programmes have also been provided for students in remote locations (for example, in Australia).

Technological advances have led to the development of digital learning materials that incorporate feedback-cum-coaching mechanisms. Students are thus able, in principle, to learn independently and take assessments progressively to gauge their own levels of competency. As access to ICT facilities increases (at home, in educational institutions, and in other locations such as libraries and community centres), there is increased scope for flexible, computer-based and on-line learning. However, new modes of learning require changes in materials and teaching methods, as well as flexible support.

The USA boasts numerous examples of on-line learning, for which extravagant claims are made. Whilst it is not possible to explore on-line learning in detail in this paper, it is clearly an important development and Glick (2002) addresses some of the implications involved in the realisation of its potential.[68]

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[67] Distance education, especially when delivered through the Internet, allows students to 'attend' lectures and tutorials, to complete 'practical' work and quizzes, to interact with lecturers and other students, and to submit their assignments electronically.

[68] For example, in Minnesota, 30 per cent of school districts use on-line learning (OLL) courses, but only 10 per cent of schools have developed OLL policies and guidelines. Similarly, although state legislation established funding mechanisms and an application/approval process, it fails to address: quality assurance, state-wide coordination, professional development, innovation/development funding, access for students in independent schools or educated at home. Moreover, the stipulation (in the legislation) that schools are *not* required to supply computers or Internet access for students, leads one to ask whether the less well-off students are excluded from on-line learning options. (Glick, 2002).

Implications

There is, as yet, little sustained evidence of the ways in which the use of ICT enhance student learning. This is partly because computers have only relatively recently been available in schools in sufficient numbers and partly because the speed of developments in equipment and software outstrips the rate at which evaluations can be carried out.

'Virtual' schooling and on-line learning are still very new, many of the issues remain to be addressed, and some may not even have been identified. Amongst the most obvious are:

- The purchase, maintenance, updating of **equipment** constitutes a major cost item for institutions. Insofar as ICT training is linked to preparation for work, they will need to invest in new equipment and applications on a regular basis. Students seeking to work from home will need compatible systems. Those from the disadvantaged groups, who are currently under-represented in post-compulsory education, are least likely to meet this requirement, and will be further disadvantaged.

- **Teachers** need training in the new skills and pedagogical approaches necessary to promote effective computer-based and on-line learning. They may need to be available outside 'normal' hours to respond to electronic messages. Making their contact details available to students involves a loss of privacy.

- Who produces, controls, safeguards the quality of, and pays for **teaching and learning materials?** What is the cost implication of producing ever more sophisticated materials to keep pace with student expectations? Conversely, who owns the copyright (and therefore benefits from the sale of) materials developed in the school?

- How are the contributions of the different providers allocated and evaluated for the purposes of **monitoring institutional performance?**

2.6 Assessment

A global trend towards greater accountability (often associated with greater devolved autonomy for schools) means that assessment has become an increasing feature of education and countries which have not previously had external examinations (for example, Sweden), are reconsidering whether they should be introduced.

The desire to recognise the achievement (rather than failure) of a wider student group has led to changes in upper secondary assessments. These have affected the form (continuous assessment, or periodic assessment of modular courses), the structure (specification of compulsory subjects, grouping of disciplines), and the type of qualifications awarded (general and vocational subjects).

These developments are not without difficulties.

- There is a perception that continual assessment _ where the student is allowed more time and may be assisted by the teacher or others _ is 'less rigorous' than timed, terminal examinations, and that the results therefore represent a lower standard

- Academic/theoretical studies enjoy a higher status as compared with applied/vocational courses, which results in a reluctance on the part of some students to undertake vocational studies

- It is difficult to secure public understanding and acceptance of (any) new qualifications[69], in particular those made up of a complex combination of learning achievements

- Consistency of grading between schools takes on a greater importance where qualifications confer specific entitlements on individuals, (for example, access to higher education) or institutions (for example, access to additional funding or freedom from regulation).

(For details of certification see 2.2.3.)

[69] For example: New Zealand recognises that *'Getting wider acceptance of [more flexible pathways to achieving qualifications] requires attention to how teaching and school practices change, and to processes that raise the expectations of schools and communities.'* Ministry of Education, response to questionnaire, December 2001.

CONCLUSION

Conclusion

It is clear, both from documentary sources and from the discussions at the seminar, that perceptions of the challenges faced by education systems are similar across the world. The exchange of information has enabled us to develop shared concepts and terminology. However, the ways in which these challenges are faced must be different, on the one hand, because each national context and heritage is different, and on the other, because future success depends, not on doing the same things better, but on rising up above the crowd.

As suggested in this report, all educational initiatives have 'side-effects', and authorities have to weigh up the potential benefits against any disadvantages. At the same time, they have to try to satisfy the (conflicting) demands of different stakeholders and different political priorities. This may explain why review and reform are constant elements in educational policy and provision.

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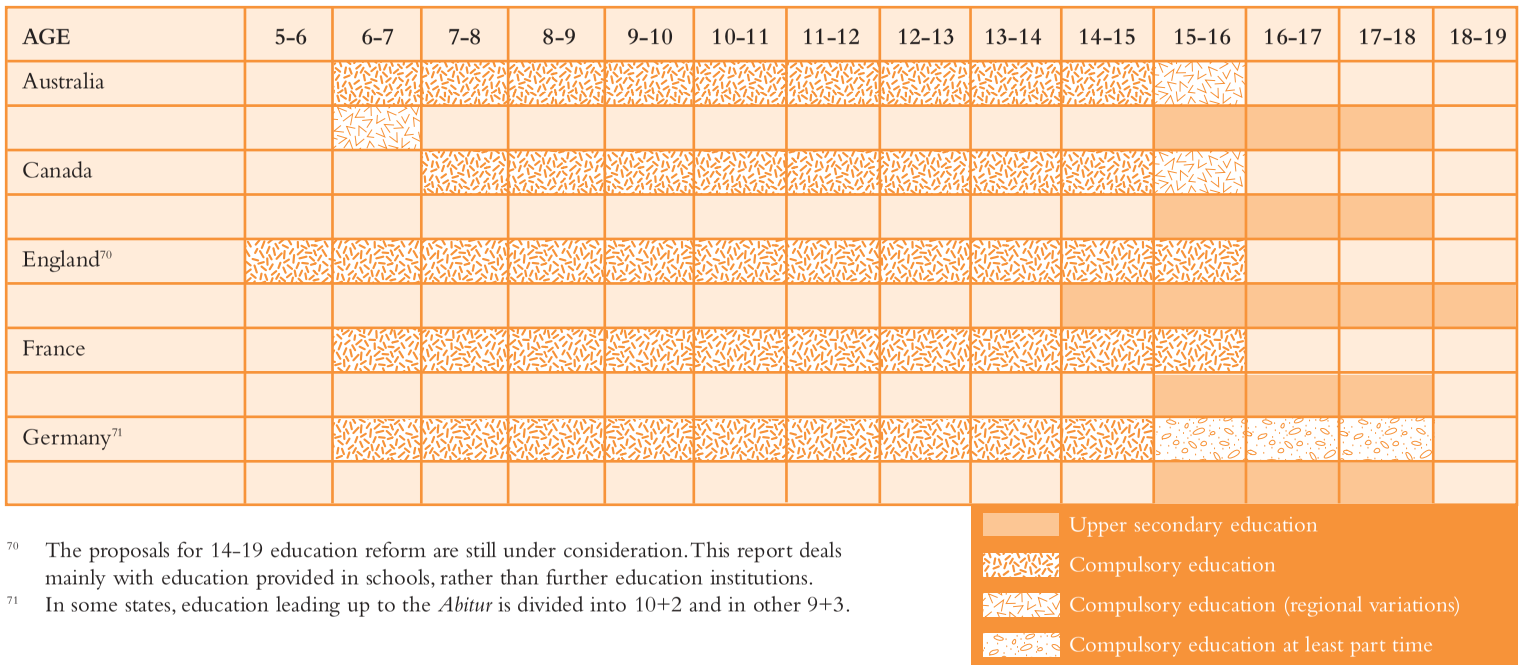
APPENDICES

Appendix 1:

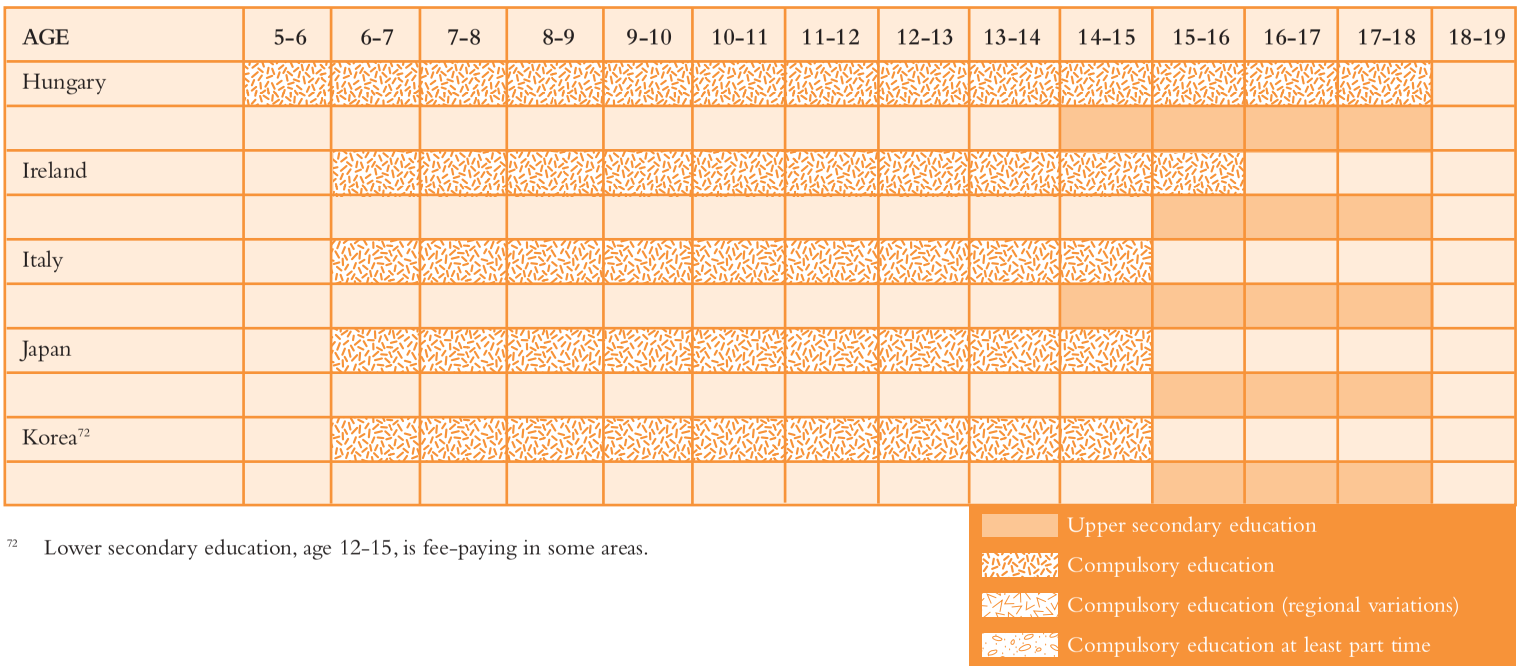
Structure of upper secondary education



[70] The proposals for 14-19 education reform are still under consideration. This report deals mainly with education provided in schools, rather than further education institutions.

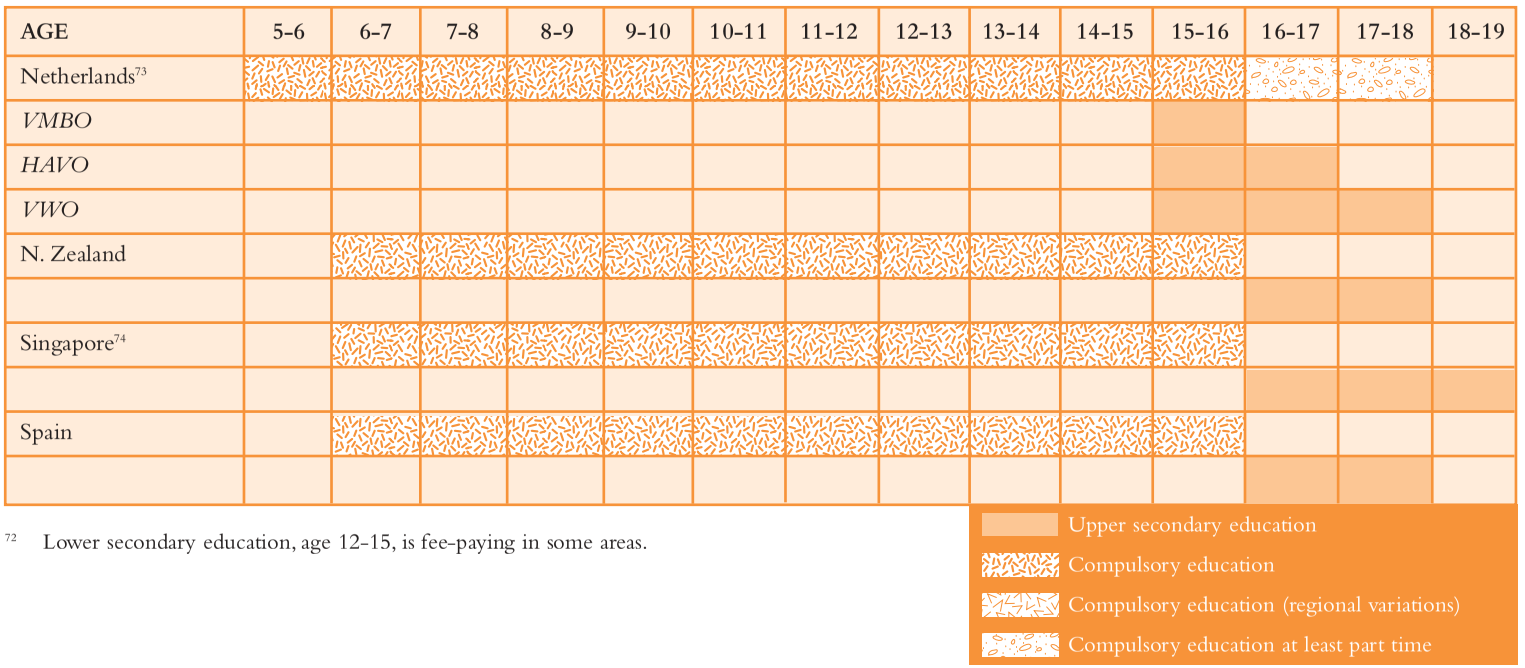
[71] In some states, education leading up to the *Abitur* is divided into 10+2 and in other 9+3.

Structure of upper secondary education *(continued)*



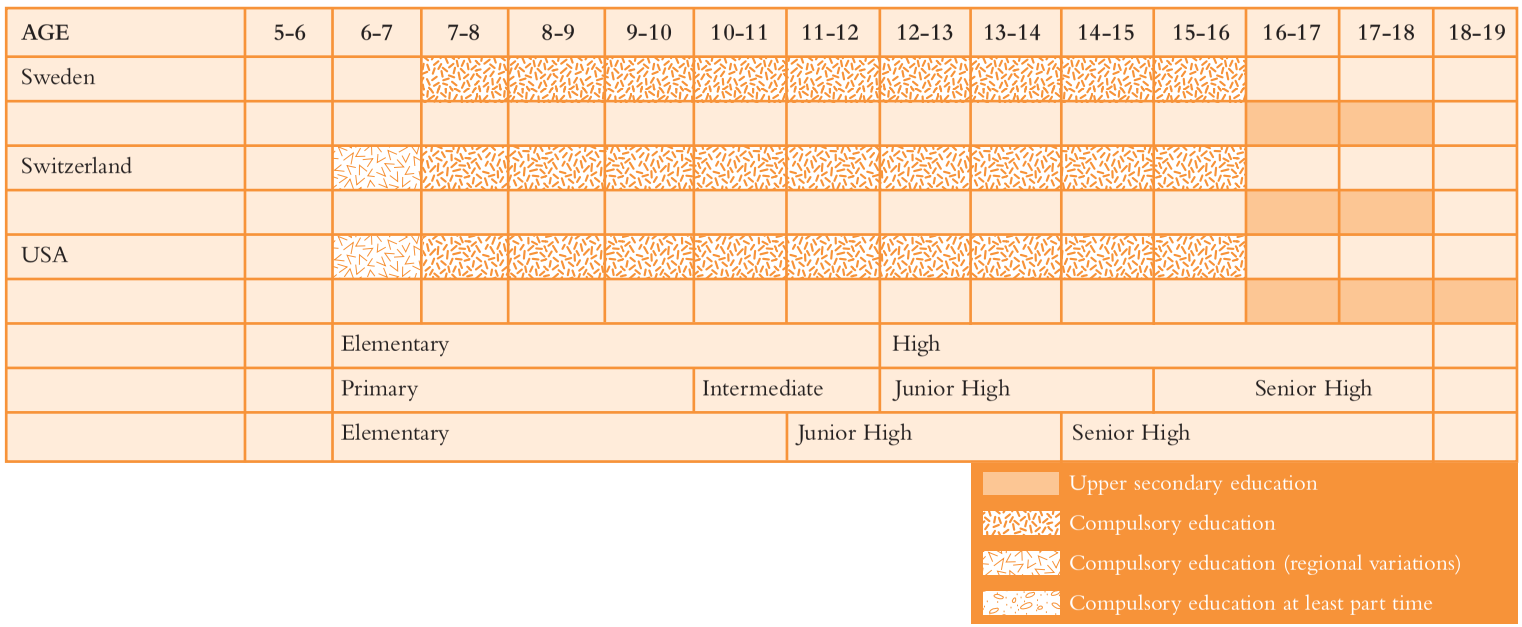
[72] Lower secondary education, age 12-15, is fee-paying in some areas.

Structure of upper secondary education *(continued)*



[72] Lower secondary education, age 12-15, is fee-paying in some areas.

Structure of upper secondary education *(continued)*



Appendix 2:

Institutional structure

Shaded institutions are not addressed in the study as they are not part of the secondary school sector in the countries concerned

				MAIN focus			
Australia age **15/16 - 18+ - free**	**Mode**	**Age**	**Academic Access**	**Gen**	**Tech**	**Voc**	**Qualification**
College, senior secondary college	FT	16-18		x	x		In 1999 about 2000 schools offered vocational education and training credits (VET) and over 110,000 students taking VETs[75]
Secondary college, *High School*[76]	FT	12-18		x	x		
TAFE (technical and further education)	*FT/PT*	16+					*VET credits for Australian Qualifications Framework (AQF)*
Canada **age 15/16 - 17/18 - free**	**Mode**	**Age**	**Academic Access**	**Gen**	**Tech**	**Voc**	**Qualification**
Senior *High School*	FT	15/16 to 17/18	Junior High	x	x		Graduation certificate
England **16-18 – free**	**Mode**	**Age**	**Academic Access**	**Gen**	**Tech**	**Voc**	**Qualification**
Secondary school[77]	FT	11/12 -16/18	Depends on course chosen	x			*GCE A Level, GCE AS level, AVCE (=vocational A level) GCSE, GNVQ (=vocational GCSE),*
Sixth form college	FT	16-18 16+		x			*GCE A Level, GCE AS level, AVCE (=vocational A level) GCSE, GNVQ (=vocational GCSE),*
Further education institutions (including specialist colleges for e.g. art, agriculture)	*FT PT*			x	x	x	*A range of general and vocational qualifications from basic to higher education*

[75] In 1998 19% in Tasmania took vocational education and training credits courses.

[76] Including specialist schools for language, music, arts

[77] Including specialist schools e.g. for science and technology, language, arts/music, sports

Institutional structure *(continued)*

Shaded institutions are not addressed in the study as they are not part of the secondary school sector in the countries concerned

				MAIN focus			
France **age 15–18 (of which the first year is compulsory) – free**	**Mode**	**Age**	**Academic Access**	**Gen**	**Tech**	**Voc**	**Qualification**
Lycée d'enseignement général et technologique, LEGT[78]	FT	15-18	*Collège* or entrance exam	x	x		*Baccalauréat,* (general or technological); *brevet de technicien* (BT technical certificate); *certificat de fin d'études secondaires* (secondary school leaving certificate)
Lycée professionnel, LP	FT	15-18	Complete collège	(x)		x	*Baccalauréat professionnel* (vocational); *brevet d'études professionnelles (BEP* vocational studies certificate); *certificat d'aptitude professionnelle (CAP* vocational aptitude certificate)
Germany 15/16- to 18/19 **(compulsory at least part-time) - free**	Mode	Age	**Academic Access**	**Gen** x	**Tech**	**Voc**	**Qualification**
Gymnasiale Oberstufe	FT	15/16 - 18/19	Pass in Yr 9/10 *Gymnasium* or *Gesamtschule* or equivalent[79]				*Abitur (Allgemeine Hochschulreife)* and university access

[78] Including, in some schools, bilingual, European and International Sections.

[79] Students who have obtained appropriate marks in the mittlerer *Schulabschluß* or *Realschulabschluß* (on completion of the Realschule, or Year 10 at other lower secondary schools and, given appropriate records and marks, at the *Berufsschule*). Those who have obtained approved qualifications from Berufsfachschulen (full-time vocational schools) or *Fachschulen* (technical/vocational schools).

Institutional structure *(continued)*

Shaded institutions are not addressed in the study as they are not part of the secondary school sector in the countries concerned

				MAIN focus			
	Mode	Age	Academic Access	Gen	Tech	Voc	Qualification
Berufliche Gymnasien/Fachgymnasien[80]	FT	16-19	*Realschule*			x	Either the *Allgemeine Hochschulreife* or the *Fachgebundene Hochschulreife* and university access
Berufsfachschule e.g. languages, business, health, social work	FT	15-18+	*Hauptschule* or *Realschule* leaving certificate or a *mittlerer Schulabschluß*	(x)		x	*Staatlich geprüfter technischer Assistent* (state-certified technical assistant) or *Staatlich geprüfter kaufmännischer Assistent* (state-certified business assistant)
Berufsschule (plus work-placed training)[81]	PT	15-18	*Hauptschul-abschluß*	(x)		x	
Fachoberschule[82]	FT	16-18	Realschule	(x)		x	*Access to Fachhochschule.*
Dual system of in-company training combined with education in school			n/a			x	

[80] Economics/business, technology, engineering, nutrition, home economics and agronomy, community work, textiles and design technology.

[81] Trade and industry, commerce, home economics or farming.

[82] Engineering, economics, farming, welfare and design.

Institutional structure *(continued)*

Shaded institutions are not addressed in the study as they are not part of the secondary school sector in the countries concerned

				MAIN focus			
Hungary **Upper secondary, age 10/ 12/ 14 - 18/ 19 – free**	**Mode**	**Age**	**Academic Access**	**Gen**	**Tech**	**Voc**	**Qualification**
Secondary grammar school *(gimnázium)*[83]	FT	10/12 or 14 to 18	Optional selective examination	x			*Maturity examination* Entrance to tertiary education or the labour market
Secondary vocational school *(szakközépiskola)*	FT	c13-18 14-17	Optional selective examination	x	x	x	Technicians certificate, service professions; *maturity examination (érettségi)* + voc certificate.
Vocational training school (szakmunkásképzö iskola c 200 specialisms						x	A nationally recognised skilled workers certificate
Special vocational training school[84]						x	
Ireland **15-17/18 – free**	**Mode**	**Age**	**Academic Access**	**Gen**	**Tech**	**Voc**	
Senior Cycle *of secondary schools, vocational schools, comprehensive schools*	FT	12-18	n/a	x		x	*Leaving Certificate (Established); Leaving Certificate Vocational Programme (LCVP); Leaving Cert Applied (LCA)*
Community schools and colleges						x	

[83] Including specialist language schools offering mother tongue as foreign language, bilingual and mother-tongue medium.

[84] Short courses/specialist apprenticeships for students with SEN or social disadvantage

Institutional structure *(continued)*

Shaded institutions are not addressed in the study as they are not part of the secondary school sector in the countries concerned

				MAIN focus			
Italy **14-19**	**Mode**	**Age**	**Academic Access**	**Gen**	**Tech**	**Voc**	**Qualification**
First year is compulsory since 1999. Post-compulsory is feepaying (means tested)							
Scuole superiori (upper secondary schools)[85]			*Diploma di licenza media* (lower secondary school leaving cert.)				
Liceo classico (classical branch)	FT	14-19		x			University access
Liceo scientifico (science branch)	FT	14-19		x			University access
Liceo artistico (fine arts and stage design; architecture)	FT	14-18	*Diploma di licenza media* (lower secondary school leaving certificate)	x			University access
Istituti d'arte ceramics, gold, textiles, coral, alabaster, printing, wood, mosaics, glass etc.	FT	14-17/19				**x**	Master of art diploma *(diploma di maestro d'arte)* after three years; applied arts upper secondary certificate *(diploma Stato d'arte applicata)* after 3 years – granting access to university
Istituto tecnico (technical school)[86]	FT	14-19			x		Upper secondary *technical school* leaving diploma *(esame di Stato)* and access to higher education, training or employment

[85] In 1993, 31.6 per cent of the 14+ age group entered classical and scientific education, 3.5 per cent artistic, 35.8 per cent technical and 19.5 per cent vocational. At present, 25 per cent of students in this category of education leave school during the first two years.

[86] Agricultural, commercial, tourism, surveying, naval and industrial occupations, and home economics and social services professions.

Institutional structure *(continued)*

Shaded institutions are not addressed in the study as they are not part of the secondary school sector in the countries concerned

				MAIN focus			
	Mode	**Age**	**Academic Access**	**Gen**	**Tech**	**Voc**	**Qualification**
Vocational education *(Istituti professionali)*[87] Two further years of sandwich study incl work placements	FT or PT	14-17 17-19					Three-year basic training in a specific area and guidance to assist students in selecting future courses, schools or employment. Upper secondary *vocational school* leaving diploma, *(esame di Stato)* grants access to higher education
Japan, **age 15 - 18+**[88]	**Mode**	**Age**	**Academic Access**	**Gen**	**Tech**	**Voc**	**Qualification**
Senior *High Schools (kôtô-gakkô)* general academic (74%) Specialised vocational[89] **Integrated** courses both, through electives	FT, PT Distance	15-18+	Very competitive 14+ entrance exams[90]	x	x	x	Certificate of Upper Secondary Education access to university *(daigaku)*
New all-through secondary school, 1999 (experimental)[91]	FT	12-18	Junior high	x	x	x	Certificate of Upper Secondary Education access to university *(daigaku)*

[87] Agriculture; industry and crafts (economics and business, clothing/fashion, building); chemico-biological (incl mechanical, thermal, electrical and electronic studies); service sector (incl economy, business, tourism, advertising, hotel and catering, and social services).

[88] In Japan, post-compulsory upper secondary courses provided in any institution other than the *kôtô-gakkô* are often regarded as courses of higher education.

[89] Agriculture, industry, commerce, fishery, home economics, nursing, science-mathematics, physical education, music, art, English language etc)

[90] Including passes in English; previous school record and voluntary community work. Entry to a good *senior high school* is a vital first step to an elite university/ high status job in the civil service, professions or large corporations. This makes 14+ results crucially important to Japanese teenagers and explains the development of jukus, private institutions offering tuition in Japanese language and mathematics and also often in English and science. 17 per cent of *elementary school* and 45 per cent of *junior high school* students attend *jukus. Senior high school* students who contemplate university spend two to three hours a day or more studying after school at a *juku,* three or four times a week, to pass the difficult university entrance exams.

[91] Their principal aim is to decrease the level of competition for entry to *senior high* school education

Institutional structure *(continued)*

Shaded institutions are not addressed in the study as they are not part of the secondary school sector in the countries concerned

				MAIN focus			
	Mode	Age	Academic Access	Gen	Tech	Voc	Qualification
Comprehensive *senior high schools*(45)[92]	FT	15-18	Junior high				Certificate of Upper Secondary Education access to university *(daigaku)*
Colleges of technology (kôtô-senmon-gakkô) (professional training colleges)	FT	15-20	Junior high; entrance exam			x	Leading to the title of associate. Access to commercial or industrial High Schools
Special training colleges (senshû-gakkô) (mainly private)[93]	FT		Completed junior high		x	x	Access to commercial or industrial *High Schools*
Miscellaneous schools (kakushu-gakkô). (mainly private – vocational)	FT		Completed junior high		x		Access to commercial or industrial *High Schools*

[92] Established by mid-1997, as part of a general plan to revitalise education and, in response to reactions from business leaders, to create a more dynamic workforce. The school aims to develop students' abilities and talents to improve upon their power to think, judge and behave for themselves, by allowing greater student choice (students can select 10 per cent of their subjects in the first year, 50 per cent in the second year and 90 per cent in the third year). As well as offering greater flexibility to students, these schools are also part of an initiative to introduce more computers into the classroom.

[93] Three categories: post-compulsory upper secondary, post-secondary and general courses. Each course gives at least 40 students systematic instruction, lasting not less than one year, for 800 hours or more per year

Institutional structure *(continued)*

Shaded institutions are not addressed in the study as they are not part of the secondary school sector in the countries concerned

				MAIN focus			
Korea, age **15 – 18 (fee paying)**	**Mode**	**Age**	**Academic Access**	**Gen**	**Tech**	**Voc**	**Qualification**
General/academic high schools[94] Specialise from Yr 2 in humanities/social sciences; natural sciences; vocational training	FT FT FT	15-18	Entrance exam[95]	x	x	x	*High School* diploma, granting university entrance
Vocational *high schools*[96]		15-18		x		x	*High School* diploma, granting university entrance
Comprehensive vocational *high schools*[97]		15-18					*High School* diploma, granting university entrance
The Netherlands **age 16-17/18**[98] **(post compulsory is feepaying)**	**Mode**	**Age**	**Academic Access**	**Gen**	**Tech**	**Voc**	**Qualification**
VBO: pre-vocational secondary education certificate. Second cycle – Year 4	FT	15-16	Satisfactory first cycle	x		x	*VMBO:* the pre-vocational secondary education certificate, granting access to intermediate vocational education *(MBO)*

[94] Including specialist/special purpose high schools (for talented/gifted students) art/music, athletics, foreign languages, science

[95] The practice of setting entrance exams for admission to *High School* education is diminishing. Since 1974, admission has been based on a preliminary examination and lottery assignment to a *high school* in the school district of their residence. Consequently, some parents move into good districts. In rural areas and small cities, each school devises its own entrance criteria. This allows some select more academically able students and remain prestigious schools.

[96] Agricultural, technical, commercial, fishery & oceanography and comprehensive vocational)

[97] *High Schools* that offer more than two vocational courses are known as comprehensive vocational *High Schools.* These schools offer a combination of academic and vocational courses and are usually located in rural areas or small and medium-sized cities, so that the young people who live there can have equal secondary educational opportunities.

[98] The first cycle of secondary education (*basisvorming* normally Years 1-3, ages 12-15), comprises a common curriculum for all students plus additional subjects depending on school type. Those who end their full-time schooling at the age of 16 must attend school on at least two days a week until the end of the school year in which they reach 17. Those receiving practical training whilst employed must receive general education at a day-release college for at least one day per week.

Institutional structure *(continued)*

Shaded institutions are not addressed in the study as they are not part of the secondary school sector in the countries concerned

				MAIN focus			
	Mode	**Age**	**Academic Access**	**Gen**	**Tech**	**Voc**	**Qualification**
HAVO: general upper secondary education certificate. Second cycle – Years 4-5	FT	15-17	Satisfactory first cycle	x			*HAVO:* the general upper secondary education certificate, granting access to *VWO 5* or higher vocational education *(HBO)*
VWO: the pre-university certificate[99]. Second cycle - Years 4-6	FT	15-18	Satisfactory first cycle	x			*VWO:* the pre-university certificate required for (but not guaranteeing) access to university
MBO Middelbaar beroepsonderwijs	FT	16--	VMBO		x	x	Satisfactory completion gives access to higher vocational education *(HBO)*
New Zealand, **age 16+ - 18+** Secondary schools (catering for lower secondary 13-15 as well as upper secondary)	**Mode** FT	**Age** 13-18	**Academic Access** n/a social advancement	**Gen** x	**Tech**	**Voc**	**Qualification** National Certificate of Educational Achievement (NCEA phased in 2002-4) at three levels, comprising standards-based credits.
Singapore, **age 17 - 20**	**Mode**	**Age**	**Academic Access**	**Gen**	**Tech**	**Voc**	**Qualification**
Junior colleges	FT	17-18	UCLES GCE O Level results	x			Singapore Cambridge *(UCLES) GCE A Level*
Centralised institutes[100]	FT	17-18		x			Singapore Cambridge *(UCLES) GCE A Level*
Polytechnic	FT	17-20	UCLES GCE OL	x	x		Diploma
Institutes of Technical Education[101]	FT	17-20	UCLES GCE O & N Level results	x	x	x	Certificate

[99] Subdivided into *Gymnasium* (compulsory classics [Greek and Latin]); *Lyceum* (optional classics); *Athenaeum* (no classics)

[100] Polytechnics are classified as Institutes of Higher Learning.

[101] Institutes of Technical Education are classified under Further Education.

Institutional structure *(continued)*

Shaded institutions are not addressed in the study as they are not part of the secondary school sector in the countries concerned

				MAIN focus			
Spain **age 16 – 18 (free)**	**Mode**	**Age**	**Academic Access**	**Gen**	**Tech**	**Voc**	**Qualification**
Institutos de educación secundaria Secondary schools (upper cycle)	FT	16-18	*Graduado en Educación Secundaria* (Lower sec)[102]	x		x	Bachillerato or specific vocational training intermediate
Bachillerato schools (rare)	FT	16-18		x			Bachillerato
Escuela de arte (specialised art school)	FT	16-18+					Specialist art qualifications, leading to HE in the arts.
Specialised language schools.							Specialist language qualifications, leading to HE.
Sweden **age 16+ - 19+ (free)**	**Mode**	**Age**	**Academic Access**	**Gen**	**Tech**	**Voc**	**Qualification**
Integrated upper secondary school, *Gymnasieskola* • 2 general programmes • 15 vocational/technological programmes	FT	16-18+[103] 16-18+	*Grundskola* leaving certificate *(grundskolabetyg)* in Swedish, English, maths	2		15	
Specialist *Gymnasieskola* agriculture, forestry, caring professions	FT		*Grundskola*				

[102] Applicants aged 18 years or over, who pass an access test, may be admitted to intermediate vocational training without first obtaining the certificate of secondary education.

[103] Until September 2001, 2,150 points were required to complete the arts, natural sciences and social sciences programmes. All other programmes required 2,370 points. Since the start of the 2000-2001 school year, 2,500 points have been required to successfully complete all programmes in this phase. The normal period of study is three years but, under the system of courses and points, students can adjust the pace of study more closely to their own circumstances.

Institutional structure *(continued)*

Shaded institutions are not addressed in the study as they are not part of the secondary school sector in the countries concerned

				MAIN focus			
Switzerland (16-18/19) (free)	Mode	Age	Academic Access	Gen	Tech	Voc	Qualification
Gymnasium (or Maturitätsschule)	FT	16-18/19	High grades in *Progymnasium or entrance test*	x			*Matura* and university entrance A emphasis on Greek and Latin; B Latin and modern languages; C Maths and science; D Modern languages; E Economics
DMS (technical High Schools) general and prevocational (chosen by about 70 per cent)	FT	16-18/19		x		x	*Diplommittelschule* (DMS) access to higher, non-university vocational training (e.g. *Kindergarten*/primary teaching, health care, social work, administration, paramedics, the arts)
French-speaking collèges in certain Swiss cantons (phased in 1995-2002)	FT	15-19.		x			*Maturité fédérale*
Teacher training college[104]	FT	16-18					
Berufslehre (apprenticeship training) dual system, 20-30 per cent of time in school	PT	16-18/20				x	*Pre-compulsory and primary school teachers qualification*

[104] If proposals to provide initial teacher education at tertiary level institutions *(pädagogische Fachhochschule)* or at universities are implemented, teacher training colleges will disappear.

Institutional structure *(continued)*

Shaded institutions are not addressed in the study as they are not part of the secondary school sector in the countries concerned

				MAIN focus			
USA **(free)** (compulsory to age 16)[105]	**Mode**	**Age**	**Academic Access**	**Gen**	**Tech**	**Voc**	**Qualification**
High Schools Grades 10-12	FT	15-18	Elementary	x	x		*High School* graduation diploma
High Schools Grades 9-12	FT	14-18	Elementary	x	x		*High School* graduation diploma
Magnet schools (in some states)	FT	14/15 17/18			x	x	*High School* graduation diploma (particular educational philosophy or curricular speciality)
Vocational/technical high schools	FT/PT	14----			x	x	*High School* graduation diploma

[105] Although the upper two years are not compulsory, in Wisconsin, for example, children aged 6-18 must normally attend school (or select a home-based private educational programme) and in Kentucky, students between the ages of 16 and 18 who wish to terminate their public or non-public education prior to graduating from *High School* may do so only after a conference with the principal or his designee. The student's parent or guardian must also generally be involved in this meeting. Written notification of a students withdrawal must be received from the students parent or guardian at the time of withdrawal and the parent(s) and student are also required to attend a one-hour counselling session with a school counsellor on the potential problems for non-graduates.

Appendix 3:
Essential learning areas/experiences

Indications of the essential areas of study/educational experience. In some cases subjects are specified, in other cases students may choose from a range of subjects within the area.

P=subjects/areas which will be compulsory under proposed reforms.
S=subjects/areas which are compulsory in some, but not necessarily all, jurisdictions

	National Language and literature	Alt. national and foreign languages	Maths	Sciences physics, chemistry, biology geology	Humanities history, geography, social studies	Fine Arts including music	Technical	Physical education including health	Citizenship	Guidance personal and career	Other
Australia	X				S				X		
Canada	X	S	X X	X	X	X	X	S	S	X	Work/ community service
England											Religious ed.
France	X	X	 X	X	X			X	X[106]	X	Private study
Germany	X	X		X	X			X			Religious ed.
Hungary	X	P	X	X	X			P			
Ireland	X		X								
Italy	X	X		X	X	X		X	X		

[106] Not taught as a separate subject.

Essential learning areas/experiences *(continued)*

Indications of the essential areas of study/educational experience. In some cases subjects are specified, in other cases students may choose from a range of subjects within the area.

P=subjects/areas which will be compulsory under proposed reforms.
S=subjects/areas which are compulsory in some, but not necessarily all, jurisdictions

	National Language and literature	Alt. national and foreign languages	Maths	Sciences physics, chemistry, biology geology	Humanities history, geography, social studies	Fine Arts including music	Technical	Physical education including health	Citizenship	Guidance personal and career	Other
Japan	X	P	X	X	X	X		X	X		
Korea	X	X	X	X	X	X	X	X	X	X	Moral, military
Netherlands	X	X	X	X	X	X		X			Private study
N. Zealand	X		X	X							
Singapore	X	X						X			Moral
Spain	X	X		X	X		X	X		X	
Sweden	X	X	X	X	X	X		X			Religious ed.
Switzerland	X/P	X/P2	X/P	X/P	X/P	X		X			
USA	X	S	X	X	X			X			Community service

LANGLEY FREEMAN
design group limited
Tel: +353 1 822 8970
www.langleyfreeman.ie
info@langleyfreeman.ie

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National Council for Curriculum & Assessment
24 Merrion Square, Dublin 2.