DIRECTORATE FOR EDUCATION AND SKILLS

The design of upper secondary education across OECD countries: Managing choice, coherence and specialisation

OECD Education Working Paper No. 288

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This working paper has been authorised by Andreas Schleicher, Director of the Directorate for Education and Skills, OECD.

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JT03515762

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Acknowledgments

Abstract

Upper secondary education differs from earlier levels of education, as it offers students more varied, specialised and in-depth instruction and content. At this stage, it is important to respond to students' interests and ability by providing content that they perceive to be relevant and engaging. This not only helps support students' progress and completion of upper secondary education, but also helps to create meaningful pathways into employment and further education for all students – an economic imperative. This paper aims to capture the diversity of countries' upper secondary systems by: 1) developing a common language that sets the foundation for internationally comparative analysis; 2) categorising how countries organise their programmes in upper secondary education to manage choice, coherence and specialisation; and 3) identifying benefits and strategies to mitigate the risks associated with different approaches to upper secondary programmes for students, education systems and society.

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1. Introduction

Upper secondary education is the point at which the content and organisation of learning start to differ significantly across the student cohort. In contrast with earlier levels of education, programmes at this level offer students more varied, specialised and in-depth instruction (UNESCO Institute for Statistics, 2012[1]). Responding to students' interests and abilities helps to facilitate their future transitions and supports their progress through and completion of upper secondary education by providing content students perceive to be relevant and engaging (Sahlberg, 2007[2]). It also helps respond to the economic imperative to create meaningful pathways into employment and further education for all students.

Aims of this working paper

This paper aims to provide an internationally comparative perspective on how countries design their upper secondary education. It is part of a series of working papers on upper secondary education from the OECD's Above and Beyond: Transitions in Upper Secondary Education project (Box 1.1).

Countries face many questions when they design their upper secondary systems, including the following:

- What skills and knowledge should students in this cycle acquire?

- To what extent should those skills and that knowledge be common for all students?

- How can education systems best respond to diversity in students' preparedness for the complex content of upper secondary education?

The diversity of upper secondary systems internationally can make it challenging for countries to compare policies and draw conclusions as they seek to answer these questions. This paper aims to make such policy learning easier and more informative by:

- developing a common language for the design of upper secondary systems, including definitions and key features of systems that set the foundations for internationally comparative analysis in upper secondary education

- categorising how countries organise programmes in upper secondary education to manage choice, coherence and specialisation

- identifying benefits and strategies to mitigate the risks associated with different approaches to upper secondary programmes for students, education systems and society.

System capacity, particularly the resources required to deliver upper secondary programmes, is also a central question for countries. Education systems typically have to balance choice and specialisation with what can be practically and efficiently provided (OECD, n.d.[3]). Future work within the Above and Beyond project will address the issue of system capacity directly.

Box 1.1. Above and Beyond: Transitions in Upper Secondary Education

The OECD Above and Beyond: Transitions in Upper Secondary Education project focuses on transitions into, through and out of upper secondary education. The project's goal is to build policy advice and guidance on how upper secondary transitions can be implemented so that all learners have the opportunity to create the foundations that will enable them to successfully navigate the choices and demands of further education and employment over their lifetime.

The project is organised around three main outputs:

- working papers – to build knowledge
- peer learning discussions – to learn from and share experiences across countries
- country-specific work – to provide policy advice tailored to countries' national contexts.

Above and Beyond Working Papers

The Above and Beyond working papers aim to support countries' policy making decisions by:

- **Scanning available evidence and information to establish categories of practices or policies across countries**: For example, what are the different policies that countries use to manage transitions into upper secondary education across the OECD?

- **Identifying the policy trade-offs associated with different approaches:** For example, although using teacher judgement to inform selection into upper secondary programmes can provide a comprehensive view of which programme best suits each student, can teachers' views be subjective and biased?

- **Developing strategies that countries can use to maximise the benefits of different policies while mitigating the risks**: For example, what steps can be taken to promote fairness and equity in teacher judgements that inform upper secondary selection?

The Above and Beyond working papers also look at the design and structure of upper secondary programmes and pathways (Perico e Santos, forthcoming[4]) (for further details see Section 5). Future working papers will examine promoting completion in upper secondary education and pathways out of upper secondary education.

Structure of this working paper

This paper contains six sections:

1. **Introduction:** Sets outs out the paper's aims, structure and methodology.

2. **Understanding and defining programme design in upper secondary education:** Defines key terms as they apply to upper secondary education, including upper secondary education as a distinct phase of schooling, as well as choice, coherence and specialisation.

3. **Programme diversity across upper secondary education systems:** Sets out the ways in which countries provide different types of upper secondary programmes and how those programmes differ.

4. **Options and specialisations within upper secondary programmes:** Looks at the extent to which education systems provide students with further options of study within upper secondary programmes and how these options differ internationally.

5. **Synthesis and conclusions:** Brings together the paper's findings.

6. **Further Work:** Sets out possible areas of further work-based on the gaps identified by this paper.

Methodology

This working paper provides a framework to guide international analysis of upper secondary systems and support countries as they review and reform their systems. The paper also identifies major gaps in international data to orient future work (Section 5).

After defining key terms in upper secondary education (Section 2), the paper addresses the following distinguishing features of upper secondary systems:

- **Diversity across upper secondary programmes:** This refers to the range of programmes that are provided to students in upper secondary education within countries and how these approaches differ internationally (Section 3). This section categorises countries on the basis of how much diversity in upper secondary programmes their system provides.

- **Options and specialisation within upper secondary programmes:** This refers to how different education systems provide students with further choice and specialisation within upper secondary programmes. It considers how countries balance ensuring that all students develop fundamental competences and a coherent set of knowledge and skills that they will need for work and further education with opportunities for personalisation (Section 4). As in Section 3, a key aim is to develop a categorisation of how countries provide options and specialisation within their upper secondary programmes.

For both Sections 3 and 4, the paper identifies the main aspects of upper secondary education systems, maps differences in countries' approaches using available data and discusses the policy implications of the different approaches.

To identify the main aspects of programme design, this paper draws on existing national documentation and some international literature about the organisation and structure of upper secondary education. To develop the paper's comparative analysis of country practices, information about upper secondary programme design in OECD member countries was collected from a variety of sources: 1) desk research, including both national and international available literature; 2) OECD data sources, including the OECD's Programme for International Student Assessment (PISA) and information from the Indicators of Education Systems (INES) programme; 3) country responses to OECD surveys, notably from the INES programme (Box 1.2); 4) information provided by countries to the Above and Beyond project; and 5) discussions with country representatives in order to better understand national contexts and policies.

Information about the design of countries' upper secondary systems was mapped based on the different design features identified and was then divided into different categories of countries reflecting distinct practices. Desk research, data analysis and discussions with countries were used to identify the policy implications of different categories of practices

that are elaborated in the policy considerations part of each section. The policy considerations examine the advantages of each approach, the risks and the strategies that countries can use to maximise the benefits and minimise the risks. These findings are synthesised in policy frameworks at the end of Sections 3 and 4.

Box 1.2. OECD, Indicators of Education Systems programme

The OECD Indicators of Education Systems (INES) programme seeks to gauge the performance of national education systems as a whole, rather than to compare individual institutional or other subnational entities.

INES enables education systems to assess themselves in light of other countries' educational performance by providing a rich and internationally comparable set of indicators on:

- the output of educational institutions and the impact of learning on economic and social outcomes

- the financial and human resources invested in education

- access to education, participation and progression

- the learning environment and organisation of schools.

The indicators are published annually in *Education at a Glance: OECD Indicators* (EAG). One of the main data collections is the annual UNESCO, OECD and EUROSTAT (UOE) survey, which collects data on the enrolment of students, new entrants, graduates in various levels of education, educational personnel, class size, educational finance and educational programmes (International Standard Classification of Education [ISCED] mapping).

The ISCED mapping questionnaire is an important source of information. As the structure of educational systems varies widely between countries, a framework to collect and report data on the characteristics and structure of educational programmes with a similar level of educational content is a clear prerequisite for the production of internationally comparable education statistics and indicators. In addition, understanding the specificities of national programmes provides information to better understand countries' educational systems, captures systemic differences across countries and supports the interpretation of the EAG indicators.

The questionnaires collect ISCED mapping on a yearly basis. The questionnaire requests the information on the following:

- compulsory and free education

- programmes and qualifications under the scope of the UOE questionnaire

- programmes and qualifications not under the scope of the UOE questionnaire:

  o formal qualifications, obtained by formal education programmes not covered in UOE (i.e. those from programmes with duration less than six months/one semester)

  o qualifications recognised by national education authorities as equivalent to qualifications from formal education but obtained from non-formal programmes, informal learning or by validation of competencies (such

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> recognition including the same rights of access to higher formal education levels)
>
> - qualifications from programmes that no longer exist but are taken into account in educational attainment statistics for a (mainly older) part of population.
>
> Since the UOE 2021 survey, a dedicated section has been added for early childhood education and care programmes. To provide a better understanding of each programme, it collects information about the adherence of programmes to each ISCED criterion and, where relevant, information about the names of care settings, the provision of care included and the authority responsible for the reference/regulatory framework.

2. Understanding and defining programme design in upper secondary education

Identifying upper secondary education across countries

To define upper secondary education and the main programme differences at this level, this paper uses the International Standard Classification of Education (ISCED) (UNESCO Institute for Statistics, 2012[1]), the standard framework used to categorise and report cross-nationally comparable education statistics, (Box 2.1). A defining characteristic of upper secondary education is more varied, specialised instruction reflected in study being more differentiated across different options and streams.

> ### Box 2.1. Principal characteristics of upper secondary education, ISCED 2011
>
> ISCED was developed to provide an international system for classifying countries' education systems, in order to understand and properly interpret the inputs, processes and outcomes of education systems from a global perspective and ensure comparable data. According to ISCED 2011, the principal characteristics of upper secondary education are:
>
> - Programmes at ISCED level 3, or upper secondary education, are typically designed to complete secondary education in preparation for tertiary education or provide skills relevant to employment, or both.
>
> - Programmes at this level offer students more varied, specialised and in-depth instruction than programmes at ISCED level 2. They are more differentiated, with an increased range of options and streams available. Teachers are often highly qualified in the subjects or fields of specialisation they teach, particularly in the higher grades.
>
> - ISCED level 3 begins after 8 to 11 years of education since the beginning of ISCED level 1. Pupils enter this level typically between age 14 and age 16. ISCED level 3 programmes usually end 12 or 13 years after the beginning of ISCED level 1 (or around age 17 or 18), with 12 years being the most widespread cumulative duration. However, exit from upper secondary education may range across education systems, usually from 11 to 13 years of education since the beginning of ISCED level 1.
>
> - Programmes classified at ISCED level 3 may be referred to in many ways, for example: secondary school (stage two/upper grades), senior secondary school,

or (senior) high school. For international comparability purposes the term "upper secondary education" is used to label ISCED level 3.

Source: (UNESCO Institute for Statistics, 2012[1]), *International Standard Classification of Education, ISCED 2011*, http://uis.unesco.org/en/topic/international-standard-classification-education-isced (accessed December 2021).

Upper secondary education systems differ significantly across OECD countries. Figure 2.1 summarises the duration, starting and ending age of upper secondary education and the ending age of compulsory education:

- **Duration of upper secondary education:** Upper secondary education typically lasts three years, but among OECD countries the duration ranges from two years (as in Ireland and Lithuania) to five years (as in Italy).

- **Starting age:** The typical starting age is 15, but in some countries, students start earlier, at age 14 (as in Italy), while in other students start far later, at 17 (as in Lithuania).

- **Age of completion:** The typical age for young people upon completion of upper secondary is 17, but it ranges between 17 (as in Switzerland) and 20 (as in Iceland).

- **Compulsory education and upper secondary education:** Across the OECD, a full cycle of upper secondary education is compulsory in only eight education systems. However, participation in upper secondary education is partially compulsory (i.e. compulsory for the first years) in 19 OECD countries (Perico e Santos, forthcoming[4]). This forthcoming OECD Working Paper, "Managing student transitions into upper secondary pathways", explores in greater detail the relationship between the cycle of compulsory education, upper secondary education and student enrolment and completion.

- **Selection into upper secondary programmes:** This paper examines how selection is carried out across OECD countries and the implications of different approaches for students and education systems (Perico e Santos, forthcoming[4]). Depending on the education system, students are selected into different programmes at different ages. On average across OECD countries, the age of first selection is 15, and selection most frequently occurs at the beginning of upper secondary education. In some countries, the age of first selection is far earlier, corresponding to the beginning of lower secondary education (age 10 in Austria and Germany and age 12 in the Netherlands). In contrast, in a few countries with comprehensive systems (Canada, New Zealand and the United States), there is no selection of students into different education options until after the end of compulsory schooling, when students transition into tertiary education, further education or employment.

Figure 2.1. Upper secondary education systems across OECD countries
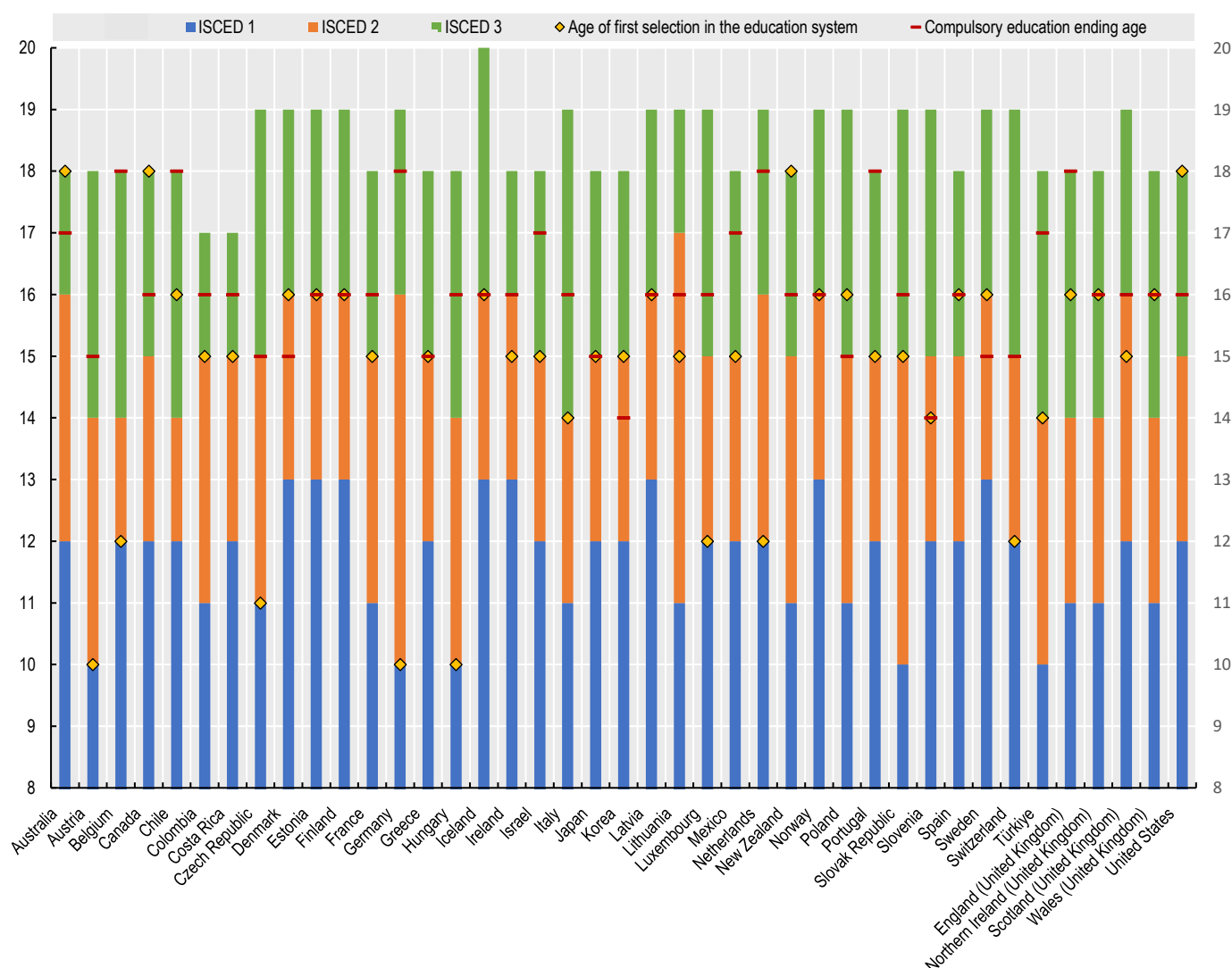
Notes:

It is assumed that age references refer to age on 1 January of the reference year.

Ending age of compulsory education might refer to the age that each individual student reaches depending on the birth date, meaning that students can leave school during the school year whenever they have attained that age, or it can refer to the age of students during the school year, meaning that students must complete the school year during which they reached the compulsory ending age.

Compulsory ending age refers to education and not training. For example. in France the ending age of compulsory education is 16 but training is compulsory up to age 18.

Selection in New Zealand occurs after upper secondary education, as only one programme is provided at this level. However, from age 16, students are allowed to leave the initial schooling system and enrol in an ISCED 3 or ISCED 4 vocational programme in a post-school institution.

In the United States, the ending age of compulsory education varies between 16 and 18 depending on the state. Greece provided the correct ending age of compulsory education (15 instead of 14). Lithuania provided the correct age of selection (15 instead of 14) and of ending age of compulsory education (18 instead of 16). New Zealand provided the correct age of selection (18 instead of 15). The Slovak Republic provided the correct age of selection (15 instead of 11). Slovenia provided the correct starting age of upper secondary education (15 instead of 14).

Countries are ranked in alphabetical order.

Sources: (OECD, 2022[5]), *Education at a Glance 2022: OECD Indicators*, https://doi.org/10.1787/3197152b-en; (OECD, 2019[6]) PISA 2018 Database, https://www.oecd.org/pisa/data/2018database/ (accessed January 2022).

Definitions and terms used to describe upper secondary education systems

Pathways in upper secondary education

There is no internationally comparable definition of the term "pathway", which is used in various ways with different connotations across countries. This paper and the whole Above and Beyond project views pathways as the trajectories that students take as they transition through upper secondary education. The design and organisation of countries' education systems, combined with student decision-making and, to varying degrees, system-level decision-making (such as certification and examinations) influence students' trajectories or pathways.

Programmes in upper secondary education

Programmes are a sub-dimension of a pathway. It is the programmes that students take during their upper secondary education, combined with what they do before upper secondary education and afterwards, that define and develop their individual pathways.

This paper uses the definition of upper secondary programmes set out in the ISCED definition (see Box 2.1). According to ISCED, "… an education programme is defined as a coherent set or sequence of educational activities or communication designed and organised to achieve pre-determined learning objectives or accomplish a specific set of educational tasks over a sustained period." (UNESCO Institute for Statistics, 2012[1]) Specifically, at the upper secondary level, ISCED distinguishes upper secondary education programmes by:

- **Orientation:** General (less than 25% of the programme content is vocational) or vocational (see Box 3.1).

- **Level completion and access to higher ISCED levels:** Programmes at this level may result in: 1) no completion of ISCED 3; 2) partial completion of ISCED 3 without direct access to tertiary programmes; 3) completion of ISCED 3 without direct access to tertiary programmes; and 4) completion of ISCED 3 with direct access to tertiary programmes.

This paper uses these criteria to distinguish upper secondary programmes in countries. The paper also identifies other programme characteristics that provide important information for distinguishing upper secondary education programmes. Upper secondary programmes of both general and vocational orientation often also have different specialisations depending on the country. General programmes, for example, might have a specialisation in social sciences, mathematics or natural sciences, while vocational programmes might give students the option to specialise in computer science, business studies or social care. While such specialisations can shape students' future options, information about different specialisations are not currently captured by the ISCED classification (Kis, 2020[7]).

Distinguishing features of upper secondary programmes from a comparative perspective

Until recently, upper secondary education in many OECD countries was a stage of education that prepared an academic minority for tertiary education. While international data is only recently available, national data gives a sense of the expansion of upper secondary education in recent decades. For example, in 1970, only 14% of those age 25 or above in Belgium and 28% in Norway had completed upper secondary education (UNESCO Institute for Statistics, 2021[8]). As economies have become more knowledge-based, it has increasingly become recognised that all young people need to complete upper

secondary education to acquire the minimum skills and knowledge they will need to be successful in their adult and working life. Increasing focus on lifelong learning also emphasises the importance of upper secondary education as a passport that enables young people and adults to meaningfully engage in formal and non-formal learning throughout their lives (OECD, 2021[9]).

With a far greater share of the student cohort progressing to upper secondary education, modern upper secondary systems need to accommodate a far wider variety of student interests, aspirations and learning levels. Recognising and meeting the different interests and needs of learners at this stage also support countries' goals of universal completion of upper secondary education. Compared to lower levels of schooling, young people in upper secondary education are more independent and autonomous, and their interests are more diverse. A system that is not responsive to these differences risks that learners may disengage, may not reach their potential and may even drop out. At the same time, upper secondary education is a pathway to further education and employment and so plays a role in helping students narrow their areas of interests and deepen their skills and knowledge to prepare them for further study or employment (OECD, 1999[10]).

In order to meet these objectives, countries structure upper secondary systems in different ways. Some provide diversity between programmes and others within programmes, but most commonly countries balance both. This section describes the key concepts that countries need to balance when designing upper secondary systems.

Stratification across and within programmes

Upper secondary education is the last time the full student cohort is in a highly structured school setting where policy makers have considerable responsibility for the curriculum. At this stage, countries have a duty to ensure that, by the time they leave school, all young people have been supported to develop the competencies they will need to succeed in the adult world and working life. At the same time, upper secondary systems need to be responsive to students' interests, be able to keep young people engaged and enable them to succeed in their final stage of schooling. Stratification or diversity in upper secondary education aims to respond to students' different interests and aspirations, but also to meet countries' economic needs (OECD, 2020[4]).

This paper identifies two types of stratification in upper secondary systems:

- **Stratification, or diversity, across programmes (Section 3)**

Stratification or diversity across programmes entails students being separated into one, two or multiple different upper secondary programmes, usually classified by orientation (general or vocational). In countries where vocational education is well-developed, as in Austria, the Netherlands and Switzerland, upper secondary education offers more than one vocational programme. These systems have a high level of stratification or diversity across programmes. Countries with a comprehensive system, such as Canada and the United States, have a low level of stratification across programmes, since they do not sort students into different programmes. However, in these systems there is sometimes significant stratification within programmes (see below).

- **Stratification within programmes (Section 4)**

Systems having a high level of stratification within programmes provide students with choice regarding the subjects they study. This can entail choosing the levels at which they study certain subjects and the degree of specialisation of their studies. In all countries with vocational programmes, students choose specialisations for their vocational programmes (e.g. computing, music production or construction). Most countries also provide some type

of choice or stratification within general programmes (e.g. students can choose some of the subjects that they study or the level that they study at). In comprehensive systems, where students are all enrolled in the same upper secondary programme, this type of diversity or stratification is more pronounced. For example, in Canada and the United States, students attend the same programme, but the diversity or stratification within the programme enables the system to respond to differences in students' interests, levels of learning and aspirations.

Choice

Choice is a key element in upper secondary education because it helps keep students engaged and supports them to complete their education and build a foundation for future opportunities. Choice can be provided both between programmes (i.e. when students select or are oriented towards an upper secondary programme) and within programmes (i.e. when students choose or are oriented towards different levels, subjects or specialisations within their upper secondary programme). Countries balance how choice is provided, with some offering greater choice in terms of programmes by providing more upper secondary programmes, while others offer greater choice within programmes, in terms of the subjects, levels and specialisations that students study.

How much real choice do students have?

How far the concept of "choice" actually equates to real choice for individual students depends on the education system. Education systems need to balance giving students space to develop, articulate and exercise their choice – which is essential in the development of their personal agency – with where they are likely to be most successful and thrive.

In practise, in all OECD countries, students' views are taken into account when decisions are made about their placement into upper secondary programmes (Perico e Santos, forthcoming[4]). Systems then use information about students' academic performance to try to direct them to programmes where they are likely to be most successful, based on their previous academic performance.

How countries do this in practice shapes the degree of choice that students have. In some systems, it is only the very high-performing students who exercise much choice in their upper secondary programme, because they are eligible to enter all programmes. This is typically the case in countries such as Japan or Türkiye, where students' results in an examination at the end of lower secondary are used to competitively rank them for places across upper secondary programmes (Entrich, 2019[11]). In other countries, such as Sweden and in the education systems in the United Kingdom, students have to meet a threshold related to academic performance in order to enter general upper secondary programmes. This provides greater flexibility, because students do not have to achieve a specific mark, and it enables more students to exercise greater choice.

In countries where the main opportunity for student choice is within programmes, student choices can be constrained much the same way as in programme choice, although this constraint is often less transparent and codified. Teachers or schools may orient some students towards options that best match their abilities and interests, and this can in some cases mean orienting them away from options that enable them to directly access tertiary education or the most prestigious institutions. This orientation is generally based on academic information, but unconscious biases may also be at play, often related to students' socio-economic background. The latter highlights the need for students to be able to access good-quality guidance to support them to exercise their choices in an informed way (Perico e Santos, forthcoming[4]).

The above is a very crude depiction of how students select or are oriented towards different upper secondary programme, but it encapsulates the essential elements that shape student choice. In reality, there are many other factors at play. Young people are still developing and academic information is not always a valid predictor of later performance, and pathways between general and vocational education are more fluid. Higher education is also becoming more diverse, with more higher vocational content and programmes that open up new pathways, in particular for those coming from upper secondary vocational education and training (VET).

Coherence

The OECD Education 2030 project defines coherence as the extent to which learning is organised in a meaningful sequential structure of topics that reflect the logic of the academic disciplines on which they draw, and from which the relationships between the different elements of the curriculum become clear. A coherent curriculum enables progression from basic to more advanced concepts and is developed appropriately to the age/grade of students (OECD, 2020[12]).

Coherence in upper secondary education aims to ensure that all students complete the last stage of schooling with a specific and coherent set of skills and competencies that provide the necessary foundations for more complex study or the development of more specific skills in the workplace. This paper looks at coherence in terms of the subjects and disciplines that students undertake in upper secondary education and how far different types of content interact and build on one another. In a very coherent upper secondary programme, each subject and course that a learner takes builds on prior skills progressively. In particular, this paper looks at how countries define and apply a core foundation of certain subjects.

Specialisation

Specialisation is a distinguishing feature of upper secondary education, in contrast to lower levels of schooling, where the general aim is to develop basic competence across a broad range of competencies. In upper secondary education, specialisation helps students start defining their interests, while developing greater depth of knowledge and skills in specific domains. Students use these deeper, more specific skills either to enter the labour market or to build on them in tertiary education.

How specialisation is provided and the role that it plays differs across countries and programmes. In vocational education, specialisation tends to be fairly narrowly focused on a specific occupation or related occupations, with students choosing their specialisation (such as construction, business or social care) from a predefined group of possible options. In general education, specialisations tend to be broader (for example, a student might choose to specialise in humanities or sciences). In some high-choice systems, such as in England (United Kingdom), Ireland and New Zealand, students can construct a specialisation based on the subjects and levels that they choose. Specialisation is discussed in detail in Section 4.

3. Programme diversity across upper secondary education systems

What is programme diversity?

Stratification or diversity across programmes refers to the range and characteristics of programmes that are provided to students. Programme diversity helps systems respond to a broad range of different characteristics among upper secondary students, including their interests, aspirations and levels of preparedness for this level of education. It also helps countries to achieve economic goals, by ensuring that each new generation of young people has the right set of skills for continuing into further education and training or joining the labour market.

This paper identifies five main dimensions of diversity in upper secondary programmes:

- the separate provision of general and vocational programmes
- the provision of programmes with no or partial completion of ISCED 3
- destinations upon completion of upper secondary education
- the number of educational programmes in which students can be placed
- students' age at first selection.

Separate provision of general and vocational programmes

Comparative data and evidence

A common way for countries to provide diversity in upper secondary programmes is through separate provision of general and vocational programmes. In ISCED, this is referred to as the programme orientation. It relates to whether a programme is specifically oriented towards certain occupations or trades or towards developing learners' general knowledge, skills and competencies (OECD, 2005[13]) (Box 3.1).

Box 3.1. Programme orientation in ISCED

General education

General education is defined as education programmes that are designed to develop learners' general knowledge, skills and competencies, as well as literacy and numeracy skills, often to prepare participants for more advanced education programmes at the same or a higher ISCED level and to lay the foundation for lifelong learning. These programmes are typically school- or college-based. General education includes education programmes that are designed to prepare participants for entry into vocational education but do not prepare for employment in a particular occupation, trade or class of occupations or trades, nor lead directly to a labour market-relevant qualification.

Vocational education

Vocational education is defined as education programmes that are designed for learners to acquire the knowledge, skills and competencies specific to a particular occupation, trade, or class of occupations or trades. Such programmes may have work-based components (e.g. apprenticeships, dual system education programmes). Successful completion of such programmes leads to labour market-relevant, vocational

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qualifications acknowledged as occupationally oriented by the relevant national authorities and/or the labour market.

Source: (UNESCO Institute for Statistics, 2012[1]), *International Standard Classification of Education: ISCED 2011*, http://uis.unesco.org/en/topic/international-standard-classification-education-isced (accessed December 2021).

Most countries provide separate general and vocational programmes

The distinction between general and vocational orientations has its roots in 20th century Europe, with the expansion of upper secondary systems, and it still dominates the design of upper secondary systems (Kamens, Meyer and Benavot, 1996[14]). Providing general and vocational orientations helps countries achieve two objectives: 1) allowing students to pursue their interests by offering a range of options; and 2) responding to labour market needs by orienting students towards professional programmes that provide them with skills relevant to the labour market (OECD, 2010[15]).

The provision of separate orientations at the upper secondary level is very common across OECD countries. Only a handful of countries (including Canada [with the exception of Québec], Ireland, New Zealand and the United States) do not provide students with a distinct vocational programme according to the ISCED classification (OECD, 2020[16]). Even in these countries, students are able to choose vocational options within their comprehensive upper secondary education. On average, 37% of upper secondary students take part in vocational education across the OECD, but the share across individual countries varies significantly (Figure 3.1).

The size and design of vocational upper secondary systems differ significantly across OECD countries

The shaping of upper secondary vocational systems is strictly related to the culture and historical evolution of each country. Figure 3.1 shows the differences in enrolment in vocational education at the upper secondary level among OECD countries. Countries with strong vocational education and training (VET) systems (such as Austria, Belgium, the Czech Republic, Italy, Luxembourg, the Netherlands, Poland, the Slovak Republic, Slovenia and Switzerland) have the highest rates of enrolment across systems internationally, with usually more than half of upper secondary students enrolled in vocational programmes. On the contrary, in countries with a less strong VET culture (such as Denmark, Korea and Iceland) and those countries that do not have an official vocational orientation at the upper secondary level according to ISCED (Canada [with the exception of Quebec], Ireland, New Zealand and United States) or provide it mostly outside the schooling system (Australia), the enrolment rates of students in vocational upper secondary education are below 20% (Figure 3.1). In countries where VET is not provided at the upper secondary level, vocational options are mainly provided at the post-secondary level, as in Australia, Canada and Ireland. In New Zealand and the United States, there are no upper secondary vocational programmes, but students can take optional vocational courses within the general programme.

Vocational upper secondary systems among OECD countries differ not only in size, but also in the way they are organised, and these two features are probably related. VET systems are usually categorised as school-based, work-based or combined school-based and work-based. Countries can provide these different types of programmes at the same time (OECD, 2020[17]).

- **School-based programmes:** In countries such as Belgium, Finland, Japan and Slovenia, upper secondary VET programmes are mostly school-based. This means that 75% of the curriculum is presented in the school environment, also including training centres, if they qualify as training institutions.

- **Work-based programmes:** These are usually non-formal education programmes, as the school component represents less than 10% of the time.

- **Combined school-based and work-based programmes:** These can take the form of apprenticeship programmes that involve concurrent school-based and work-based training, as in Denmark and Norway, or they can involve alternating periods of attendance at school and participation in work-based training, as in the dual system in Germany and Switzerland.

While all countries provide some form of vocational upper secondary education, it is not always provided in institutions that are physically separately from general education. In countries where vocational education tends to be quite specialised, notably the dual-model countries and many Eastern and Central European countries, vocational education is often provided in separate schools. Having separate schools might make it easier to provide specialised equipment, such as laboratories and other technical materials. In other countries, such as Sweden, and in systems in the United Kingdom, vocational education is sometimes provided in the same school or institution as general education, which can make it easier for students to combine options. In entirely comprehensive systems, where students can take vocational education courses as part of their general programme, as in New Zealand and the United States, students frequently have to attend an external institution, such as a tertiary or further education institution, to do so (OECD, 2020[17]).

Some countries involve employers, not only in providing workplace learning opportunities, but also in designing the VET programmes. In Austria, Denmark, Germany and Switzerland, employers share information about student outcomes and skills needs to help design curricula, qualification standards and student evaluation guidelines (OECD, 2020[17]).

Figure 3.1. Share of students aged 15-19 enrolled in upper secondary, by programme orientation
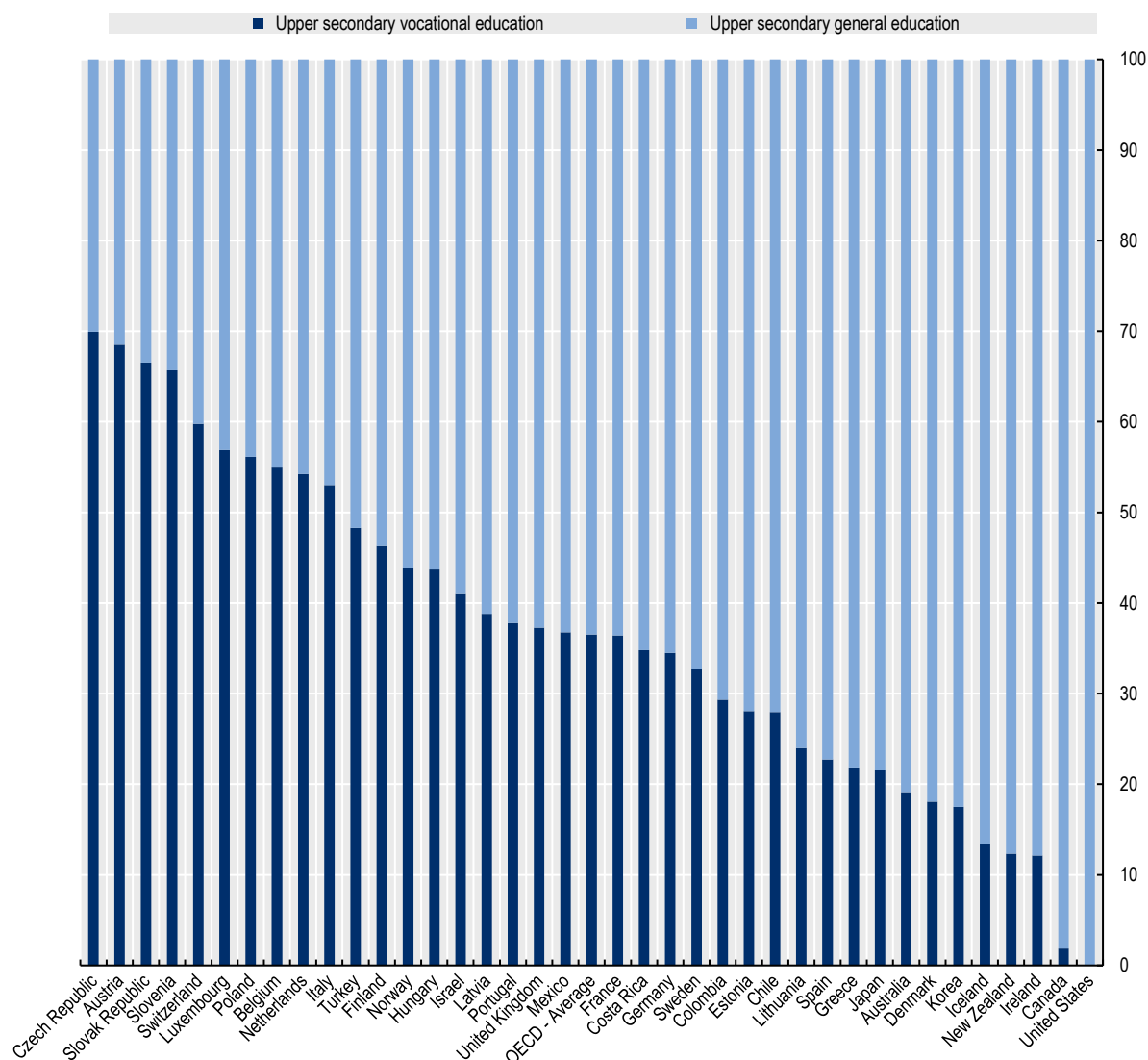
Notes: Upper secondary vocational education includes upper secondary school and work-based vocational education (ISCED 2011 level 3 programme 5_SW).
Countries are ranked in ascending order of the share students age 15-19 enrolled in upper secondary vocational education.
Source: (OECD, 2021[18]), "Education at a Glance: Enrolment by gender, programme orientation and mode of study", *OECD Education Statistics* (database), https://doi.org/10.1787/1e72e8c8-en (accessed on 16 April 2022).

Policy considerations when providing separate vocational and general programmes

Vocational systems can enable students to develop specific skills for the labour market and can help motivate some students

The development of professional skills can enable vocational upper secondary graduates to enter the labour market directly, facilitating school-to-work transitions. Young upper secondary vocational graduates from OECD countries have, on average, higher employment rates and lower unemployment rates than general upper secondary graduates

(who did not pursue further qualifications), and these results have been stable over the past 15 years (OECD, 2020[17]). However, it is important to mention that there is some evidence that the initial success of vocational students in the labour market fades over time. This suggests that having specific technical skills can help them early on in their career, but they may later struggle to adapt to changes in the labour market (Hanushek et al., 2017[19]). Median wages of young upper secondary vocational graduates are slightly higher than those of upper secondary general education graduates, but this difference does not emerge for older age groups. On the other hand, vocational graduates earn less than tertiary education graduates at all ages, even when employed in similar jobs (OECD, 2020[17]).

Vocational programmes can function as a safety net to help young people find employment and develop skills and to prevent dropout (Shavit and Müller, 2000[20]). Evidence from international cross-sectional data finds that countries with a large proportion of upper secondary students enrolled in vocational programmes have significantly higher school attendance rates and higher upper secondary completion rates (Bishop and Mane, 2004[21]). For students who are disengaging with school and experiencing limited success with traditional academic content, vocational education can help them gain general knowledge while developing strong practical skills in areas in which they are interested and might excel and get a job (Noddings, 2011[22]). Some vocational programmes function as effective second-chance programmes, as they enable students to obtain a relevant qualification in a more timely and flexible way (e.g. working part-time or in partnership with the employer) (OECD, 2012[23]). However, when the quality of vocational programmes is low or the programmes are not well designed, there is the risk that students will not develop relevant skills, causing higher dropout and poor performance in the labour market.

The countries with large and well-developed vocational sectors have developed them over many centuries in close collaboration across the labour and education sectors. But countries without a historically developed vocational sector can enable students to develop vocational competences in other ways, including:

- Integrating the vocational component in the curriculum by providing a range of vocational subjects from which students can choose alongside general subjects.

- Developing a strong post-secondary vocational or professional education system that provides students with skills needed in the labour market. Post-secondary vocational or professional programmes can, in some cases, be of relatively short duration and can include work-based training.

Systems that separate students into vocational and general programmes create an inherent challenge for equity and require explicit policies to manage this risk effectively

While systems with a strong vocational sector can provide opportunities for students, separating students into different programmes carries a risk that programmes may become inequitable in terms of access, quality and outcomes. A key concern with highly diversified systems is that students do not attend different programmes solely based on their interests or attitudes, but that their background strongly influences the programme that they are oriented towards (Reay, 2011[24]). Separate programmes might reinforce existing social inequities, as advantaged students are often over-represented in general programmes, while disadvantaged students are more frequently found in vocational programmes (OECD, 2018[25]). A study analysing social mobility in the Netherlands found that children coming from working-class families tend to choose or be oriented towards technical and vocational programmes that lead to more manual and routine occupations, while children from more advantaged families tend to choose or be oriented towards prestigious fields of studies that

allow them to reach positions of high social class (Van de Werfhorst, 2002[26]). PISA confirms this, showing that in most OECD countries for which data is available, disadvantaged 15-year-old students tend to attend vocational programmes more than general programmes (Figure 3.2). The reasons for these inequities are complex and include general inequities in the education system, information asymmetries and subconscious biases among education staff (Perico e Santos, forthcoming[4]).

Figure 3.2. Students attending vocational education, socio-economic status

Enrolment rates of students from top and bottom quartile of socio-economic status in vocational education and the difference in percentage points between these two groups
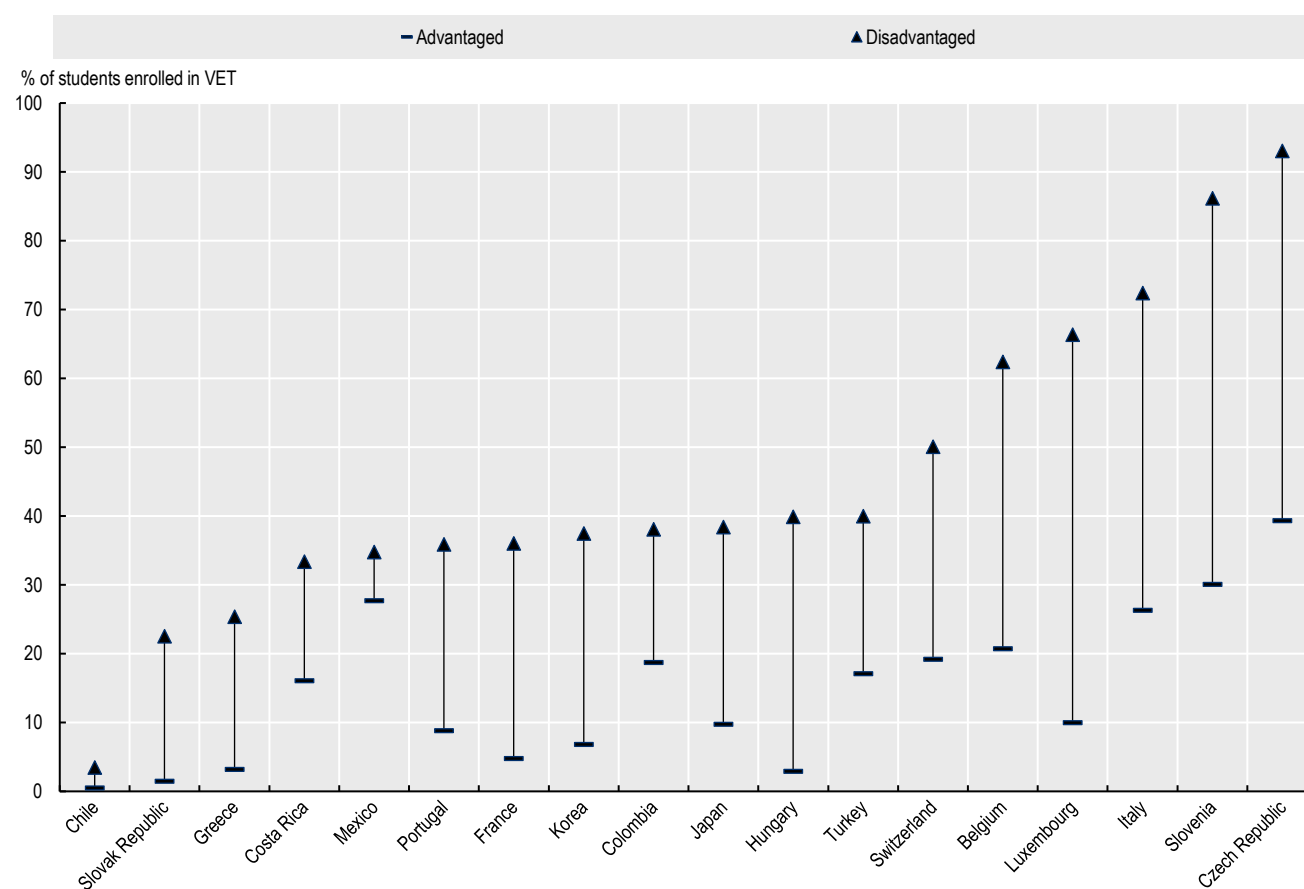
Notes: Countries with less than 35% of students enrolled in ISCED 3 in the PISA sample and countries that do not distinguish between general and vocational education are not included in the figure.
Countries are ordered in ascending order by percentage of disadvantaged students.
Source: (OECD, 2019[27]) PISA 2018 Database, https://www.oecd.org/pisa/data/2018database/ (accessed January 2022).

Some of the ways that countries can manage this risk include:

- **Combining a range of sources of evidence to inform decisions about student transitions into upper secondary education** (Perico e Santos, forthcoming[4]): Combining a range of sources of information can help balance the risks of individual sources of information. Information from external examinations can help to counterbalance the biases of teachers' classroom assessment marks. But examinations can also accentuate existing inequities in systems, because students

from lower socio-economic backgrounds perform lower on average and frequently have less access to home resources and support, including private tutoring. Teachers' classroom assessment marks provide a more complete picture of student achievement than an examination can, but teachers' marks may not always be fair or reliable.

- **Educating teachers, families and students on upper secondary choices and how to make decisions about transitions** (Perico e Santos, forthcoming[4]): Evidence shows that decisions of teachers, families and students regarding upper secondary programme choices are often informed by subjective views rather than informed data and evidence about future options. When teachers have a role in making decisions about student placement, they should be supported by guidance including sources of information to draw on and how to be aware of subjectivity in their decision-making. Systems should also raise awareness early on among students and families about how educational pathways lead to different types of further education and employment, so that students are able to make an informed choice when they come to key transitions points.

- **Increasing flexibility to move between tracks**: So that students do not feel "stuck" in a programme that no longer suits or interests them.

- **Intentionally building pathways from upper secondary programmes into further education**: So that all students have opportunities to progressively build on and deepen their skills and knowledge after secondary education.

- **Ensuring equal quality across programmes and orientations**: To ensure that struggling students receive the resources they need, regardless of the programme they are enrolled in.

Programmes that provide no or partial completion of ISCED 3

Comparative data and evidence

ISCED classifies upper secondary education programmes (ISCED 3) depending on the type of certification they provide upon completion. Some programmes provide full completion of ISCED 3, while others do not. There are eight types of programmes for international classification purposes for ISCED 3, four general (code 34) and four vocational (code 35) (Table 3.1). Among these, four types, the ones that account for the greatest share of student enrolment, provide students with a certificate of full completion of upper secondary education (codes 344, 354, 345 and 355).

Table 3.1. Classification codes for education programmes at ISCED level 3

Code	Category (orientation)	Code	Sub-category (level of completion and access to higher ISCED levels)
34	Upper secondary general education	341	Insufficient for level completion or partial level completion, without direct access to post-secondary non-tertiary education or tertiary education
		342	Sufficient for partial level completion, without direct access to post-secondary non-tertiary education or tertiary education
		343	Sufficient for level completion, without direct access to tertiary education (but may give direct access to post-secondary non-tertiary education)
		344	Sufficient for level completion, with direct access to tertiary education (may also give direct access to post-secondary non-tertiary education)
35	Upper secondary vocational education	351	Insufficient for level completion or partial level completion, without direct access to post-secondary non-tertiary education or tertiary education
		352	Sufficient for partial level completion, without direct access to post-secondary non-tertiary education or tertiary education
		353	Sufficient for level completion, without direct access to tertiary education (but may give direct access to post-secondary non-tertiary education)
		354	Sufficient for level completion, with direct access to tertiary education (may also give direct access to post-secondary non-tertiary education)

Source: (UNESCO Institute for Statistics, 2012[1]), *International Standard Classification of Education: ISCED 2011*, http://uis.unesco.org/en/topic/international-standard-classification-education-isced (accessed December 2021).

However, some countries (20 countries according to the INES database) also offer programmes that do not provide full completion of ISCED 3 (see Box 3.2) (OECD, 2020[16]). In general, these programmes help countries manage diverse levels of learning and can help to build foundational skills before students tackle more complex material for programmes that provide full completion.

Box 3.2. Level completion and access categories for ISCED 3

The following four-level completion and access sub-categories are defined for ISCED level 3:

- **No completion of ISCED level 3 (and thus without direct access to first tertiary programmes at ISCED level 5, 6 or 7):** Short, terminal programmes (or sequence of programmes) with a duration of less than 2 years at ISCED level 3 or that end after less than 11 years of cumulative duration since the beginning of ISCED level 1. These programmes do not give direct access to ISCED level 5, 6 or 7. Successful completion of such programmes does not count as completion of ISCED level 3. Note also that these programmes do not give direct access to ISCED level 4 either.

- **Partial completion of ISCED level 3 without direct access to first tertiary programmes at ISCED level 5, 6 or 7:** Programmes representing at least 2 years at ISCED level 3 and a cumulative duration of at least 11 years since the beginning of ISCED level 1, and which are part of a sequence of programmes at ISCED level 3 but are not the last programme in the sequence at this level. These programmes do not give direct access to ISCED level 5, 6

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or 7. Successful completion of such programmes is considered as partial completion of the level only (as only the final programme in the sequence is likely to give access to tertiary education at ISCED level 5, 6 or 7). Note also that these programmes do not give direct access to ISCED level 4 either.

- **Completion of ISCED level 3 without direct access to first tertiary programmes at ISCED level 5, 6 or 7:** Programmes with a duration of at least 2 years at ISCED level 3 and that end after at least 11 years of cumulative duration since the beginning of ISCED level 1. These programmes may be terminal or give direct access to ISCED level 4. Successful completion of such programmes qualifies for completion of ISCED level 3.

- **Completion of ISCED level 3 with direct access to first tertiary programmes at ISCED level 5, 6 or 7:** Any programmes that give direct access to first tertiary programmes at ISCED level 5, 6 or 7, regardless of their duration at level 3 or their cumulative duration since the start of ISCED level 1. These programmes may also give direct access to ISCED level 4

Source: (UNESCO Institute for Statistics, 2012[1]), *International Standard Classification of Education: ISCED 2011*, http://uis.unesco.org/en/topic/international-standard-classification-education-isced (accessed December 2021).

Entry-level programmes represent one type of programme offering partial completion

A few countries provide programmes that are designed as a preparatory or entry-level programme to help students transition into the full upper secondary programme that provides full completion of ISCED 3. In some countries, these programmes serve a specific group of students who have not yet demonstrated the necessary knowledge and skills to be able to meet the demands of the full ISCED 3 programmes. This is the case in Sweden, where students who do not meet the grade thresholds for the main upper secondary programmes are directed to the Introductory Programmes (both general and vocational). These programmes do not give a certificate of completion of upper secondary education and are an additional preparation year that students are required to take before joining the national full programmes. While it is clearly important to provide students with the time and support to acquire key skills so that the main upper secondary content is accessible to them, these programmes are not always successful in achieving these aims (see Box 3.3).

In other countries, entry-level programmes are more broadly focused and serve a wider range of students. They aim to give students time to reflect on their choices for upper secondary education, develop broader non-cognitive skills, such as study skills and wider interests, in preparation for the demands of the full upper secondary programme. For example, in Ireland, the Transition Year is a one-year bridge programme between lower and upper secondary education, and many students decide to take it for different reasons (see Box 3.3).

Box 3.3. Entry-level programmes that provide only partial completion of ISCED 3

Introductory programmes, Sweden

In 2011, the Swedish government raised the entrance requirements for the main upper secondary education programmes by setting minimum grades that students need to achieve at the end of lower secondary education to enter the main upper secondary programmes. Today around 15% of each cohort does not reach the grade threshold for the main upper secondary programmes. Introductory programmes are provided for these students to help them strengthen their foundational skills. They offer learners individually adapted education to respond to their varying educational needs and provide clear educational paths.

However, only half of the students who attend the introductory programme manage to complete it and enter one of the main upper secondary programmes within five years. This kind of programme may be discouraging for students who are already struggling in school and then are required to remain in the classroom for an additional year. The organisation of these programmes varies widely across municipalities. In some cases, all students in an Introductory Programme are grouped together, which might reinforce low performance and make students feel different, encouraging disengagement and low self-esteem. However, in other cases, students can attend the main upper secondary programme with their peers and just attend classes in the subjects where they need additional support.

Transition Year, Ireland

In 1994, the Irish government introduced the Transition Year between lower secondary education (Junior Cycle) and upper secondary education (Senior Cycle), to respond to concerns that students were leaving the education system before completing upper secondary education and to facilitate a smooth transition into upper secondary. During the Transition Year, students can strengthen their knowledge and skills and try a wide range of subjects to help them make more informed choices when they enter full upper secondary education. The Transition Year is viewed positively by teachers, students and parents, and in 2015/16, around 66% of students (40 451) took a Transition Year. The Transition Year is not currently offered in all schools, but in 2022 the Irish Government committed to making it available to all students.

Sources: (Kuczera and Jeon, 2019[28]), *Vocational Education and Training in Sweden, OECD Reviews of Vocational Education and Training*, https://doi.org/10.1787/g2g9fac5-en; (O'Donnell, 2018[29]), *Upper Secondary Education in Nine Jurisdictions: Overview Report*; (Smyth, 2019[30]), *Senior Cycle review: analysis of discussions in schools on senior cycle pathways and structures in Ireland,* https://www.esri.ie/publications/senior-cycle-review-analysis-of-discussions-in-schools-on-senior-cycle-pathways-and; (Department of Education, Government of Ireland, 2022[31]), *Senior Cycle Reform*, https://www.gov.ie/en/publication/f53c6-senior-cycle-reform/#transition-year.

Some countries use sequential programmes to structure upper secondary education

Some countries organise certification of upper secondary education sequentially so that students take lower-level qualifications in the first years and higher-level certifications that provide full completion of ISCED later on. In New Zealand, for example, students progress through the levels of the National Certificate for Educational Achievement (NCEA) sequentially, normally starting with Level 1 in Year 11 (NCEA 1), which provides only

partial completion of ISCED 3 before progressing to stage 2, which provides full completion of ISCED 3, and eventually, if they wish, to Level 3 in Year 13, which is necessary for tertiary entrance. Students can combine different subjects at different levels. This model enables students to progressively build skills and provides them with the space to identify subjects that they wish to continue at a higher level.

Policy considerations for programmes that provide partial or no completion of ISCED

Entry-level programmes can be helpful to prepare students for upper secondary education

One of the functions of the transition into upper secondary education is ensuring that students are prepared for the more complex content at this level (Perico e Santos, forthcoming[4]). Systems that detect areas where students lack essential foundation skills and provide them with personalised support to address those weaknesses are clearly helping to ensure that students are supported to develop the skills they need to be successful in upper secondary. However, entry-level programmes need to be organised in a way that avoids creating stigma for low-performing students. In particular, grouping together failing students is likely to reinforce lower levels of learning. It can be a risk for equity because low performers tend to be from more disadvantaged backgrounds, and it can damage students' self-esteem by separating them from the rest of the cohort (OECD, 2016[32]).

In order to address some of these challenges:

- Programmes might be organised flexibly so that students can receive targeted help in specific areas while attending the main programme with the majority of students.

- Providing broader focused transitional entry-level programmes between lower and secondary education that all students can benefit from might also be effective. In this case, programmes could be organised in a flexible and personalised way, so that some students can try out new subjects, focus on developing social-emotional competencies and study skills while lower-performing students can build foundational competencies. However, such programmes are associated with delivery costs and opportunity costs of extending schooling by a year and increasing the age when young people enter employment.

- It is important to make sure that any entry-level programme opens up a full set of options and does not channel low-performing students into options that demand less knowledge and/or competencies.

Organising programmes and certification sequentially might help to ensure that all students can obtain some kind of certification

Similar to entry-level programmes, organising programmes sequentially can help students to acquire skills progressively and enable them to try out subjects at lower levels in a less high-stakes context before focusing on chosen subjects for upper secondary certification. However, as with introductory programmes, there is a need to ensure that all students are supported to progress to full completion and do not get "stuck" in entry-level programmes.

Programme destination

Comparative data and evidence

ISCED also distinguishes programmes based on the destination that they enable students to access directly upon completion. Pathway destination is an important dimension for classifying upper secondary programmes, because it reveals the extent to which students are differentiated within upper secondary education and how far programme diversity may impact future options that are open to students. ISCED sets out four categories of completion and access for upper secondary education (Box 3.2). Among the four types of ISCED programmes that give a certification of completion, two give students direct access to tertiary (345 and 355) and two do not (344 and 354) (Table 3.1). Across the OECD, while 90% of students enrolled in general programmes have direct access to tertiary education (OECD, 2020[33]), the proportion falls to 70% for those enrolled in vocational programmes (Figure 3.3).

Figure 3.3. Distribution of students enrolled in upper secondary vocational programmes (2018)
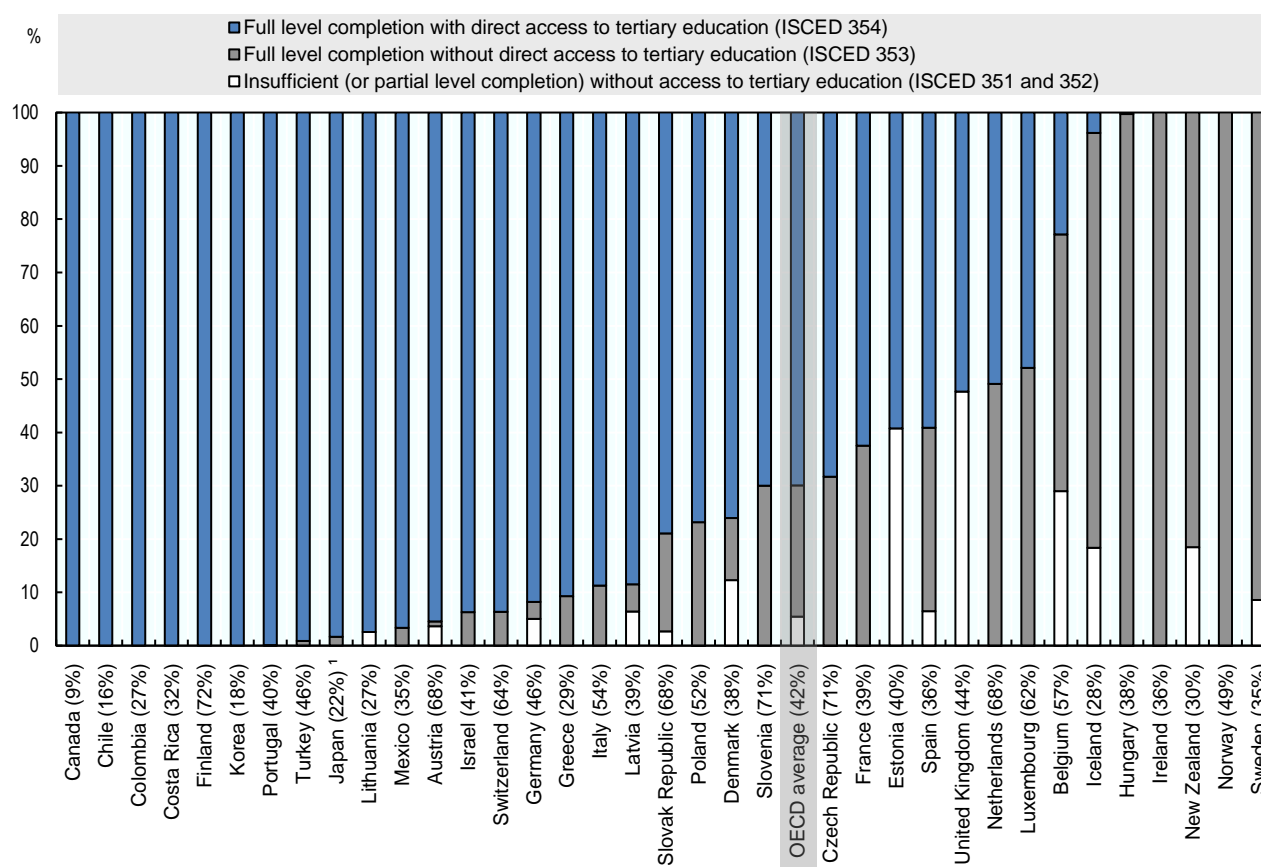
Notes: Figures in parentheses refer to the share of students enrolled in upper secondary vocational education as a percentage of all students enrolled at this level.
[1]Vocational programmes sufficient for level completion, with eligibility to tertiary (ISCED 354) include all vocational programmes insufficient for level completion, without direct access to tertiary education (ISCED 351).
The data for Hungary does not represent the current system, as one vocational programme that grants access to tertiary education has been introduced since 2018 (listed in Annex A).
Countries are ranked in descending order of the share of student enrolment in upper secondary vocational programmes sufficient for level completion, without direct access to tertiary education (ISCED 353).

Source: (OECD, 2020[33]), "Distribution of students enrolled in upper secondary vocational education by type of vocational programme (2018): Full- and part-time students enrolled in public and private institutions", in *Education at a Glance 2020: OECD Indicators*, https://doi.org/10.1787/ec4801b2-en (accessed December 2021).

Diverse pathways into further education from upper secondary vocational programmes

Figure 3.3 shows that the majority of OECD countries have some students enrolled in vocational programmes at the upper secondary level that do not provide direct access to tertiary education. Among these, six countries (Hungary, Iceland, Ireland, New Zealand, Norway and Sweden) have almost 100% of vocational students enrolled in programmes with no direct access to tertiary education.

Systems where students in some or all vocational programmes do not have direct access to tertiary education appear to give these students fewer opportunities for progression in further education – so-called "dead ends" (OECD, 2010[15]). In part, this reflects the historical roots of vocational education, which was primarily conceived as a pathway into work in many countries. In recent years, there has been a policy effort in many countries to reduce "dead ends" in line with the European Union's Lisbon Goal to improve permeability between orientations. This has led to the creation of more direct pathways from upper secondary vocational education to tertiary education. In Austria and Germany for example, there are direct pathways from vocational upper secondary education to tertiary VET, while in Sweden, from 2023, all vocational upper secondary students will automatically take the options that enable them to have direct access to tertiary education upon completion (Cedefop, 2022[34]). Even in countries where completion of vocational upper secondary education does not provide direct access to tertiary education, there are well-developed post-secondary non-tertiary programmes which can provide strong employment options for their graduates or a bridge to acquire the skills and knowledge that they need to access tertiary education. This is the case in Hungary, Ireland, Norway, and Sweden (OECD, 2020[33]). On the other hand, vocational programmes that provide direct access to tertiary education might only do so for a certain level of tertiary education (e.g. ISCED 5) or for a subset of programmes/institutions (e.g. professional programmes only or "higher VET" programmes) (Hoelscher, Hayward and Ertl, 2009[35]), (OECD, 2022[36]).

In some countries, not all students in general programmes have direct entry to tertiary education

A few general programmes across OECD countries also do not provide direct access to tertiary education. This reflects both the organisation of upper secondary programmes and the use of additional requirements for selection into tertiary education.

- **Providing different levels of certification within general upper secondary programmes**

Some countries enable general upper secondary students to obtain a certification at a lower level to the required standard for tertiary education. This is the case in New Zealand, where there are three levels of the NCEA (Box 3.4). NCEA Level 2 certifies completion of upper secondary education without giving access to tertiary education, but it is often a necessary requirement for entry-level jobs and for post-secondary non-tertiary programmes. Countries might also require students to undertake an additional step after completion of upper secondary education, such as a final examination that enables them to enter tertiary education. This is the case in Poland, where students get a certification of completion after attending a four-year general programme, but need to take the Maturity exam in order to get access to tertiary education (Box 3.4).

- **Using tertiary selection to set additional requirements for entry**

Most countries use a range of selective measures for tertiary entry. These additional access requirements might reflect the need to test the academic preparedness of students in general or in specific fields of study, to allocate students in different study programmes with limited study places, or to orient students to certain fields of study that are needed in the labour market (OECD, 2019[37]). Hungary is the only OECD country that uses only upper secondary certification and one other factor (a student's grade point average from secondary education) for tertiary entry. Public tertiary institutions in other countries use a combination of factors which are either compulsory for at least some courses or institutions or are used at the discretion of the institutions. These factors commonly include: a student's grade point average from secondary school (19 countries use it with different levels of importance); candidate interviews (20 countries use it with different levels of importance); past work experience (17 countries use it with different levels of importance); family income (5 countries use it with different levels of importance); and recommendations (7 countries use it with different levels of importance) (OECD, 2019[38]).

Direct access to tertiary education does not mean that students are well-prepared for success at this level

Completion rates of ISCED 6 programmes are lower for students coming from vocational upper secondary programmes than for those coming from general programmes in many OECD countries, including Belgium (both Flemish and French-speaking communities), Estonia, Finland, Lithuania, the Netherlands and Slovenia (OECD, 2019[38]). Even when students have direct access to tertiary programmes, they might struggle to complete them or even to enrol. Some of the factors impeding study access, particularly during the first year after upper secondary graduation, include individual students' characteristics, such as age, gender, motivation, personality, upper secondary school performance, preparedness and study skills, educational environment, induction activities and mentoring, and social integration.

Students in general programmes who do not complete tertiary education are a policy challenge for countries

While general upper secondary programmes were traditionally developed as a pathway into tertiary education, in all countries some graduates from upper secondary general programmes do not progress to tertiary education for a range of different reasons. While this is a minority of the cohort in most countries, the share can be quite significant. For example, in Sweden, four in ten graduates from upper secondary general education do not progress to tertiary education (OECD, 2022[5]). The challenge that these young people often experience to enter the labour market is an important policy consideration for countries. Across the OECD on average, the employment rate of 25-34 year-olds with upper secondary general education as their highest level of attainment is almost 10 percentage points lower than for young people with upper secondary vocational education as their highest level of attainment (OECD, 2020[33]).

As completion of upper secondary education becomes universal, countries might reflect on how far the traditional pathway from general upper secondary into tertiary education continues to be relevant for all the students who begin general upper secondary education. Countries might consider designing upper secondary pathways so that students have a range of different post-secondary options, including options for graduates from general programmes to acquire vocational skills and making them aware of such options so that they are not restricted to largely academic studies.

Box 3.4. Upper secondary general programmes and eligibility criteria to enter tertiary education

NCEA in New Zealand

In New Zealand, there are three levels of the National Certificate of Educational Attainment (NCEA), which reflect differing degrees of complexity. In general, students go through levels 1 to 3 in years 11 to 13 of school. NCEA Level 2 has become an important qualification, as it certifies completion of upper secondary education and is often a requirement for entry-level jobs. In 2020, 80% of students attained NCEA Level 2, compared to 66% in 2011. However, it is not sufficient for tertiary entrance and is classified as a 343 programme.

In order to be eligible for direct entry to tertiary education, students need to complete NCEA Level 3. Around 72% of students attained Level 3 in 2020. However, actual entrance into ISCED 6 degree-level programmes was lower (53%), since there are additional entry requirements.

The Maturity exam in Poland

In Poland, students in upper secondary general education attend a four-year programme (*Trzyletnie liceum ogólnokształcące*), which leads to a school-leaving certificate (*Świadectwo ukończenia liceum ogólnokształcącego*) awarded to all students who successfully complete the programme. This certificate is based on end-of-year marks for all subjects in the final grade without taking into account the final examination, and it provides access to post-secondary non-tertiary education.

Students wishing to go on to tertiary education need to pass the Maturity exam and receive a Maturity certificate (*Matura – świadectwo dojrzałości*), which includes the results of the written and oral parts of the exam. The programme is classified by ISCED as 344, since it is a general programme designed to give access to tertiary education (and the majority of students aim to obtain the Matura). However, the school-leaving certificate is not sufficient for entry to tertiary education, so it is classified as a 343 programme.

Sources: (New Zealand Qualifications Authority, 2021[39]), *Annual Report NCEA, University entrance and NZ scholarship data and statistics 2020*, https://www.nzqa.govt.nz/assets/About-us/Publications/stats-reports/NCEA-Annual-Report-2020.pdf; (EURYDICE (European Education Information Network), 2022[40]), *National Education Systems*, https://eacea.ec.europa.eu/national-policies/eurydice/national-description_en; (OECD/Eurostat/UNESCO, 2015[41]), *ISCED 2011 Operational Manual: Guidelines for Classifying National Education Programmes and Related Qualifications*, https://doi.org/10.1787/9789264228368-en.

Policy considerations for programme destinations

The design of upper secondary education needs to purposefully consider transitions into post-secondary education

As for transitions at earlier stages, countries need to balance equity and fairness with the need to help narrow and define students' interests and abilities when designing pathways. As more and more students complete upper secondary education, there is a growing need

to ensure that students are prepared for a diverse range of post-secondary options. Upper secondary programmes, both vocational and general, should equip students with skills that will allow them to adapt in the future to changing work environments, such as basic cognitive skills (literacy, mathematics and science), transversal skills, adaptability and resilience that facilitate the learning of a different set of job-related skills (European Commission, 2018[42]).

Some OECD countries have increased, or are considering increasing, flexibility in the system to allow students to move from general to vocational programmes or to combine vocational and general content in the same programme. This kind of policy needs to be accompanied by student guidance and awareness building, because few students take advantage of them, even in countries that offer these kinds of possibilities, such as Sweden,.

A future Above and Beyond working paper on post-secondary pathways will consider the implications of programme destinations from upper secondary programmes. In particular, the paper will consider the policy implications of limiting direct access to tertiary education to selected programmes or, conversely, providing direct access for graduates of all programmes.

Clear pathways for students from VET upper secondary education into further education are common among countries

As discussed in the previous section, it is important to ensure that there are clear pathways into further education for upper secondary vocational students. Some ways countries can do this include:

- Enabling all vocational upper secondary students to progress to higher education (no "dead ends") while ensuring that they have acquired sufficient general academic skills during upper secondary education to access higher education content and complete their studies. This can also help to improve the prestige and perception of vocational programmes.

- When vocational upper secondary students do not have direct access to tertiary education, countries could provide bridge programmes or other top-up post-secondary non-tertiary programmes to allow them to change their mind after completing VET.

- If upper secondary vocational students have direct access to tertiary education, countries need to ensure that there are programmes that build on their skills (e.g. higher VET). In countries such as New Zealand, the United Kingdom and the United States, where tertiary education has historically been primarily academically focused, the recognition of the economic need for more higher-level technical skills is leading to the creation of specific pathways from upper secondary vocational education to tertiary-level technically oriented programmes (Kis and Normandeau, 2021[43]).

Greater knowledge and research to understand countries' provision of higher education VET is important for better understanding of pathways between upper secondary and higher education and is the focus of a current project for the OECD's VET team (OECD, n.d.[44]).

Consider the need for diverse post-secondary pathways for general upper secondary students

While general upper secondary programmes were traditionally conceived as pathways into academically oriented tertiary education, as upper secondary completion becomes universal,

academically focused bachelors' degrees may not suit all young people. In order to open up more diverse options to general upper secondary graduates, there are many option countries can consider:

- Given the stronger employment outcomes of students from vocational programmes, countries might consider how awareness of the value and advantages of vocational programmes can be built when students in general programmes are making initial transitions into upper secondary.

- Countries might also consider ways to facilitate flexibility in upper secondary programmes so that students in general programmes who do not intend to progress to tertiary education can build some labour market skills and awareness of vocational options to strengthen their employment opportunities.

- Although beyond the remit of upper secondary education, policy makers working with the higher education sector can consider more diverse types of professionally-oriented qualifications at ISCED 5 to create a stepping stone into employment or further education (e.g. micro-credentials and interdisciplinary programmes).

The number of educational programmes in upper secondary education

Comparative data and evidence

Based on the characteristics of upper secondary programmes set out above (programme orientation and programme destination), it is possible to identify the number of programmes available to students in upper secondary education by country. The number of programmes available to students represents one dimension of the options and choice available at the upper secondary level. The data reported by INES is based on the ISCED framework (see Box 1.2). The INES database represents the main programmes available to students, but it does not capture some of the options and/or sub-programmes. For example, both general and vocational programmes usually offer specialisations that are not classified by ISCED (this is discussed in Section 2). There is also wide variation across individual general and vocational programmes nationally, which means that a vocational programme in one country can be very different from a programme in another country. Unfortunately, the diversity and complexity of vocational programmes are not entirely captured by the ISCED framework (see Box 3.5).

Box 3.5. Challenges of international classifications on orientation

One of the challenges of indicators developed for international comparisons, such as student enrolment in different orientations, is that they might not always capture the complexity of each education system. This is particularly true in the case of vocational education, where there is enormous variation in how programmes are organised both within and across countries. The ISCED mapping identifies programme orientation, but in some cases programmes include both general and vocational content, making it difficult to classify programmes internationally. This is the case in Ireland for the Leaving Certificate Vocational Programme and in Switzerland for the Vocational Baccalauréat, which are both classified as general education in the ISCED mapping. Conversely, in countries where the share of students enrolled in vocational programmes according to ISCED is low (such as Canada, Ireland and the United States), students can pursue vocational options as part of general programmes. In the United States, where there is no separate track for vocational studies, students can decide to pursue career and

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technical education courses, but they do not lead to a vocational qualification and are not recognised by the ISCED mapping.

Source: (Kis, 2020[7]), "Improving evidence on VET: Comparative data and indicators", https://doi.org/10.1787/d43dbf09-en, (accessed December 2021).

Table 3.2 shows the number of mainstream programmes that provide full completion of ISCED 3 available to the full cohort of school-age students in upper secondary education based on the ISCED classification.

OECD countries most frequently provide three upper secondary programmes

Most countries that distinguish between general and vocational education offer multiple upper secondary programmes. In Table 3.2, countries are sorted by the number of programmes they provide. The most frequent number of programmes across OECD countries is three, and the most common combination is one general programme and two vocational programmes. Countries and their national qualification frameworks usually distinguish between more practically oriented vocational programmes and more academically oriented vocational programmes, which are closer to the general option. In some countries, this distinction is made by providing a more technical programme, such as the Technological Institutes in Italy that train students in more technical fields (such as science and technology, but also in tourism and accounting) and more professional programmes, such as the Professional Institutes in Italy or the CAP (*Certificat d'aptitude professionnelle*) in France, that prepare students with more practical training and provide a vocational certificate in addition to the upper secondary certificate of completion (EURYDICE (European Education Information Network), 2022[40]). Similarly, in England (United Kingdom), there are two vocational programmes: T-Levels, which provide specialist knowledge and skills and direct access to tertiary education, and apprenticeships, which are more work-based and are designed to provide direct entry to the labour force (UCAS, 2022[45]). The INES programmes database includes an international definition for programmes combining school-based and work-based components. In these programmes, at least 10%, of the curriculum but less than 75% is presented in the school environment or through distance learning, with the remainder organised as work-based learning (OECD, 2020[16]). This definition helps to capture at least some of the programme diversity within VET.

A few countries provide a large number of programmes

Countries with more than three programmes (such as Austria, Belgium, the Czech Republic, Germany, Iceland, Italy, Korea, Luxembourg, the Netherlands, the Slovak Republic, Slovenia, Switzerland and Türkiye) distinguish not only between general and vocational programmes, but also between different vocational and general programmes (Table 3.2). Offering more variation can help countries be more adaptive to students' needs and interests, but it can also make it more challenging to navigate the systems. This is true both for students, who might not have all the information needed to make the choice, and for employers or higher education institutions, which might not be able to read the signals in the labour market of upper secondary graduates.

Table 3.2. Dimensions of horizontal stratification

Country	Separate provision of general and vocational programmes	Number of general programmes	Number of vocational programmes	Total number of education programmes
Australia	no	1	0	1
Austria	yes	1	4	5
Belgium (Flemish Comm.)	yes	2	3	5
Belgium (French Comm.)	yes	2	2	4
Canada (except for Quebec)	no*	1	0	1
Chile	yes	2	1	3
Colombia	yes	1	1	2
Costa Rica	yes	1	1	2
Czech Republic	yes	4	3	7
Denmark	yes	2	2	4
Estonia	yes	1	1	2
Finland	yes	1	1	2
France	yes	1	2	3
Germany	yes	4	2	6
Greece	yes	1	1	2
Hungary	yes	1	2	3
Iceland	yes	1	3	4
Ireland	no	3	0	3
Israel	yes	2	3	5
Italy	yes	1	3	4
Japan	yes	4	2	6
Korea	yes	3	2	5
Latvia	yes	1	2	3
Lithuania	yes	1	1	2
Luxembourg	yes	1	4	5
Mexico	yes	1	2	3
Netherlands	yes	2	3	5
New Zealand	no	1	0	1
Norway	yes	1	1	2
Poland	yes	1	2	3
Portugal	yes	1	2	3
Slovak Republic	yes	2	3	5
Slovenia	yes	1	3	4
Spain	yes	1	2	3
Sweden	yes	1	1	2
Switzerland	yes	2	2	4
Türkiye	yes	2	3	5
England (United Kingdom)	yes	2	3	5
Northern Ireland (United Kingdom)	yes	2	2	4
Scotland (United Kingdom)	yes	2	1	3
Wales (United Kingdom)	yes	2	2	4
United States	no	1	0	1

Notes: The following programmes are excluded: programmes that do not provide full completion of upper secondary education (341/351 or 342/352); programmes that are only available part-time; programmes that are fully work-based; non-formal education programmes; programmes aimed at adults and other second-chance programmes; programmes for learners with special learning needs; and programmes that include less than 1% of the students enrolled in upper secondary education. For further detail see Annex A.

Australia offers a vocational programme (Certificate III) at the upper secondary level. However, this programme is not provided by schools, and students usually enroll after leaving school. If students wish to include VET as part of their Year 12 certificate, arrangements should be made by education authorities to allow it. Even if New Zealand offers one main upper secondary programme, it allows students from age 16 to leave the initial schooling system and enrol in an ISCED 3 or ISCED 4 vocational programme in a post-school institution.

Source: (OECD, 2020[16]), *INES data collection on ISCED programmes*.

Policy considerations regarding the number of upper secondary programmes

Countries vary widely in the number of programmes they provide, and there is no optimal number.

A greater number of programmes enables greater specialisation

Separating students across multiple programmes enables them to develop more specialised competencies that, up to a certain degree of specialisation, are usually associated with a positive wage premium (OECD, 2021[9]). How valuable specialised upper secondary VET programmes are on the labour market depends on the national context and the structure of the economy. In some countries, such as Japan, companies recruit generalists who then receive on-the-job training to develop job-specific skills. In other countries, such as Germany and the Netherlands, companies expect graduates to already have specialised skills and knowledge. In addition, some labour markets have a strong demand for mid-level professionals (which typically require an upper secondary VET degree), while in other countries the demand for mid-level professionals is relatively low.

However, with a greater number of programmes, ensuring that access, learning opportunities and outcomes are equitable across programmes can raise equity challenges. In many countries, some programmes, notably vocational programmes, are considered less prestigious and often concentrate students from disadvantaged backgrounds. Some factors that countries can take consider in their efforts to ensure equity across programmes:

- Placement into upper secondary programmes should be sensitive to students' interests and ambitions so that students are well-matched to their programme. Students need access to good-quality guidance to make informed decisions about their upper secondary programme (Perico e Santos, forthcoming[4]).

- It is important to ensure that learning opportunities and quality are equitable across programmes so that, regardless of their programme, all students can develop essential foundational skills, as well as deeper skills in specific areas that provide a basis for lifelong learning.

- All programmes need to provide purposeful pathways into further education and employment.

- In countries with multiple programmes, it is important to ensure some permeability across programmes, so that students can move into other programmes or combine content, based on their evolving interests and aspirations.

Providing quality programmes also depends on having sufficient resources to ensure qualified staff, up-to-date curricula, facilities etc. This paper does not focus on resources, but future work of the Above and Beyond project will analyse this important area related to the provision of upper secondary education (see Section 5).

Countries with few programmes need to provide choices and options in other ways

Systems where all students remain in the same programme throughout upper secondary education need to provide for differences in students' abilities and interests in other ways, such as through specialisation and choice within programmes (see Section 4). Countries that do not select students into different programmes need to be aware that equity challenges are still significant, but they may be less visible. For example, all groups of students should have access to all subjects or to the information required to help them make informed choices.

The age at which selection into programmes is made

Comparative data and evidence

OECD countries most frequently start selection at the beginning of upper secondary education

Selection into different pathways might occur very early, as in Austria and Germany (at around age 10) or, as is most common, not until the end of lower secondary education, as in Finland and Norway (at around age 15 or 16). In other countries, such as the New Zealand and United States, there is no formal differentiation between programmes at the upper secondary level (OECD, 2021[46]), although students in these countries may pursue different levels, options and specialisations within programmes (see Section 4). Across the OECD, the most frequent age of selection is 15 (OECD, 2020[47]).

There is a correlation between when selection occurs and the number of programmes in upper secondary education (OECD, 2020[47]). In most countries offering a higher number of upper secondary programmes, the age at first selection is lower, as in Austria, Italy and the Netherlands. On the other hand, countries with little or no difference between programmes select students at a later age or not at all, as in Chile, England (United Kingdom), Finland, Norway, Sweden and the United States (Figure 3.4). Selecting students earlier and into more programmes makes it possible to offer more specialised content, especially in vocational programmes.

This also reflects the structure of the labour market and economy in these countries, where specialist skills are highly valued. This contrasts with education systems and labour markets that favour a more generalist approach, with all students remaining in the same programme and no selection at all. Countries that select earlier with more programmes are often referred to as highly stratified systems, while those where selection takes place later and into fewer programmes are less stratified.

The argument behind selecting students is that grouping students by ability is more efficient, since it allows for better tailored curricula, instruction speed and pedagogy that should benefit learning for all students (Duflo, Dupas and Kremer, 2011[48]). Countries that base their education on this principle tend to apply ability grouping by selecting students at an early age and across multiple different programmes.

Figure 3.4. Education programmes available to students in upper secondary education and age at first selection
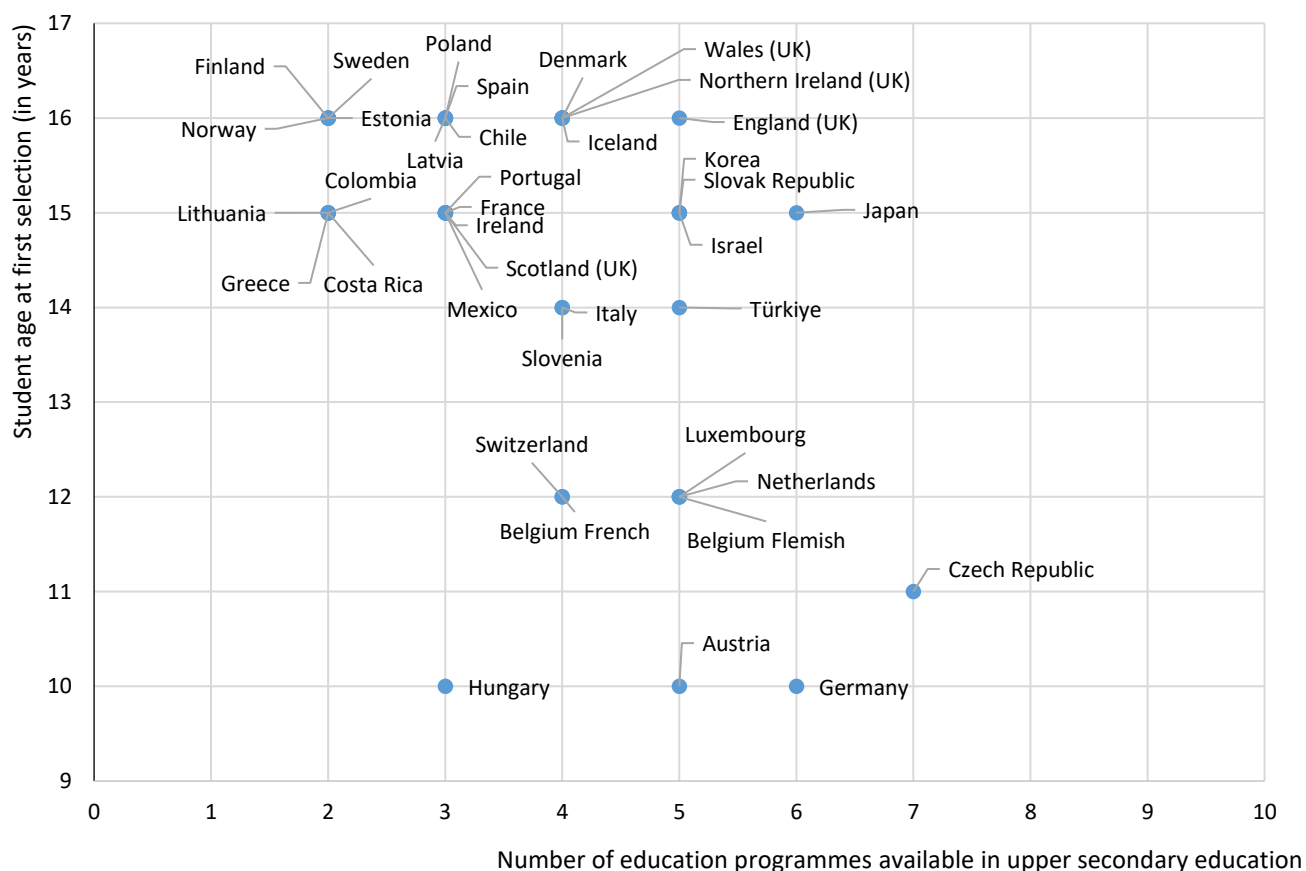
Policy considerations for the age of selection

Earlier selection creates more space for specialisation

As mentioned previously, greater specialisation can improve students' outcomes in the labour market. Therefore, selecting students earlier can help them build a specialised set of skills that is in high demand and enter the labour market earlier. However, evidence suggests that in countries that practise early selection, such as the Czech Republic, Germany and Hungary, students tend to engage less in lifelong learning and have significantly lower educational expectations and aspirations (OECD, 2021[9]) (OECD, 2019[27]).

A common concern around early selection is that, even if ability tracking can benefit students' learning, as content and teaching style are tailored to classroom ability, there might also be negative effects on learning and well-being, particularly for low performers. If students are separated into different programmes, academically low-performing students do not benefit from the positive peer-effect coming from high performers (Sacerdote, 2011[49]). In addition, students in "low-performing" programmes may feel less motivated and discouraged, knowing that they are deemed to be of lower aptitude. Finally, if resources differ between programmes, some students might be disadvantaged (Betts, 2011[50]).

However, there is mixed evidence about the efficacy of early selection. Some research has found that it benefits both high-achieving students and lower-achieving students by allowing teachers to teach to their level (Duflo, Dupas and Kremer, 2011[48]).

To reduce the risks associated with early selection and performance, strategies that countries can consider adopting are similar to those for promoting equity in other contexts of stratification. They include: 1) promoting quality across programmes; 2) ensuring comprehensive and flexible selection policies (Perico e Santos, forthcoming[4]); 3) facilitating permeability between programmes (see Section 4); and 4) providing opportunities for students from different programmes to mix, for example by keeping all students in the same school. This can also enable students to explore different areas or change their specialisation at some point, if they wish to do so.

When there is early selection, it needs to be designed carefully and be accompanied by flexibility so that it does not limit future choices

Countries with early selection draw on information about academic performance as well as other factors when selecting students. However, since students are still maturing and developing – even more so than at later ages – there are frequently concerns that this information may not fully reflect their abilities. This is a major concern because these selection decisions are perceived as carrying high stakes, as some programmes are a direct pathway to tertiary education, while others are designed as a direct pathway into employment. This combination of high stakes decisions and early age of selection makes it important to carefully consider how these decisions are made (Perico e Santos, forthcoming[4]).

Some countries with early selection have tried different approaches to making these decisions. The experience of the Netherlands has highlighted that, while a teacher's judgement can provide a fuller perspective on which programme may best suit an individual student, there are risks that teachers may underestimate a student's potential. These risks are greater for students from disadvantaged and immigrant backgrounds (Perico e Santos, forthcoming[4]). In the Netherlands, standardised external examinations provide an opportunity to "correct" teachers' views that underestimate students' potential.

The earlier students are placed in different programmes, the lower permeability might be between programmes, since students are exposed for longer to different learning experiences and perhaps also to different curricula (OECD, 2012[23]). When selection takes place at a young age, it is important to ensure that students are not confined to certain pathways, because they are still developing and maturing. Upper secondary systems can provide flexibility for students to move into other programmes. In Switzerland, where students are selected into different programmes at age 14, this is accompanied by the philosophy that it is never too late to change programmes. This is reflected in the availability of bridge or transfer programmes that enable students to move across programmes. Similarly, in the Netherlands, despite the existence of early tracking at age 12, there are several ways to correct for wrong choices, such as a one-year bridge programme tailored to students' needs that enables switching between orientations. As a result, relatively high mobility between tracks is observed (see Box 3.6) (OECD, 2012[23]). In fact, around 30% of students change their orientation during upper secondary education. In systems where there is early selection, the transition point into upper secondary might be used to explicitly examine with teachers, students and parents whether students are still in programmes that best reflect their interests, aspirations and development. Discussions about future careers before entry and during upper secondary education could help to inform student choice, especially in systems where students commit early to certain subjects that might limit and influence their future choices (OECD, 2017[51]).

> ## Box 3.6. Flexibility in the Netherlands
>
> In the Netherlands, vocational and general orientations are provided separately, A large number of programmes are available to students, and selection into programmes takes place early, at age 12. The system has developed effective policy strategies to improve flexibility and reduce some of the risks associated with these features.
>
> **Modular course design**
>
> Courses and specialisations within levels are constructed as modules, enabling a high degree of adaptation to regional labour markets, for example, through sector-specific modules that can be offered, using the equipment or expertise of employers from local sectors in demand.
>
> The flexibility and progressive development of vocational skills through the levels also enable learners from other pathways, such as adults returning to education or students who have completed general programmes, to study vocational content. In particular, students from general upper secondary programmes who have dropped out or find it difficult to enter the labour market can study through the vocational levels to gain the relevant qualifications. Within VET courses, all levels (from 1 to 4) include a work-based component that constitutes at least one-third of the total programme.
>
> **Student tracking and guidance**
>
> A sophisticated system of student tracking enables schools and authorities to identify students in general education who are at risk of dropping out or who have dropped out. Education authorities can then work with those students and their families to build their awareness of vocational opportunities in order to bring them back into programmes that may increase their chances of employment.
>
> Source: (OECD, 2022[52]), *Above and Beyond Peer Learning Discussion on flexibility*.

Policy framework for managing diversity in upper secondary programmes

Countries provide diversity across upper secondary programmes in different ways, each associated with both benefits and risks (Box 3.7).

Table 3.3 provides a policy framework that outlines the ways in which countries can provide diversity in upper secondary programmes. It also sets out the range of approaches that exist across OECD countries, the challenges associated with these different approaches and the policies that countries might adopt to mitigate some of these challenges. While one single approach is rarely better than another, it is important for countries to be aware of the policy implications associated with different polices, so that they can take steps to address any challenges in policy making.

As countries design and reform their upper secondary programmes, they need to consider the different dimensions of diversity at the same time. While one dimension, such as a high number of separate upper secondary programmes and early selection, might tend to create a highly stratified system, other approaches, such as giving significant consideration to

initial selection measures and providing flexibility across programmes, can help to offset some of these risks (Box 3.6).

Box 3.7. Policy considerations for managing programme diversity

1. **Policy considerations when providing separate vocational and general programmes**

   - Vocational systems can enable students to develop specific skills for the labour market and help motivate some students.

   - Systems where students are separated into vocational and general programmes create challenges, particularly for equity, and require explicit policies to manage this risk effectively.

2. **Policy considerations for programmes that provide partial or no completion of ISCED**

   - Entry-level programmes can be helpful to prepare students for upper secondary education.

   - Organising programmes and certification sequentially might help to ensure that all students can obtain some kind of certification.

3. **Policy considerations for programme destinations**

   - The design of upper secondary education needs to purposefully consider transitions into post-secondary education.

   - Education systems should ensure that there are clear pathways for students from VET upper secondary education into further education.

   - It is important to consider the need for diverse post-secondary pathways for general upper secondary students.

4. **Policy considerations for the number of upper secondary programmes**

   - A greater number of programmes enables greater specialisation.

   - Countries with few programmes need to provide choices and options in other ways.

5. **Policy considerations for the age of selection**

   - Earlier selection creates more space for specialisation

   - When there is early selection, it needs to be designed very carefully and should be accompanied by flexibility, so that selection does not limit future choices.

Table 3.3. Types of diversity in upper secondary programmes and implications for policy making

Type of programme diversity	Key policy objectives	Main approaches across countries	Country examples	Risks	Mitigating strategies
Separate provision of general and vocational programmes	Respond to diversity of student interests and abilities Meet economic goals	50% or more of 15-19 year-olds are enrolled in VET options	10 OECD countries, including Austria, the Czech Republic, the Netherlands and Poland	Separate provision of VET and general programmes risks inequities across programmes.	Review transitions into upper secondary Ensure equal quality and opportunities across programmes Provide flexibility across programmes Offer VET options embedded within comprehensive programmes or strong post-secondary VET options
		VET is a minority choice (10-50% of 15-19 year-olds enrolled in VET)	24 OECD countries, including Finland, France, Portugal, Spain and Sweden	Limited VET reduces opportunities for students who do not find academic content engaging.	
		No official VET programme	4 OECD countries, including Canada, Ireland, New Zealand and the United States	Students without professional skills and no tertiary education may find it difficult to enter the labour market.	
Entry-level and sequential programmes	Respond to varying levels of student learning Prepare students for high stakes upper secondary education	Provision of entry-level programmes for low-performing students	Introductory programmes, Sweden	Low performers are isolated from rest of cohort and this might create stigma. Students get "stuck" in introductory programmes or levels and do not progress to full completion.	Organise introductory programmes flexibly so that students are integrated with full cohort Provide tailored support for students
		Entry-level / transitional programmes	Transition year, Ireland		
		Sequential programmes	NCEA, New Zealand		
Programme destination	Provide students with post-secondary options that build on their upper secondary content	Providing direct access to tertiary education from all upper secondary programmes	8 OECD countries, including Chile, Colombia, Costa Rica and Finland	High rates of entry to tertiary education, but programme-student fit is not always strong.	Ensure that the post-secondary landscape caters to a diversity of prior learning Provide guidance that enables students to identify post-secondary options that best meet their needs
		Some upper secondary programmes, typically VET, do not provide direct access to tertiary education upon completion	28 OECD countries, including Belgium, Hungary, Iceland and Norway	Students have limited opportunities for further education. Programmes that do not provide direct access to tertiary are considered less attractive / valuable.	Consider the impact of providing all upper secondary programmes with direct access to tertiary education Offer students without direct access to tertiary education other types of post-secondary options that build on prior skills
Number of programmes	Respond to diversity of students' interests and abilities Meet economic goals and ensure better outcomes for students	Countries with many programmes (>3)	16 OECD countries, including Austria, Italy, Japan and the Netherlands	Greater diversity makes it harder to ensure equity in access and outcomes across different programmes. Offering few programmes provides less space to respond to student and economic needs.	Provide students with guidance Ensure equal learning and outcomes across programmes Provide permeability between programmes Provide choice and specialisation within programmes
		Countries with average number of programmes (2-3)	18 OECD countries, including Chile, Finland and Norway		
		Countries with few programmes (<2)	3 OECD countries, including Canada, New Zealand and the United States		
Age of selection	Meet economic goals Target teaching to students needs	Early selection (< age15)	13 OECD countries, including Austria, Italy and the Netherlands	Earlier selection is associated with lower equity and risks confining students to pathways that do not reflect their interests or development as they mature.	When students transition into upper secondary, use it as a "checkpoint" to assess if students are still in the most appropriate pathways Ensure career guidance at an early age Provide flexibility across programmes
		Selecting at age 15 or never	25 OECD countries, including Chile, Sweden and systems in the United Kingdom		

4. Options and specialisations within upper secondary programmes

The structure of upper secondary programmes across OECD countries

What matters in the curriculum of upper secondary programmes?

Choices and opportunities to specialise

Upper secondary education is the last time the full student cohort is in a highly structured school setting where policy makers have considerable responsibility for the curriculum. At this stage, countries have a duty to ensure that, by the time they leave school, all young people have been supported to develop the competencies they will need to succeed in the adult world and working life. At the same time, upper secondary systems need to be responsive to students' interests and abilities, keep young people engaged and enable them to succeed in their final stage of schooling. To meet these objectives, countries need to provide some degree of specialisation and choice in upper secondary education. Section 2 explains these two concepts and how they relate and are applied in upper secondary education. This section focuses on how they apply within programmes at the curriculum level.

Developing foundational competencies for the future

Upper secondary systems need to ensure that students develop fundamental competencies to progress into work and education through a coherent curriculum. Curriculum coherence is the extent to which there is a meaningful sequential structure of topics that reflect the logic of the academic disciplines on which they draw, from which the relationships between the different elements of the curriculum become clear. A coherent curriculum enables progression from basic to more advanced concepts and is developed appropriately to the age/grade of students (OECD, 2020[12]). This paper looks at coherence in terms of how countries define and apply core foundations to the curriculum and how they interact. The core represents those subjects or competencies that are compulsory for all students at the upper secondary level. Countries can define the core by using compulsory subjects that all students must take or by embedding competencies in the curriculum across different disciplines. The core aims to ensure that all students complete upper secondary with a specific and coherent set of skills and competences.

The structure of upper secondary curricula

Broadly, the curriculum of upper secondary programmes is structured around two types of content:

- **Compulsory or core content**

These are courses or content that all students within a programme must study. In nearly all countries, all upper secondary students are required to study the mother-tongue language and mathematics. In some countries, notably those with a high number of upper secondary programmes, often all or the vast majority of the content in upper secondary general programmes is compulsory.

- **Optional or elective content**

These are courses or content that students within a programme can choose. Upper secondary systems tend to specify the number of courses or subjects a student must take, and then students can choose the individual subjects or courses that they take to fulfil these requirements.

What are options and specialisations within upper secondary programmes?

Within the very broad division between compulsory and optional content in upper secondary programmes, systems provide students with different options and specialisations. Options and specialisations within programmes tend to include:

- **Subject choice**

Within the part of the curriculum that is optional or elective, students might be able to choose which subjects they take and are certified in for upper secondary completion. In England (United Kingdom), Ireland and New Zealand, for example, students can choose from a wide range of subjects. In England, students typically choose between three to five subjects on which they will be examined for A-Levels, while in Ireland they choose around six to seven subjects, of which only Irish is compulsory (Box 4.1).

- **Specialisations**

Specialisation helps students to start defining their interests while developing greater depth of knowledge and skills in specific domains. Students use these deeper, more specific skills either to enter the labour market or to acquire the foundations for higher-level study in tertiary education. In some countries, such as France and Sweden, students are provided with structured specialisations from which to choose, and this determines some of their subject choices. In contrast, in highly personalised systems as in England (A-Levels) and New Zealand, students may choose to take certain subjects to develop a specialisation, for example by combining humanities, science and social science subjects.

- **Levels**

Some upper secondary systems provide content at different levels, most frequently for compulsory content, but also sometimes for optional content. In Sweden, for example, all upper secondary programmes require a set of core subjects, such as English, history, physical education and health, mathematics, science, knowledge of religion, civics and Swedish, and students can choose courses at different levels, each of which deepens and advances a particular subject. Providing subjects at different levels enables systems to cater to different learning levels and reflect different aspirations for the future. For example, a student who intends to study mathematics or a subject with a high degree of mathematical content in tertiary education will need to study mathematics at a higher level in upper secondary education than a student who intends to study modern languages or literature. Countries typically provide different levels for the core foundational subjects or competencies of literacy and numeracy.

Box 4.1. Upper secondary education in the United Kingdom: An outlier

In the education systems of the United Kingdom (England, Northern Ireland, Scotland and Wales), the upper secondary phase is unique and distinct in an international perspective. According to the ISCED classification, upper secondary education in the United Kingdom begins at 14 and finishes at 18 (except in Scotland where it begins at 15). With a duration of four years, this is a long upper secondary education by international comparison (Figure 2.1). There are other unique characteristics of this level of education in the United Kingdom. In particular, it has two distinct phases, each marked by high stakes examinations:

- **The period when students are 14-16 years old (15-16 for Scotland):** At this stage, students have some choice in the subjects they take, but they also are required to study a broad range of subjects. This phase of education ends with a set of national examinations, the General Certificate of Secondary Education (GCSE) in England, Wales and Northern Ireland and the National 5 in Scotland. In many ways, the GCSEs and the National 5 are similar to the upper secondary exit examinations found in most OECD countries, where students have some choice but also a large share of compulsory subjects. Unlike in most other OECD countries at this phase, students age 14-16 (15-16 in Scotland) remain in the same school they attended at age 11-13, and there are no mainstream vocational options. In practice, most students and schools would perceive the period at age 14-16 (15-16 in Scotland) as the end and culmination of middle school (or lower secondary education), not as a separate, final stage of schooling.

- **The period when students are 16-18 years old:** This period is no longer covered by a national curriculum in the UK systems and is commonly referred to as post-16. This phase is similar to upper secondary education in most OECD countries and is in line with the ISCED classification, because students choose from different general (A-Level) or Highers and Advanced Highers (Scotland) or vocational (T-Level and apprenticeship) programmes. It is also recognised as a distinct phase of schooling nationally because students enter a sixth form, either in their school or in a separate institution, a sixth form college or further education college.

Source: (OECD, 2022[53]), *Education GPS*, https://gpseducation.oecd.org/.

How do different countries provide options and specialisations within upper secondary programmes?

Similar to programme diversity, countries differ in the degree of choice that students have to take different options and specialisations in upper secondary education. Countries that provide significant diversity across upper secondary programmes (such as Austria, Japan and the Netherlands) tend to provide less choice for students within upper secondary programmes and particularly in general programmes, since all vocational programmes provide students with some choice over their specialisation. Conversely, comprehensive systems that provide little to no choice across upper secondary programmes (such as Canada, New Zealand and the United States) tend to provide a very high degree of choice within upper secondary programmes. In some cases, the degree of choice enables individual students to create personalised upper secondary programmes

tailored to their individual choices and also to combine general and vocational options.

Compulsory content in upper secondary programmes

Most countries build their curricula around a set of core skills and knowledge that are considered essential for students to master. The OECD's Education 2030 project defines core foundations as the fundamental conditions, core skills, knowledge, attitudes and values that are prerequisites for further learning across the entire curriculum (Box 4.2). Core foundations provide students with a solid base to fulfil their potential and contribute to society (OECD, 2019[54]).

Box 4.2. Identifying and implementing core foundations

The OECD Learning Compass

The OECD Future of Education and Skills 2030 project developed the learning compass, which is a conceptual vision for the future of education. The learning compass's definition of core foundation is not subject-specific, but includes broader competences. The learning compass identifies three key foundations:

- cognitive foundations, which include literacy and numeracy, upon which digital literacy and data literacy can be built

- health foundations, including physical and mental health and well-being

- social and emotional foundations, including moral and ethics.

Examples of core foundations

The core foundations might be reflected in the curriculum as core compulsory subjects, either as minimum standards that are assessed or as values embedded among all subjects.

For example, Australia identifies essential skills categories that should be embedded in the syllabuses but leaves freedom to states and territories on how to implement this. The Australian government employs common terminology among jurisdictions for referring to core foundations. In upper secondary education, they are called "capabilities for employment and active citizenship", since the role of education at this stage is to prepare students for work, active citizenship and lifelong learning.

In England, Northern Ireland and Wales (United Kingdom), Key Skills qualifications train and assess students in communication, application of numbers, information and communication technology (ICT), working with others, improving own learning and performance, and problem-solving. Some of these skills are assessed formally with a test, which is marked externally by an awarding body, while others require students to produce a portfolio, which is assessed internally by the school.

In the United States, several states assess core foundations: in Maryland, learning, thinking, communication, technology and interpersonal skills; in Massachusetts, thinking and communicating, gaining and applying knowledge, working and contributing from the learning, teaching and assessment process; and in Wisconsin, the five areas of applied knowledge, namely the application of basics, ability to think and

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imagine, communication, production of quality work, and connections with the community.

Sources: (OECD, 2019[54]), *Conceptual learning framework: Core Foundations for 2030*, www.oecd.org/education/2030-project/teaching-and-learning/learning/core-foundations/Core_Foundations_for_2030_concept_note.pdf; (Australia Education Council, 2020[55]), *Looking to the future: Report of the review of senior secondary pathways*, *www.education.gov.au/quality-schools-package/resources/looking-future-report-review-senior-secondary-pathways-work-further-education-and-training*; (UK Government, n.d.[56]), *Key Skills qualifications*, https://www.nidirect.gov.uk/; (Le Métais, 2003[57]), *International Developments: Context, provision and issues*, https://ncca.ie/media/1490/international_developments_in_uppersecondary-education_rr2.pdf.

Countries define their own core foundations and implement them in different ways (Box 4.2). Core foundations are built on both subject-specific knowledge and skills and transversal competences (Box 4.3) (OECD, 2019[54]). How countries define and implement core foundations in their upper secondary education plays an important role in the design of programmes in a number of ways:

- **Core component:** The core component defines the amount of choice that students have within their programme.

- **Structure:** The structure of the core impacts permeability between programmes. A common core can facilitate student transfers between programmes because they have common foundational skills and knowledge.

- **Coherence:** Encouraging coherence within and across programmes helps to ensure that all students complete upper secondary education with the fundamental skills.

- **Differentiation across programmes:** How the core applies across vocational and general orientations and multiple upper secondary programmes impacts how differentiated learning is across programmes (i.e. if students in vocational and general programmes have the same common core or if the core differs across programmes).

Box 4.3. Cross-curricular competencies in upper secondary education

The curricula in most OECD countries now include both subject-specific knowledge and skills and cross-curricular competencies or "transformative skills", as they are termed by the OECD Learning Compass 2030. Transformative skills can be transferred across a wide range of contexts, and students can keep building new competencies upon them during their lives. Cross-curricular competencies typically include the following areas or categories across OECD countries:

- career education, work studies, entrepreneurial education

- health education, well-being, life-style

- international awareness and information.

What is specific about cross-curricular competencies in upper secondary education?

Cross-curricular competencies are especially important for students as they complete upper secondary education to enable them to make successful transitions into the less structured learning environment of employment or further education. Studies of young people and employers underline how important these skills are and also that, as currently designed, education systems may not always effectively help young people to build the transversal skills they need for the "real world". In Australia, a survey of young people found that 68% believed that upper secondary school had not prepared them to succeed in the real world. A separate survey found that around 40% of employers agreed that school leavers lacked self-management, planning and organisation, problem-solving and initiative skills.

How do countries implement cross-curricular competencies?

In most countries, core foundations are identified in terms of competencies, which are based partly on subject-specific knowledge but also on cross-curricular competencies. As the world advances and the skills required in the labour market change, some countries have decided to establish new subject areas, such as environmental education, citizenship, and health education, while others have embedded cross-curricula competencies, such as local and global citizenship, taking responsibility, co-operation and collaboration, reconciling tensions and dilemmas, creating new value, data literacy, and financial literacy. Cross-curricular themes and competencies can also be integrated into existing subjects to avoid curriculum overload.

Given that students are enrolled across different programmes and options, a key challenge in upper secondary education, is ensuring that all students have fair and equal opportunities to develop and acquire cross-curricula competencies. This is particularly challenging for cross-curricula competencies because they cannot always be timetabled or taught. The quality of student experiences outside of formal school (during work-based learning and volunteering) will also influence the development of cross-curricula competencies.

The Above and Beyond project will develop specific work on how countries can include cross-curricular competences in upper secondary curricula (see Section 5).

Sources: (OECD, 2019[54]), *Conceptual learning framework: Core Foundations for 2030,* www.oecd.org/education/2030-project/teaching-and-learning/learning/core-foundations/Core_Foundations_for_2030_concept_note.pdf; (Australia Education Council, 2020[55]), *Looking to the future: Report of the review of senior secondary pathways, www.education.gov.au/quality-schools-package/resources/looking-future-report-review-senior-secondary-pathways-work-further-education-and-training*; (OECD, 2020[58]) (OECD, 2020) *Curriculum Overload: A Way Forward*, https://doi.org/10.1787/3081ceca-en; (Shipley and Stubley, 2018[59]), *After the ATAR II: understanding how Gen Z make decisions about their future*, http://hdl.voced.edu.au/10707/492695.

Comparative evidence and data

This section discusses the different aspects that define how countries identify and structure core or compulsory content in their upper secondary systems.

All OECD countries have some requirements for literacy and numeracy

Literacy and numeracy are fundamental to be able to participate in today's society. They constitute the building blocks upon which students develop other competencies, such as financial literacy, global competency and media literacy, and how they study other subjects, such as sciences, humanities and languages.

According to PISA 2018, on average among OECD countries, roughly 25% of students have not mastered basic competencies in reading and mathematics around the time they transition into upper secondary education (PISA 2018). Students who do not acquire these competencies by the end of upper secondary are considered particularly at risk, as they are more likely to struggle in the adult world (OECD, 2019[6]).

In recent decades, definitions of literacy and numeracy have expanded to reflect the prevalence of digital technology in our learning, working and personal lives. Being literate now requires reading, understanding and communicating through digital texts and being able to retrieve and filter information from media and the Internet. Similarly, being numerate requires navigating, understanding and computing data and being able to communicate with data (OECD, 2019[54]). The need to rely on digital technologies during the COVID-19 crisis to continue learning has shown how students with less digital competence were at a disadvantage (Australia Education Council, 2020[55]).

All OECD countries have some core requirements in mathematics and mother-tongue language in upper secondary education. However, the way this is implemented varies significantly. The main approaches include the following:

- **Setting minimum standards with flexibility on when (and sometimes how) this is demonstrated**

A group of countries, (Australia, Ireland, New Zealand and England, Northern Ireland and Wales [United Kingdom]) set minimum standards that students are able to complete before the end of upper secondary education (See Box 4.4). In these systems, students are able to achieve their literacy and numeracy standards early in upper secondary education (or even before starting the main ISCED 3 certification programme, as is the case in England).

- **Giving students choice over the level at which they study core competencies**

Some OECD countries give students the opportunity to choose the level at which they study numeracy and literacy requirements. Some countries provide this option via modular learning, where short modules correspond to credits per subject rather that a specific number of hours with a fixed curriculum (Le Métais, 2003[57]). In Sweden, for example, students can select modules in core subjects at different levels in order to meet their requirements (e.g. Swedish 3, Mathematics 2). In Finland, students can choose from Basic and Advanced Mathematics. In Ireland, students have to pick a level from Foundation, Ordinary and Higher Mathematics. Schools in Japan might offer up to six different options for mathematics, while in Korea they offer a choice between three options in mathematics plus one in applied mathematics.

- **Assigning different levels of core standards depending on the type of programme**

In countries where students are tracked into different programmes, the content and level of core literacy and numeracy might change depending on the specialisation. For example, in France, Germany, Italy and the Netherlands, students can specialise in mathematics and so the core for their specialisation requires them to study advanced mathematics (Nuffield Foundation, 2010[60]).

Box 4.4. Setting flexible minimum standards

New Zealand

In New Zealand, students need to achieve national literacy and numeracy standards to obtain the upper secondary leaving qualification, the National Certificate of Educational Achievement (NCEA). The standards correspond to Level 1 of the NCEA, and many learners meet these standards in their first year of upper secondary education, but learners have the flexibility to meet the literacy and numeracy standards at any time during the three years of upper secondary education. Learners can also continue studying other subjects while working towards the minimum standards of literacy and numeracy (New Zealand Ministry of Education, 2020[61]). Students can meet these requirements either through a standard package of three literacy units and three numeracy units (for a total of ten credits) or by selecting some subjects from a specific range of less academic courses, such as CV writing, to reach a minimum of ten credits (New Zealand Qualifications Authority, 2020[62]).

England (United Kingdom)

Similarly, in England, students need to reach a minimum standard in English and mathematics to be able to proceed in upper secondary education (A-Levels, T-Levels or apprenticeships). Normally, students complete this requirement before starting the main upper secondary certification programmes, through a national examination taken at age 16, the General Certificate of Secondary Education. However, if students do not meet this prerequisite, they can still continue to work on their English and mathematics GCSE while attending upper secondary education (UCAS, 2020[63])

Australia

In Australia, students need to attain a minimum defined standard in both literacy and numeracy to be able to qualify for a Senior Secondary Certificate of Education at the end of upper secondary education. The standards vary across the country. For example, in some states, students can meet the minimum requirements by taking mathematics and English in upper secondary education, while in others, such as Western Australia, they need to pass an online test, the Online Literacy and Numeracy Assessment (OLNA). Students can start taking the OLNA during upper secondary education in Year 10, with two attempts per year. They are allowed six attempts before the end of Year 12, but students having trouble can enrol in foundation courses designed to assist them to meet the minimum requirements. If students do not reach the minimum standards before the end of upper secondary education, they still receive a qualification and can take the OLNA later on resit and obtain the Western Australian Certificate of Education (WACE) (Australia Education Council, 2020[55]).

Sources: (New Zealand Ministry of Education, 2020[61]), *NCEA Education: Frequently Asked Questions*, https://ncea.education.govt.nz/frequently-asked-questions-nga-patai-auau; (New Zealand Qualifications Authority, 2020[62]), *Choosing a course or subjects at school*, https://www.nzqa.govt.nz/qualifications-standards/understanding-nzqf/secondary-school-and-ncea/choosing-a-course-or-subjects-at-school/;
(UCAS, 2020[63]), *Post-16 qualifications you can take*, https://www.ucas.com/further-education/post-16-qualifications/post-16-qualifications-you-can-take; (Australia Education Council, 2020[55]), *Looking to the future: Report of the review of senior secondary pathways,* www.education.gov.au/quality-schools-package/resources/looking-future-report-review-senior-secondary-pathways-work-further-education-and-training.

The majority of countries have established a wider core

While a small number of countries define a small core curriculum or requirements based on minimum competences in literacy and numeracy, as in Ireland, New Zealand and the United Kingdom, the majority of countries have established a wider set of core subjects or content that students need to cover at the upper secondary level.

As shown in Table 4.1, most countries require students to study from a wider core of subjects for a certain number of hours per week or per year. In some countries, the wider core sets out specific subjects (e.g. biology and English), while other countries set out categories of subjects from which students can choose (e.g. a science and a foreign language). The wider core usually includes:

- the national language(s)

- mathematics

- a science subject

- humanities (history, geography, social studies and sometimes citizenship education)

- a foreign language (mostly English for countries where it is not one of the national languages)

- physical education (including health in some countries)

- in some cases, also an art subject (art or music).

A wider core tends to limit choice and ensure that students study a broad range of subjects. In contrast, in countries where students study fewer subjects, they tend to go into greater depth (Box 4.5).

Box 4.5. Breadth versus depth in upper secondary education

Across the OECD, upper secondary students typically study content in around seven domains on average. This number includes the subjects covered by the compulsory core that is shared by a number of countries.

In contrast, in some English-speaking systems (Ireland, New Zealand and the systems in the United Kingdom), students are required to take fewer subjects, ranging from three in England and Wales to seven in Ireland. The A-Levels in England are marked by a particularly high degree of depth. An internationally comparative review of A-Levels found that the content is often deeper, more advanced and demanding than qualifications in other countries. Content in the chemistry A-Level, for example, was found to be similar to the first year of undergraduate study in some systems.

The opportunity to study in greater depth might position students in these systems well for the more demanding knowledge and skills needed in tertiary education. Students may also enjoy the opportunity to study the areas that interest them in greater depth. However, it also means that the content for each subject is more demanding when compared with other certifications in upper secondary education internationally. This might mean that certain content is only accessible to very capable students. For example, in a review of 16 upper secondary certifications, the content of A-Level mathematics was found to be the most demanding of all the reviewed certifications. This is perhaps one reason why few students take mathematics in upper secondary education in England, with the knock-on effect that there is concern about the limited numbers of entrants into STEM subjects in tertiary education.

Source: (Ofqual, 2012[64]), *International Comparisons in Senior Secondary Assessment: Full Report*, www.gov.uk/government/publications/comparing-international-secondary-assessment-full-report.

Table 4.1. Common core in general and vocational programmes in upper secondary education

Legend: **both** = core in both general and vocational (blue); **gen** = core only in general (orange); **voc** = core only in vocational (green); blank = white.

Orientation	National language(s) G	V	Mathematics G	V	Science G	V	Geography G	V	History G	V	Social sciences G	V	Foreign language G	V	Physical education G	V	Art G	V	ICT G	V	Civics G	V	Specialised vocational content G	V	Work-based component G	V
Austria	both	both	gen		gen		gen		gen		gen		both		both		both		gen		both	both		voc		voc
Chile	both	both	both	both	gen				both		both		both		gen		gen							voc		
Finland	both	both	both	both	both	both	gen		gen		both		gen		gen		gen		both					voc		
France	both	both	both	both	both	both	both	both	both	both	both		both	both	both	both	both		gen		both	both		voc		voc
Italy	both	both	both	both	both	both	both		both		both		both		both		both		gen					voc	voc	voc
Japan	both	both	both	both	both	both	both		both				both		both		both		both					voc		
Korea¹	both	both	both	both	both	both	both		both		both		both		both		both							voc		
Mexico	both	both	both	both	both	both	both		both		both													voc		
Norway	both	both	both	both	both	both	gen		gen		both		both		both									voc		voc
Netherlands	both	both	both	both							gen		gen		gen		gen				both	both		voc		voc
Sweden	both	both	both	both	both	both	both		both		both		both		both									voc		voc
United Kingdom																							voc	voc	voc	voc

Note: ¹ Compulsory only in the first year of upper secondary education.
Sources: (Sargent, Houghton and O'Donnel, 2012[65]), *International Review of Curriculum and Assessment Frameworks*; (O'Donnell, 2018[29]), *Upper Secondary Education in Nine Jurisdictions: Overview Report*, https://ncca.ie/en/resources/upper-secondary-education-in-nine-jurisdictions-overview-report/; (OECD, 2018[66]), *Education Policy in Japan: Building Bridges towards 2030*, https://doi.org/10.1787/9789264302402-en. For additional information, see Annex A.

The core might differ between general and vocational programmes

In countries where students are tracked into general and vocational programmes, curriculum requirements may differ between programmes. An initial overview of the upper secondary curriculum in OECD countries suggests that there are two broad groupings of how countries organise curriculum across general and vocational education:

- **Countries where the core subjects are the same across general and vocational education**

In France, Japan, Korea, Italy, Mexico and Sweden, the core curriculum covers the same subjects for students studying in general and vocational education (Table 4.1). A common practice for countries in this group is to offer general and vocational programmes with the same common core and then add a group of compulsory subjects according to the specialisation of each programme (Le Métais, 2003[57]). The additional group of subjects varies depending on the orientation. In vocational education, it often includes professional subjects such as mechanics, health, tourism and technology, depending on the area of specialisation. In Sweden, for example, 30% of the content across vocational and general programmes is the same, which corresponds to the core or compulsory content across both programmes. Providing this degree of shared content across the programmes increases permeability between pathways since students share the same subjects, and it ensures that all students complete upper secondary with the same base of skills and competencies (EURYDICE (European Education Information Network), 2022[40]).

- **Countries where the core is notably different across general and vocational education**

This is the case in Austria, Chile, Finland and the Netherlands, where the core subjects in the general orientation are different from those in the vocational orientation (Table 4.2). In Chile and Norway, there are only two or three differences between the two orientations. In Austria and the Netherlands, the distinction is more significant, with four to six academic subjects in general programmes and three academic subjects plus specific professional content in vocational programmes.

In some countries, even if the core subjects across orientations are the same, the time spent on these subjects and the content differ. In Italy, for example, English is a core subject in both orientations, but in general programmes it includes learning the language, the culture and the literature while in vocational programmes it entails learning the language and the vocabulary associated with the specialisation of the programme (MIUR, 2018[67]). In the Netherlands, students in the general track learn Dutch language and literature, while those in the vocational track focus on literacy skills. In the general track, students are exposed to social studies, while in the vocational track the focus is on citizenship and career management skills (EURYDICE (European Education Information Network), 2022[40]). Adapting content to each specific programme might help vocational students to build more real world skills and increase engagement and participation, as students can see the value of learning. The main challenge is to ensure that all upper secondary students still have strong foundation skills.

The majority of countries require students to complete a work-based component in at least one of the vocational programmes provided, usually the one that is more practice-oriented (see the discussion in Section 3). Some countries, such as Austria, the Netherlands, Norway and Sweden, require all vocational education and training (VET) students to complete a work-based component during upper secondary education. Work-based learning can be incorporated in upper secondary education in different ways, for example as a short placement or a mandatory or optional apprenticeship. Only few countries, such as Italy and

England (United Kingdom), also require general students to complete a form of work-based learning. While work-based learning is less typical for general education students, it is considered to be an effective tool to keep all students engaged in school and more aware of future opportunities (Musset, 2019[68]). It might be of particular interest for countries concerned about the relatively high share of students who follow a general education programme and do not continue into further levels of education after completion, as work-based learning may provide an opportunity to develop their exposure to and knowledge of the labour market.

Policy considerations for determining compulsory content

All countries require students to study and/or demonstrate minimum standards for literacy and numeracy over the period of upper secondary transitions

Compulsory content in literacy and numeracy is important to ensure that all graduates from upper secondary education have strong foundations in essential domains. There are two main approaches to doing this. Some countries do this very explicitly, with a specific standard or certification that indicates competence. While setting minimum standards provides students with flexibility in how and when they demonstrate competencies, minimum standards might lower performance and discourage students from taking core subjects at higher levels when they have met the minimum standards, especially in mathematics. In most countries, students are also required to study mathematics and mother-tongue content throughout upper secondary education.

Most countries provide flexibility in how students can reach the standards or study mathematical and mother-tongue content. This is important to enable all students to develop and demonstrate essential competencies. It can include flexibility in how and when students reach the minimum requirements and offering multiple opportunities to demonstrate competence, providing students with the option to study mathematics and mother-tongue language at different levels or as part of specialisations where content is broader and deeper.

Minimum standards in literacy and numeracy provide choice but might limit standards and take-up

Countries that use minimum standards that students can complete early in their upper secondary education provide greater choice and flexibility for students when choosing subjects in upper secondary. Notably, countries with this approach to literacy and numeracy standards (with the exception of Ireland) are also among the few counties across the OECD where mathematics is optional in upper secondary.

While setting minimum standards can increase students' choices in the subjects that they study, this approach might not encourage all students to reach their potential, and it can result in lower performance because students do not have to push themselves to higher levels of achievement (Dufaux, 2012[69]). It might also affect participation in subjects that are key domains for economies. In countries where mathematics is not compulsory, participation in mathematics is below 50% and participation in higher mathematics is even lower. In some countries (notably England [United Kingdom]), low participation in more complex subjects such as higher mathematics is raising concerns about the low numbers of entrants to science, technology, engineering, and mathematics subjects in tertiary education and the lack of these skills in the labour market (Royal Academy of Engineering, 2016[70]).

Most countries have a wider core which covers common competencies

A system that has a wide core in upper secondary education tends to ensure that students pursue a coherent set of skills and subjects. However, too much breadth in the curriculum might be detrimental, as students cannot study any of the subjects in-depth. There is also the risk of curriculum overload that could hinder student learning and student engagement. Finally, limiting students' choice at the upper secondary level might reduce engagement in school and induce early school leaving.

Curriculum in vocational programmes is more variable across countries

Curriculum in vocational programmes is more variable across countries. In some countries, there are significant differences in required content across general and vocational programmes. The differences are most pronounced in countries with long-standing vocational systems, with a large share of the cohort enrolled in vocational education, as in Australia and the Netherlands. However, the ISCED mapping does not provide details on the content of vocational programmes and does not capture these differences between vocational systems (see Box 4.6).

In general, however, across most countries it is more common that students in vocational and general programmes study similar core subjects. While students might study the same subjects across general and vocational programmes, the actual content can differ. Students in general programmes might study more academic or theoretical content, while those in vocational programmes study more applied or technical content. Collecting further data about the content of general and vocational programmes will help develop understanding about how programmes are designed internationally and the trade-offs associated with different designs. Important data to collect includes the share of content that is common across vocational and general programmes and how subject content differs across programmes.

The risk of having different requirements or content for vocational students is that they do not develop foundation skills and might experience difficulties in shifting to different sectors of employment later on in life. Countries have the responsibility to ensure that all students develop these competences before completing upper secondary education, no matter the nature of the programme.

> **Box 4.6. Information gaps**
>
> In ISCED, the orientation of a programme can only be classified in one of two categories, but sometimes programmes contain both a general and a vocational component. All programmes that are not purely academic contain a mix of general and vocational subjects, but the proportions vary depending on the programme. Similarly, general programmes might contain a small proportion of vocational content (mostly optional). There is wide variation in programmes across countries, and sometimes the ISCED classification might be misleading and result in inconsistencies in comparative data. In New Zealand, for example, the unique NCEA programme provides students with the possibility to take also vocational subjects, but it is classified by ISCED as a general programme.
>
> In order to have a clear picture of how the core is defined and applied across different programmes in different countries, it is necessary to collect comparative data on the content of programmes, particularly on the general and vocational components. Data on the mix between general and vocational content in programmes could be used to analyse students' outcomes, and in particular to better understand how general and vocational programmes can be designed to best support student outcomes.
>
> Source: (Kis, 2020[7]), "Improving evidence on VET: Comparative data and indicators", https://doi.org/10.1787/d43dbf09-en, (accessed December 2021).

The role of student choice in upper secondary subjects

Most OECD countries give students some degree of choice in the subjects that they study at the upper secondary level. Students often have some choice over their programme in upper secondary education and the subjects and specialisation within that programme (Perico e Santos, forthcoming[4]).

Choice at this level is generally recognised to be important because it gives students space to exercise their developing autonomy and independence. It also enables students to play an active role in deciding what they learn, which can help to develop their sense of personal agency and encourage greater motivation and engagement (OECD, 2019[54]). When students are more interested in their learning, they are likely to be motivated and remain in education, helping to prevent dropout (Sahlberg, 2007[2]). At the same time, upper secondary education has the task of providing students with a set of skills that are useful for their adult and working life. To ensure this, the range of subjects that they choose needs to create a coherent foundation for future learning or employment. Choice can also enable space for greater depth and specialisation, as long as it is coherent.

Comparative data and evidence

Education systems can be broadly grouped into three different categories, based on the degree of choice that they offer for students within upper secondary programmes:

In some countries students have significant choice in the subjects they take

In Ireland, New Zealand and the United Kingdom (England, Northern Ireland, Scotland and Wales), students can develop a personalised course of study in upper secondary, as only a small part (or none) of programmes in these countries is dedicated to core foundations (Table 4.2). For example, the NCEA in New Zealand enables students to

typically take five subjects at Level 2 that they can choose from among 50+ curriculum-derived English Medium subjects, 10+ curriculum-derived Māori Medium subjects, as well as from a wide range of industry-derived and other learning options (New Zealand Ministry of Education, 2022[71]). Once students have achieved English and mathematics at Level 1, they are free to choose any subjects they wish for these five subjects. Similarly, students taking A-Levels in England normally choose three to four subjects from any available academic courses or, for the new T-Levels, will choose one subject from any available vocational subjects (UK government, 2022[72]). Enabling students to focus on subjects that interest them and reducing the number of compulsory subjects may be more satisfying for students (Laird, 2008[73]; Coker, 2016[74]; Schwartz, 2009[75]). However, students might be at risk of not mastering foundational competences, such as mathematics, that are required both formally and informally for the next level of study or training.

There are also stakes linked to the options that students take in their upper secondary programmes. In England, Ireland and Scotland, upper secondary certification is the main mechanism for tertiary entrance. Tertiary institutions often require specific subjects or combinations of subjects, so students need to be informed of this when making decisions about what to study. Certain types of subject choice are also associated with better outcomes on the labour market. In Scotland, for example, students with upper secondary certification in English, mathematics and business were found to obtain higher-status employment (Iannelli and Smyth, 2017), while in England, students who took A-Level mathematics were found to earn more at age 33 (Dolton and Vignoles, 2002[76]) Recent research also suggests that how subjects are combined can influence later earnings (Johnes, 2005[77]). In England, 26-year-olds who took A-Levels from at least two different subject groups earned more than those who took subjects from only one group (Robinson and Bunting, 2021[78]). The OECD Working Paper "Managing student transitions into upper secondary education" explores how decisions related to subject choice are made (Perico e Santos, forthcoming[4]).

In other countries students have little choice in the subjects that they study

In other countries (such as Austria, Chile and Italy), students cannot choose the subjects they study, as the core takes up almost 100% of the curriculum (Table 4.2). Countries in this category tend to be systems with multiple upper secondary programmes, so differences in student interests are accommodated by more specialised, differentiated programmes (Bray, 2007[79]).

A system that has a wide core in upper secondary education tends to ensure that students pursue a coherent set of skills and subjects. These types of upper secondary systems tend to be more common in countries where tertiary entry is open, meaning that all applicants who meet a minimum attainment level, usually upper secondary certification, can enrol (sometimes the programme in which they are enrolled is also important). In contrast, in systems where there is greater student choice, tertiary entry tends to be more selective, with students often required to achieve certain grades in specific subjects (OECD, 2019[38]).

A few countries balance some choice with a large core

A final group of countries provides students with some choice, although this is limited by also having a large core (Table 4.2). In France, for example, around half of the subjects in upper secondary general education are compulsory and students can choose the other half. This enables students to explore different domains, which in turn increases their engagement and facilitates their future choices. At the same time, having a consistent core ensures coherence and avoids the high stakes attached to student choice. In Sweden, the

elective courses available to students are determined by the national programme they are in, so that students' choices remain in line with the rest of the curriculum.

Table 4.2. Share of compulsory and elective courses in general upper secondary education

Country	Share of electives
Austria	0
Chile	0
Finland	32-38%
France	50-55% gen, 84% tech
Ireland	80%
Italy	0
Japan	51-59%
Norway	11%
Sweden	10%
United Kingdom	100%
United States	100%

Note: Electives refer to courses/subjects that students can choose and which are not compulsory. This also includes the case when students must choose one subject from a range (e.g. students must choose a science subject from a choice of biology, physics or chemistry).
Japan provided additional guidance to help identify the right share of electives.
Sources: (Sargent, Houghton and O'Donnel, 2012[65]), *International Review of Curriculum and Assessment Frameworks*; (O'Donnell, 2018[29]), *Upper Secondary Education in Nine Jurisdictions: Overview Report*, https://ncca.ie/media/3337/scoping-report-online-2.pdf; (OECD, 2018[66]), *Education Policy in Japan: Building Bridges towards 2030*, https://doi.org/10.1787/9789264302402-en.

Policy considerations for providing choice within programmes

Systems that provide a large amount of subject choice can be motivating and engaging for students, but choices often carry high stakes

In these systems, such as those in Ireland, New Zealand, the United Kingdom and the United States, a high level of choice is often associated with high stakes, because students' subject choices in upper secondary often influence their pathways into further education and work. Research suggests that these stakes might not always be apparent to young people when they make their choices (Hall, 2021[80]). The OECD Working Paper "Managing student transitions into upper secondary education" (Perico e Santos, forthcoming[4]) has highlighted that these high stakes are rarely balanced by a clear framework or guidance. In contrast to selection across upper secondary programmes, the decisions that influence the options and specialisations within upper secondary education are rarely guided by any clear rules or procedures at the school or national level. This has important implications for equity, given that students from higher socio-economic backgrounds tend to have access to more information about educational choices (Perico e Santos, forthcoming[4]).

Student guidance is particularly important in these systems to support students to make informed choices. However, guidance often varies widely by school, and more advantaged students tend to have greater access to information. A study conducted in England (United Kingdom) found that two out of five students in their second year of tertiary education would have chosen different subjects in upper secondary education if they had received better career advice. The same study found that students attending elite schools, such as private or grammar schools, were more likely to start thinking about university

earlier and to receive more information on subject choices compared to those attending schools in poorer areas or public schools (Hall, 2021[80]).

In countries where there is little student choice, programme design ensures that all students pursue a coherent path of study

In these systems, choice tends to be provided at the start of upper secondary education, so that students can try out new and different subjects at the beginning, or choice is offered within a limited remit of optional subjects related to a student's programme and specialisation. For example, a student in France or Sweden can balance some choice in terms of subjects while ensuring coherence and avoiding the high stakes associated with complete student choice in some systems. In these countries, students can choose some subjects or areas while still having a significant number of compulsory subjects. However, these systems risk being less engaging or motivating for students because there is less scope for students to shape their course of study.

Some countries offer no student choice within programmes

In countries such as Austria, the Czech Republic, Greece, Italy and Portugal, students are not offered any choice at all in terms of the subjects that they take. Instead, in these systems, the selection of students into different programmes at the start of upper secondary education is the main mechanism to cater to differences in student interests. However, in practice this selection does not always equate to real student choice. While students always have a voice in upper secondary programme placements, the decision about which upper secondary programme they pursue might be determined primarily by other factors, such as academic performance (Perico e Santos, forthcoming[4]). In this case, systems risk not providing any real choice for students, which might negatively affect students' motivation and engagement. On the other hand, students in these systems study a coherent set of subjects that are determined by the education authorities.

The role of specialisation in upper secondary education

Specialisation enables students to go into greater depth in one subject or a group of subjects. In upper secondary education, it helps students to start defining their interests while developing greater depth of knowledge and skills in specific domains which will be required to enter the labour market or to build on in tertiary education. Specialisation is usually a design feature of upper secondary education programmes, but its importance varies across programmes and countries.

Comparative data and evidence

In most systems, programmes become more specialised as students move through upper secondary education

In most countries, students start to specialise at the beginning of upper secondary education and progressively develop their specialisation as they move through the cycle. A number of countries provide students with space to try out different subjects at the beginning of upper secondary before specialisation begins, so that they can see what they like. In France, all students have an orientation year (called *second*), which marks the start of upper secondary education. This year helps students to make the choice between programmes and delays the age of specialisation so that it corresponds with the end of compulsory schooling at age 16. In Italy, in the first two years of upper secondary education (age 14-16), general and vocational programmes also have a very similar general core. This provides flexibility

if students want to move across programmes and also means that students choose their specialisation at age 16, which corresponds to the end of compulsory education. In the United Kingdom systems, where the upper secondary cycle is comparatively long, students have a first phase at age 14-16, when they study a broad range of subjects (9-11), culminating in national examinations, the GCSEs. This is followed by a second phase at age 16-18, when students study a far smaller range of subjects, culminating in another set of national examinations, the A-Levels or T-Levels (Box 4.1)

As students move through upper secondary education, the range of subjects that they study often falls, in line with increasing specialisation. In France, for example, the first year of upper secondary (*la classe de première*) includes 60% of general subjects (15 hours per week) that are compulsory for all students and three elective courses that have the purpose of enabling students to try new fields of study and prepare to specialise in specific areas. However, as students move through the third year (*la classe de terminale*), the common core represents only 30% of the curriculum (8.5 hours per week) and students need to choose two subjects among the initial three in order to narrow their focus (Ministère de l'Education Nationale et de la Jeunesse, 2022[81]). This structure enables students to explore different domains at the beginning of upper secondary while becoming more specialised in the final year (Le Métais, 2003[57]). Similarly, in Sweden, the range of subjects narrows as students move through upper secondary and choose a specialisation in their second and third years (Box 4.8).

Specialisation is an important feature of vocational upper secondary programmes

Internationally, all vocational systems provide students with a specialisation as well as a choice over their specialisation (Box 4.7). In vocational systems, specialisations enable students to acquire specific professional or technical skills, which provide the foundations for employment or further study. In countries with multiple vocational programmes and highly developed vocational systems (such as Austria, Germany and the Netherlands), specialisations can be more tailored to specific professions or categories of professions. In systems with fewer vocational programmes, specialisations tend to be broader and less specific, since they need to prepare students to enter both employment and further education.

Box 4.7. Specialisations and options within vocational upper secondary programmes

Vocational Education and Training typically prepares learners for entry into the labour market and therefore has specialisations linked to specific occupations or occupational areas. Countries differ strongly in the number of specialisations they provide, reflecting different choices in how narrow or specialised the training should be and differences in labour market demand. In some countries, specialisations become narrower as students advance through vocational upper secondary programmes.

In Denmark, for example, the main vocational programme (EUD or *erhvervsuddannelse*) starts with a basic course, in which students choose one of four specialisations in the second year: 1) food, agriculture and hospitality; 2) technology, construction and transportation; 3) administration, commerce and business service; and 4) care, health and pedagogy. After completing the basic course, they move on to the main course in which they can choose from among around 100 fields.

Various countries have been broadening their vocational programmes and qualifications (and hence reducing the number of specialisations) in response to rapidly changing labour markets. Broader programmes can make learners more adaptable in a changing labour market and allow for more flexibility. Finland's recent reform of upper secondary VET, for example, reduced the number of qualifications from 351 to 164 (of which 42 are initial vocational qualification, and the others are further and specialist vocational qualifications). The initial vocational qualifications consist of vocational units and common units, with the former being either compulsory or optional.

VET institutions do not typically provide all the different specialisations, as they generally require dedicated equipment, and not all programmes are equally relevant in specific regions/localities. In some countries, some types of VET institutions focus on a particular sector or field. In Denmark, for example, out of 103 institutions, 89 are technical colleges, business colleges, agricultural colleges, or combination colleges (with technical and business colleges representing the largest number of institutions) and 14 colleges offer social and health care training programs. Technical colleges usually cover topics such as technology, construction and transport, whereas combination colleges usually offer a variety of subjects, including those related to the hospitality sector, and business and administration.

Source: (Andersen and Helms, 2019[82]), Vocational education and training in Europe: Denmark., http://libserver.cedefop.europa.eu/vetelib/2019/Vocational_Education_Training_Europe_Denmark_2018_Cedefop_ReferNet.pdf, (accessed December 2021).

Specialisation plays a varying role across general programmes

Specialisation is a common feature of general programmes, but it tends to be less deep and specific than specialisation in vocational education. In many systems, students choose their specialisation from a predefined list of options as they move through upper secondary education (Box 4.8). In contrast, in comprehensive systems and those with greater student choice, specialisation is not always a design feature of upper secondary programmes. In these countries, students can frequently choose which subjects to take, which may result in a specialisation. For example, students in England (United Kingdom) may choose to specialise in natural sciences by taking three to four A-Level subjects in science, but this is

not mandated or encouraged by the system's design. This reflects cultural and social views, where education is seen as essential to developing transversal skills and competencies rather than more than in-depth knowledge that is specific to certain subjects.

Very high-choice, flexible systems can raise concerns about coherence. In New Zealand, which has perhaps one of the most flexible and personalised upper secondary phases internationally based on a module structure (Box 4.4), there are concerns that the high level of flexibility and personalisation make it very difficult for individual schools to deliver the curriculum, with the risk that students may not develop a coherent set of subjects. Current work in New Zealand aims to provide greater guidance to schools on typical or potentially coherent courses of study to guide students when making their choices.

Box 4.8. Specialisation in upper secondary education in Sweden

Entering upper secondary education

When they start upper secondary education in Sweden, students in both the vocational and general orientations enter one of the 18 available national specialised programmes:

- 6 general options, (e.g. economics, humanities and science)
- 12 vocational options, (e.g. hotels and tourism, electricity and energy, health and social care).

Second year of upper secondary education

In their second year, students choose a specialisation, although the number of possible specialisations varies across programmes and not all programmes offer specialisation (for example, the economics programme has two options, economics and law). Individual schools provide a certain degree of flexibility in the courses students can select from to create each orientation.

Third year of upper secondary education

In their third year, there is the potential for students to take more options determined locally. Students must also carry out a diploma project known as the *gymnasiearbete.* The goals of the diploma project in higher education preparatory programmes state that the project should demonstrate that students are prepared for higher education studies, in the first instance in the area for which the education is being provided. The goals of the diploma project in vocational programmes state that the diploma project should demonstrate that students are prepared for the vocational area applicable to their chosen vocational outcome. The project should demonstrate the student's ability to carry out recurring tasks in the vocational area.

Source: (OECD, 2022[52]), *Above and Beyond Peer Learning Discussion on flexibility*.

Policy considerations for providing specialisation in upper secondary programmes

Giving space to study a broad range of subjects at the start of upper secondary before specialising later in the cycle

Most systems enable students to develop a broad base at the beginning of upper secondary education by studying many subjects, and then to specialise as they move through upper secondary and get more specialised by completion. In systems with a comparatively short upper secondary period (e.g. two years), there is less time to provide such space for breadth. There is a risk that students will realise too late that they wanted to study something else because they were not given the chance to explore other domains earlier in the cycle. To minimise this risk, countries can introduce an introductory year between lower secondary and upper secondary education, as is the case of the Transition Year in Ireland that allows students to explore different subjects.

It is important to mention that the provision of subjects/specialisations is also influenced by system capacity, notably resources. The Above and Beyond project will develop more work dedicated to the system capacity needed to deliver upper secondary education in the future (see Section 5).

The importance of specialisation varies across general and vocational programmes and countries

Specialisation is a feature of most upper secondary systems, and it plays a particularly important role in vocational upper secondary programmes. In general education, specialisation tends to have less depth and is influenced by the underpinning philosophy of the role of education in developing generalist versus specific competencies, which can influence the role of specialisation. Most general upper secondary systems are designed to develop specialised competencies in a subject or domain. However, systems across Anglophone countries tend to be underpinned by a more generalist philosophy, where specialisation is a not a design feature. In these systems, providing career guidance and support for selecting the subjects or imposing some requirements in subject choice can help to encourage coherence in students' subject choices.

Policy framework for options and specialisation within upper secondary programmes

In order for upper secondary education to meet countries' economic needs and students' interests and aspirations, education at upper secondary level offers more choice and specialisation than at previous levels. Meeting these different objectives means that countries need to find the right balance between fundamental competencies and coherence, specialisation and choice across the curriculum. The fundamental competences and coherence are defined by the structure of the compulsory core, which also influences the extent of choice and specialisation. Countries structure their curricula in different ways, each associated with benefits and risks (Box 4.9).

Table 4.3 provides a policy framework that outlines the ways in which countries can balance core foundations, choice and specialisation. It also summarises the range of approaches that exist across OECD countries, the challenges associated with different approaches and the policies that countries might take to mitigate some of these challenges. It is important for countries to be aware of the implications associated with the different polices, so that they can take steps to maximise the benefits of the policies that they decide to adopt.

Box 4.9. Policy considerations for managing options and specialisation within upper secondary programmes

Policy considerations for determining compulsory content

- All countries require students to study and/or demonstrate minimum standards for literacy and numeracy over the period of upper secondary transitions.

- Minimum standards in literacy and numeracy provide choice, but might limit standards and take-up.

- Most countries have a wider core which covers common competencies.

- Curriculum in vocational programmes is more variable across countries.

Policy considerations for providing choice within programmes

- Systems that provide a large amount of subject choice can be motivating and engaging for students, but choices often carry high stakes.

- In countries where there is little student choice, programme design ensures that all students pursue a coherent path of study.

- Some countries provide no student choice within programmes.

Policy considerations for providing specialisation in upper secondary programmes

- Giving space to study a broad range of subjects at the start of upper secondary before specialising later in the cycle can be helpful.

- The importance of specialisation varies across general and vocational programmes and countries.

Table 4.3. Aspects of curriculum structure and implications for policy making

Aspect of curriculum	Key policy objectives	Main approaches across countries	Country examples	Risks	Mitigating strategies
Compulsory content	Ensure that students develop essential foundations for further education and/or labour market	Set minimum expectations for literacy and numeracy alone	Australia, Ireland, New Zealand, the United Kingdom and the United States	Students do not develop coherent skills Misalignment with labour market, especially lack of science, technology, engineering and mathematics	Provide high-quality student guidance that informs students about future opportunities and labour market needs
		Wider core that includes around seven domains internationally	Most countries	Students lack depth of study Curriculum overload Students are less engaged related to less choice	Balance compulsory core with some choice and opportunities to specialise
	Provide students with a coherent set of study options	General and vocational students share the same core	France, Japan, Korea and Mexico	Fewer opportunities for specialisation and differentiated study across vocational and general programmes	Ensure flexibility between orientations/programmes
		General and vocational students have different cores	Austria, Chile, Finland, the Netherlands and Norway	Reduces permeability across vocational and general programmes Vocational students lack general skills and general students lack labour market awareness / activities	Review common core to ensure both general and vocational students develop a coherent skills set
Choice	Respond to students' interests, abilities and aspirations	Significant choice and highly personalised study programmes	Australia, Ireland, New Zealand, the United Kingdom and the United States	Lack of coherence/consistency High stakes decisions left to students	Provide high-quality student guidance that informs students on future opportunities and labour market needs
		Little or no choice in general programmes	Austria, Chile, Italy, Mexico and the Netherlands	Lack of students' motivation and engagement	Consider / review how and where choice occurs across programmes
		Balance core with some choice	France and Sweden		
Specialisation	Respond to students' interests and abilities	Programmes become more specialised as students move through upper secondary education	The majority of OECD countries	Lack of coherence between subjects	Provide student guidance
	Start to develop specialised competencies for future work or study	Specialisation is structured by the programme	Austria, Germany, Italy and the Netherlands	Degree of specialisation does not correspond to labour market and further education needs	Close collaboration and feedback from labour market and further education

5. Synthesis and conclusions

Overview of policies that shape upper secondary design

This working paper has set out how different upper secondary systems manage choice and specialisation internationally. Based on these differences, it is proposed to organise systems into three broad categories, which reflect how far choice and specialisation are structured by the programmes and how far students have the space to determine these features themselves (Table 5.1). These have different implications for the coherence of the system.

Personalised systems

In these systems, the core compulsory subjects that students are required to study are typically quite limited, frequently based just on literacy and numeracy standards, which leaves students with a large degree of choice over the subjects that they study. This is the case in Australia, Canada, Ireland, New Zealand, the United Kingdom (14-16 phase, Box 4.1) and the United States which offer systems characterised by a comparatively high degree of space for individual students to design their own programme (Table 5.1).

Specialisation tends not to be a systemic feature of these systems. This also reflects the broader educational and economic context in which they operate, which tends to put greater value on generalist rather than specialised skills for school leavers. Some students may choose to develop a specialisation, for example by focusing on science, or humanities or social science subjects, but this depends on their personal interests and future aspirations.

Table 5.1. Key design features of upper secondary systems internationally

	Personalised systems	Intermediate systems	Structured systems
Country examples	Australia, Canada, Ireland, New Zealand, United Kingdom systems (age 16-18 phase) and the United States	Finland, France, Norway, Sweden and United Kingdom systems (age 14-16 phase)	Austria, Germany, the Netherlands and Switzerland
Choice	Students choose subjects, levels and specialisations within programmes	Typically combine some choice of programme in the initial transition into upper secondary education and some choice of subjects, levels or specialisations within programmes	Limited choice of programme (early selection systems); limited choice of subjects, specialisations and levels in general programmes
Specialisation	Designed by students	Design feature embedded with programme, with some choice for students	Design feature embedded in each programme; vocational specialisations more tailored and greater depth

The risks for the coherence of student programmes in these systems are associated with student choice (or orientation) for different subjects, levels and specialisations within the same upper secondary programme. As there is no internationally comparative data about how students are distributed across different options within programmes, there is less information about how equitable these systems are from a comparative perspective. However, national data points to the risk that students, especially those with less access to information and accurate advice (typically students from less advantaged backgrounds), do not make informed choices (Perico e Santos, forthcoming[4]). Since the levels, subjects and specialisations that students study in these countries can impact their eligibility for tertiary entrance, as well as the programmes or institutions to which they are accepted, these decisions can be considered as carrying high stakes for students.

Structured systems

In contrast to the more personalised systems, in structured systems students have far less scope to adapt their individual programmes of study. In these systems, it is the programme of upper secondary study itself which is one of the main vehicles for providing choice and specialisation. This is the case, for example, in Austria, Germany, the Netherlands and Switzerland, which offer highly structured upper secondary programmes to students. These countries provide a higher number of upper secondary programmes than most OECD countries, so the greater separation of students into different programmes provides more scope for tailoring content to different groups of students. This is in contrast to more comprehensive and intermediate models, where a greater share of the student cohort is in the same programme. In these systems, where students can choose their specialisations in vocational education, student choice related to the subjects, levels and specialisation tends to be limited or not present.

There is less risk in these systems that students will not develop a coherent path of study or a specialisation with a pathway into further education and/or work, because these are design features of the programmes. For example, the compulsory core subjects typically constitute all – or almost all – of the programme content and so, with programmes that are well designed, all students will pursue a coherent set of subjects. On the other hand, these systems risk providing little choice for students. In theory, the separation of students into different programmes provides a vehicle to accommodate different interests and aspirations, but students are rarely able to exercise much genuine choice when making these decisions. Typically, information about academic performance constrains student choice about the upper secondary programme that students transition into (Perico e Santos, forthcoming[4]). Students may find it frustrating to have limited opportunities to choose the subjects that interest them during upper secondary education, with the risk that they may become less engaged and less motivated. A final and well-documented risk associated with separating students into distinct programmes is the challenge of ensuring equitable access, quality and outcomes across different programmes. The lower prestige and esteem related to vocational programmes is a perennial challenge in all countries where this separation occurs (with the possible exception of Switzerland).

Intermediate systems

The systems tend to combine both personalisation and structuring to varying degrees. In intermediate systems, specialisation is frequently a feature of the programme where a student is enrolled. However, students often have choice about the specialisation (e.g. students in Sweden choose one specialisation from 16 possible choices), as well as choices among the specific subjects within their specialisation (e.g. between economics or law within the economics programme). These systems are found in many central and western European systems (such as France and Italy) and in the Scandinavian countries (such as Finland, Norway and Sweden).

Intermediate systems also combine the risks and benefits of the structured and personalised systems. While students have some choice, which can be motivated and engaging and foster the development of individual agency, that choice is relatively restricted, and students are required to study subjects across around seven compulsory domains.

How do different upper secondary systems affect students' outcomes?

A key question for countries is if and how different upper secondary systems – personalised, structured, or intermediate – play a role in student outcomes, such as attainment, and how graduates perform in the labour market. While it is very difficult to

isolate the specific impact of the design of upper secondary programmes and student outcomes, this section provides a preliminary overview of descriptive data to explore some of the relationships that might be occurring between upper secondary systems and labour market outcomes. It should be noted that this is by no means a complete analysis but rather provides an initial perspective on the relationship between upper secondary education and young people's outcomes (see Section 6).

Figure 5.1 shows that, among all OECD countries (apart from Italy), employment rates are higher for those who completed upper secondary education (no matter the programme orientation), compared to those who did not complete it and that tertiary education graduates have better employment outcomes than general upper secondary graduates. On average across the OECD, vocational upper secondary graduates have stronger employment outcomes than general upper secondary graduates (with upper secondary as their highest level of attainment).

Overall, young upper secondary graduates seem to experience better employment outcomes in countries with structured or personalised systems. Some of the personalised systems, for example, such as Canada, New Zealand and the United States, tend to have lower shares of upper secondary graduates who are unemployed in the long-term (between 16% and 22%) compared to the OECD average (35%) (OECD, 2022[5]). Other countries characterised by a structured system (as in Austria, the Netherlands, Hungary, the Slovak Republic, Slovenia and Switzerland) show lower shares of young people who are not in employment, education or training (NEET) among upper secondary graduates compared to the OECD average (20%), with less than 15% of NEETs among 24-29 year-olds who obtained an upper secondary or post-secondary non-tertiary qualification (OECD, 2022[5]). While these trends probably reflect many factors, such as a broader economic climate and the labour market structure, they might also reflect the possibility to specialise and tailor learning that both of these types of system allow.

In contrast, intermediate systems (as in Belgium, Greece, Italy, Spain and Portugal) show the highest shares among OECD countries of upper secondary graduates who are unemployed in the long-term (between 45% and 69%) and other systems (as in Costa Rica, Greece, Italy and Türkiye) have the highest shares of NEETs, with over 30% of 24-29 year-old upper secondary graduates who are NEETs (OECD, 2022[5]). The broader and more standardised nature of intermediate systems might provide fewer opportunities for students to develop specific skills and/or to pursue their personal interests. However, these perceptions need to be explored in further detail, accounting for the wide differences across intermediate systems, the broader economic climate and student flows into post-secondary pathways.

In **structured systems** (as in Austria, the Czech Republic, Germany, Hungary, Luxembourg, the Netherlands, the Slovak Republic, Slovenia and Switzerland), the shares of vocational graduates (at both the upper secondary and post-secondary non-tertiary-level) who are employed are close to those of tertiary graduates. In these countries, the structured design of upper secondary vocational education seems to enable young people to develop specific, technical skills that enable them to integrate comparatively well into the labour market. Compared to their peers in upper secondary vocational education, general students do not perform well in the labour market without pursuing a further qualification. There are, of course, many other factors influencing employment rates that are not captured here, some of which are described below.

In **personalised systems** (as in Australia, Canada, Ireland and the United States), there is a wide gap in employment between tertiary graduates and upper secondary general graduates. However, this gap reflects the whole student cohort, whereas in other systems at least a share of the cohort is able to experience better labour outcomes via vocational

education. This likely reflects the more generic nature of skills development during upper secondary education and the absence of opportunities to develop specific technical skills that would enable young people to directly enter the labour market. In personalised systems where vocational education is not provided as a fully separate option and programmes are less structured and specialised, the labour market usually requires students to obtain a post-secondary certificate.

Based on these data, the more structured or personalised nature of general upper secondary systems does not seem to shape the experience of young people with general upper secondary education as their highest level of attainment on the labour market. To better understand how the design of upper secondary general programmes influences young people's outcomes, it would be important to further explore the destinations of graduates from upper secondary, the shares of students who do not progress to further education and their employment rates over time.

In all countries characterised by an **intermediate system**, upper secondary vocational students show better employment outcomes than upper secondary general students, in line with the OECD average. However, the advantage of upper secondary VET graduates is smaller in intermediate systems than in structured systems. The only exceptions are Denmark, Iceland, Norway and Sweden, where there are higher shares of vocational graduates employed in the labour market than tertiary graduates. It would be important to further explore why upper secondary vocational graduates perform so well in these countries by examining in detail the design of their programmes, the share of vocational students that directly enter the labour market after upper secondary education and the employment outcomes of upper secondary VET graduates over time.

Some of the countries that fall into the category of intermediate systems (such as Chile, Greece, Italy, Spain and Türkiye) have the lowest shares of employment among OECD countries not only of upper secondary students, but also of tertiary students. This might be related to other factors affecting the economy, not necessarily to the education system. However, the economic structure might also reflect the structure and patterns of skills development.

Figure 5.1. Employment rates of 25-34 year-olds, by educational attainment and programme orientation (2021)
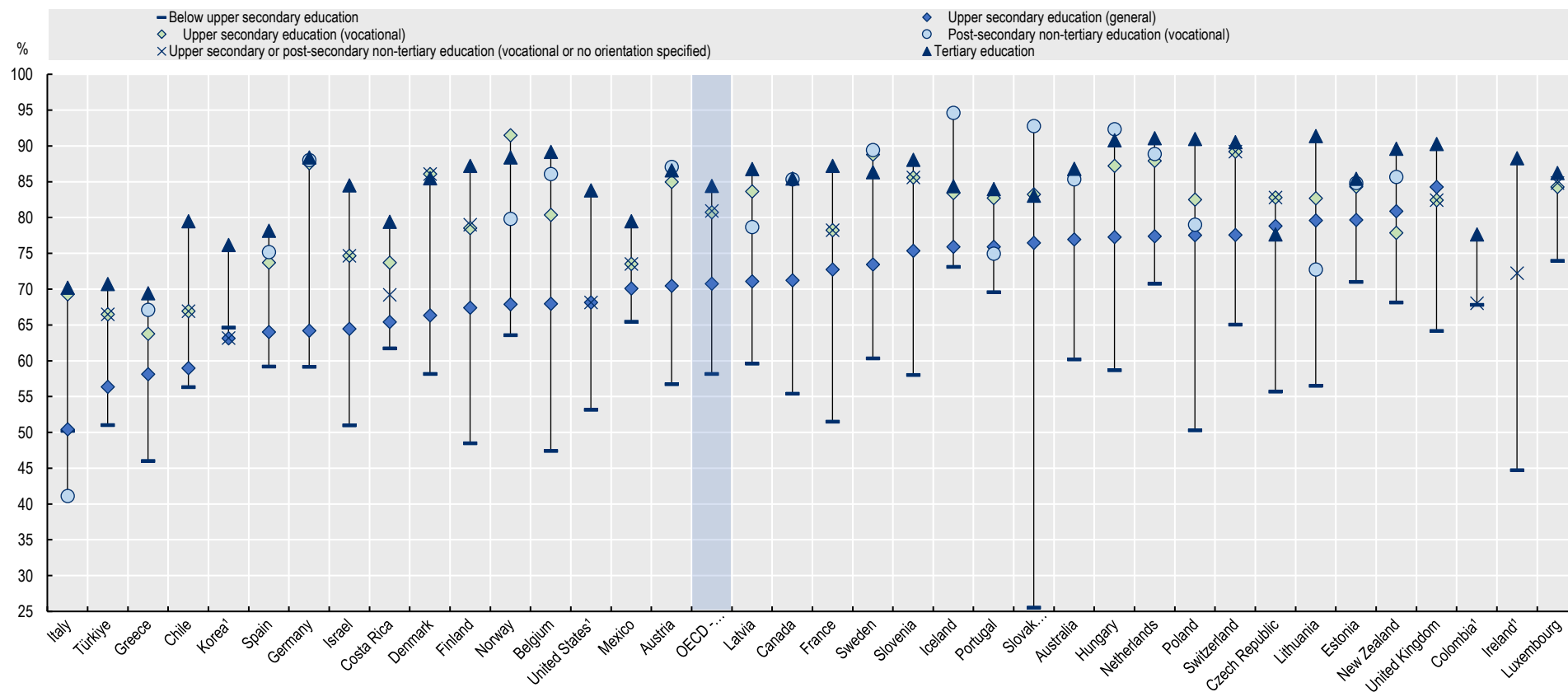
Note: ¹ Data on upper secondary or post-secondary non-tertiary education are not available for vocational education.
When data on students who attained post-secondary non-tertiary vocational education are not available, joint data on students who attained upper secondary or post-secondary non-tertiary vocational education are used. *Countries are ranked in ascending order of the employment rate of 25-34 year-olds who attained general upper secondary education.*
Source: (OECD, 2022[5]), *Education at a Glance 2022: OECD Indicators*, https://doi.org/10.1787/3197152b-en.

6. Further work

This working paper has provided a first comparative review of upper secondary systems internationally. In doing so, it has identified a number of gaps in the existing data, information and analysis which might be addressed in further work. These topics include the following:

- **Exploring the relationship between student outcomes and design of upper secondary systems**

Section 5 summarised the different types of upper secondary systems and their key design features. It also showed the main trends of student outcomes for upper secondary graduates coming from different systems. It briefly discussed long-term unemployment, young people who are not in employment, education or training (NEETs) and employment outcomes for those who complete upper secondary education.

It would be interesting to explore to what extent student outcomes are influenced by education systems, rather than by other factors affecting the economy. To better understand how the design of upper secondary general programmes influences young people's outcomes, it would be important to better understand the destinations of graduates from upper secondary, the shares of students who do not progress to further education and their employment rates over time. A working paper in 2023 will explore how far the design of upper secondary systems influence retention and completion in upper secondary education and a thematic report in 2024 will explore the relation between student outcomes and pathways.

- **Data about the content of upper secondary programmes**

This paper has highlighted that one of the key gaps that limits analysis of upper secondary education is the need to better understand the content of upper secondary education programmes. Unlike at lower levels of schooling, there is far greater variation in what and how upper secondary students study.

Some of this is captured by the ISCED classifications, through the vocational and general orientations programme designation and if a programme includes a work-based component. However, the ISCED classification also masks many variations (Box 4.6). In particular, vocational programmes vary widely across and even within countries (Kis, 2020[7]). General programmes also differ, and this paper has shown that the content of general upper secondary programmes can differ significantly.

As a starting point, it would be useful to collect information about the size of the compulsory core for all programmes and the extent to which this is common across different upper secondary programmes within specific countries. More information from countries on the composition of the core would also be valuable.

- **Understanding how flexibility is provided and used and the consequences across upper secondary systems**

Flexibility is one of the key features of upper secondary programmes that influence student experiences and it can help to mitigate risks related to stratification. In this case, flexibility refers to students being able to move easily between different types of content, notably vocational and general. This might mean by combining vocational and general content within the same programmes or through permeability, which enables students to move across programmes.

While flexibility is commonly referred to in the literature as a feature that can mitigate the negative impacts of stratification, comparative understanding of flexibility is relatively limited. Further work could: 1) try to establish an internationally comparative definition of flexibility in upper secondary education; 2) identify a set of ways in which countries can provide flexibility; and 3) collect data on the ways in which countries provide flexibility, how these approaches are distributed across countries, and the shares of students who use the flexible options where they are offered. The work could also aim to develop a more accurate understanding of the ways in which flexibility can contribute value to upper secondary systems.

- **Identifying how system capacity shapes countries' ability to deliver upper secondary education**

This paper has not looked at the implications for system resourcing and the cost of different upper secondary systems. However, understanding the resources needs that are associated with different types of systems is essential for countries when they make decisions about reforming and refining their upper secondary systems.

Work in this area would draw on existing work by the OECD on School Resources (OECD, n.d.[3]) (OECD, 2018[83]) and start to explore the capacity implications for different upper secondary systems. Notably, it could examine what resources are required to deliver multiple upper secondary programmes and options within programmes and how drawing on other actors such as employers and tertiary education can help upper secondary institutions to provide specialised and technical content efficiently and effectively.

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Annex A. Upper secondary programmes and subjects

Table A.1 below summarises the programmes available at the upper secondary level, excluding the following:

- programmes coded 341/351 and 342/35 (those that do not lead to completion of upper secondary education)

- non-formal education programmes

- programmes that require a starting age above 18

- programmes for adults or other types of second-chance programmes

- programmes for students with special learning needs

- programmes that are only offered part-time

- programmes that are only work-based

- programmes that have less than 1% of the total of upper secondary education students enrolled.

Table A.1. Upper secondary programmes

Country	Name of programme in national language	Name of programme in English	ISCED code	Programme orientation	Access to tertiary education	Enrolments
Australia	Senior Secondary School	Senior Secondary School	344	General	Yes	551 177
Austria	*Allgemeinbildende höhere Schule, Oberstufe*	Academic secondary school, senior stage	344	General	Yes	86 581
Austria	*Berufsbildende höhere Schule, Jahrgang 1-3*	Higher technical and vocational college, Grades 1-3	354	Vocational	Yes	80 876
Austria	*Berufsbildende mittlere Schule*	Intermediate technical and vocational school	354	Vocational	Yes	25 170
Austria	*Land- und forstwirtschaftliche mittlere Schule*	Vocational school for agriculture and forestry	354	Vocational	Yes	11 490
Austria	Lehre (Duale Ausbildung)	Apprenticeship	354	Vocational	Yes	109 913
Belgium Flemish	*Gewoon secundair onderwijs - 1ste en 2de leerjaar van de 3de graad ASO*	Regular secondary education - 3rd stage - 1st and 2nd year of the 3rd stage - ASO (general secondary education)	344	General	Yes	51 875

Country	Name of programme in national language	Name of programme in English	ISCED code	Programme orientation	Access to tertiary education	Enrolments
Belgium Flemish	*Gewoon secundair onderwijs - 1ste en 2de leerjaar van de 3de graad KSO*	Regular secondary education - 3rd stage - 1st and 2nd year of the 3rd stage - KSO (artistic secondary education)	344	General	Yes	3 281
Belgium Flemish	*Gewoon secundair onderwijs - 1ste en 2de leerjaar van de 3de graad BSO (incl. modulair onderwijs)*	Regular secondary education - 3rd stage - 1st and 2nd year of the 3rd stage - BSO (vocational secondary education; including modular education)	353	Vocational	No	21 891
Belgium Flemish	*Gewoon secundair onderwijs - 1ste en 2de leerjaar van de 3de graad TSO*	Regular secondary education - 3rd stage - 1st and 2nd year of the 3rd stage - TSO (technical secondary education)	354	Vocational	Yes	42 832
Belgium Flemish	*Leertijd (Syntra-Vlaanderen)*	Apprenticeship (organised by Flemish Agency for Entrepreneural Training, SYNTRA)	354	Vocational	Yes	1 471
Belgium French	*3e degré de l'enseignement secondaire ordinaire général*	Regular secondary education - 3rd stage	344	General	Yes	54 551
Belgium French	*3e degré de l'enseignement secondaire ordinaire technique ou artistique de transition*	Regular secondary education technical and artistic of transition - 3rd stage	344	General	Yes	
Belgium French	*3e degré (hors 7e année) de l'enseignement secondaire ordinaire professionnel de plein exercice ou en alternance*	Regular secondary education - vocational - 3rd stage (1st and 2nd year) (including part-time education and work)	353	Vocational	No	22 303

Country	Name of programme in national language	Name of programme in English	ISCED code	Programme orientation	Access to tertiary education	Enrolments
Belgium French	*3e degré (hors 7e année) de l'enseignement secondaire ordinaire technique ou artistique de qualification de plein exercice ou en alternance*	Regular secondary education - technical and artistic of qualification - 3rd stage (1st and 2nd year) (including part-time education and work)	354	Vocational	Yes	30673
Canada	High School/Secondary School/Senior Secondary	Upper secondary education or equivalent - General	344	General	Yes	1 280 727
Chile	*Ciclo Diferenciado de Enseñanza Media Humanista-Científico*	Sciences and Humanities Upper Secondary Education	344	General	Yes	
Chile	*Ciclo Diferenciado de Enseñanza Media Técnico-Profesional*	Technical Upper Secondary Education	354	Vocational	Yes	
Chile	*Ciclo Diferenciado de Enseñanza Media Artística*	Artistic Upper Secondary Education	344	General	Yes	
Colombia	*Educación media tradicional (general)*	Traditional technical-vocational upper secondary	354	Vocational	Yes	1 009 421
Colombia	*Educación media tradicional (técnica vocacional)*	Traditional general upper secondary	344	General	Yes	380 884
Costa Rica	*Académica Diurna*	Academic Day High School	344	General	Yes	
Costa Rica	*Técnica Diurna*	Day Technology High School	354	Vocational	Yes	
Czech Republic	*8leté gymnázium - vyšší stupeň (5.- 8. ročník)*	"Gymnasium" - upper stage of 8-year courses (5th to 8th grade)	344	General	Yes	
Czech Republic	*6leté gymnázium - vyšší stupeň (3.- 6. ročník)*	"Gymnasium" - upper stage for 6-year courses (3rd to 6th grade)	344	General	Yes	
Czech Republic	*4leté gymnázium*	"Gymnasium" – 4-year courses	344	General	Yes	
Czech Republic	*Střední vzdělání*	Secondary education courses without maturita exam	353	Vocational	No	

Country	Name of programme in national language	Name of programme in English	ISCED code	Programme orientation	Access to tertiary education	Enrolments
Czech Republic	*Střední vzdělání s výučním listem*	Secondary education courses with VET certificate	353	Vocational	No	
Czech Republic	*Střední vzdělání s maturitní zkouškou (odborné)*	Secondary technical and vocational courses with maturita exam	354	Vocational	Yes	
Czech Republic	*Lyceum*	Lyceum	344	General	Yes	
Denmark	*Gymnasiale uddannelser, AGYM*	Upper secondary education	344	General	Yes	102 078
Denmark	*Gymnasiale uddannelser, EGYM*	Upper secondary education	344	General	Yes	41 930
Denmark	*EUD, hovedforløb*	Vocational educational training, main course	353	Vocational	No	1 2431
Denmark	*EUD, hovedforløb (access to higher level)*	Vocational educational training, main course (access to higher level)	354	Vocational	Yes	83 651
Estonia	*Üldkeskharidus*	General upper secondary education	344	General	Yes	27 523
Estonia	*Neljanda taseme kutseõpe (kutsekeskharidus)*	Fourth-level vocational training (vocational secondary education)	354	Vocational	Yes	9 853
Finland	*Lukiokoulutus (ylioppilastutkinto)*	Upper secondary general programmes	344	General	Yes	96 983
Finland	*Ammatillinen perustutkinto*	Upper secondary vocational programmes leading to vocational upper secondary qualifications (including apprenticeship training programmes and special education programmes)	354	Vocational	Yes	168 098

Country	Name of programme in national language	Name of programme in English	ISCED code	Programme orientation	Access to tertiary education	Enrolments
France	*Enseignement de second cycle professionnel du second degré conduisant au CAP ou titres habilités*	Vocational secondary education (2nd cycle) preparing to Certificat d'aptitude professionnelle (CAP)	353	Vocational	No	282 000
France	*Enseignement de second cycle professionnel du second degré conduisant au Bacccalauréat Professionnel ou à un équivalent*	Vocational secondary education (2nd cycle) preparing to *Bac Professionnel* or to an equivalent diploma	354	Vocational	Yes	650 100
France	*Enseignement de second cycle général du second degré conduisant au baccalauréat général ou technologique ou au brevet de technicien*	General secondary education (2nd cycle), preparing to *Bac général*, technologique and *Brevet de technicien*	344	General	Yes	1 646 000
Germany	*Gymnasiale Oberstufe*	Upper secondary schools (general)	344	General	Yes	887 790
Germany	*Allgemeinbildende Programme im Sekundarbereich II an beruflichen Schulen*	Upper secondary general programmes at vocational schools	344	General	Yes	341 279
Germany	*Fachoberschulen zweijährig*	Specialised vocational high schools	344	General	Yes	116 828
Germany	*Berufliche Gymnasien/ Fachgymnasien (Klasse 11 – 13)*	Specialised grammar schools	344	General	Yes	163 614
Germany	*Berufsschulen (Berufsabschluss im Dualen System, geregelt durch BBiG/HwO)*	Dual System	354	Vocational	Yes	1 009 192

Country	Name of programme in national language	Name of programme in English	ISCED code	Programme orientation	Access to tertiary education	Enrolments
Germany	*Berufsfachschulen (Berufsabschluss außerhalb BBiG/HwO)*	Full-time vocational training programmes at specialised vocational schools in professions not regulated in Crafts and Trade Code or Law on Vocational Training	354	Vocational	Yes	32 282
Greece	*Geniko Lykio*	Unified Lyceum	344	General	Yes	233 627
Greece	*Epagelmatiko Lykeio (EPAL)* **	Technical-Vocational Lyceum	354	Vocational	Yes	101 601
Hungary	*Gimnázium 9-12(13). évfolyam (nappali rendszerű oktatás)*	Upper secondary general school (Grades 9-12 [13]) (full-time education)	344	General	Yes	162 831
Hungary	*Szakközépiskolai oktatás, képzés (nappali rendszerű oktatás)*	Secondary vocational education (full-time education)	353	Vocational	No	57 154
Hungary	*Szakgimnázium 9-12. évfolyam (nappali rendszerű oktatás)*	Upper vocational grammar school (Grades 9-12) (full-time education)	354	Vocational	Yes	118 727
Iceland	*Tveggja ára starfsnámsbrautir framhaldsskólastigs*	Upper secondary level vocational 2-year programmes	353	Vocational	No	1 093
Iceland	*3ja ára starfsnámsbrautir framhaldsskólastigs*	Upper secondary level vocational 3-year programmes	353	Vocational	No	745
Iceland	*Starfsnám 4 ár á framhaldsskólastigi*	Vocational 4-year programmes at upper secondary level	353	Vocational	No	227

Country	Name of programme in national language	Name of programme in English	ISCED code	Programme orientation	Access to tertiary education	Enrolments
Iceland	*Bóknámsbrautir til stúdentsprófs, 3-3,5 ára*	General programmes leading to matriculation examination at upper secondary level, 3-3.5 years	344	General	Yes	12 276
Ireland	Leaving Certificate Applied		343	General	No	
Ireland	Leaving Certificate Vocational Programme		344	General	Yes	
Ireland	Leaving Certificate (Established)		344	General	Yes	
Israel	*Hinuh al-yesody-hativa elyona, ziburi, tlat shnati, iyuni*	Three-year upper secondary general education, public	344	General	Yes	174 491
Israel	*Hinuh al-yesody-hativa elyona, ziburi, arba shnati, iyuni*	Four-year upper secondary general education, public	344	General	Yes	77 283
Israel	*Hinuh al-yesody,hativa elyona, ziburi, tlat shnati,technologi*	Three-year upper secondary vocational education, public	354	Vocational	Yes	114 361
Israel	*Hinuh al-yesody,hativa elyona, ziburi, arba shnati, technologi*	Four-year upper secondary vocational education, public	354	Vocational	Yes	49 235
Israel	*Batey sefer taasiyatiim le hanihim, misrad ha avoda, harevacha ve ha sherutim ha-hevratiim, arba shnati*	Apprenticeship and Industrial schools, Ministry of Labor, Social Affairs and Social Services, four-year education	353	Vocational	No	8 379
Italy	*Istruzione e formazione professionale - IeFP (corsi triennali)*	Education and vocational training (three-year courses)	353	Vocational	No	162 625
Italy	*Istruzione Tecnica*	Technical Institute education	354	Vocational	Yes	801 667

Country	Name of programme in national language	Name of programme in English	ISCED code	Programme orientation	Access to tertiary education	Enrolments
Italy	*Istruzione Liceale - (Liceo classico, scientifico, linguistico, delle scienze umane, musicale/coreutico, artistico)*	Liceo education (classical liceo, scientific liceo, linguistic liceo, human sciences liceo, music/dance liceo, artistic liceo)	344	General	Yes	1 353 692
Italy	*Istruzione professionale*	Vocational Institute education	354	Vocational	Yes	437 961
Japan	*Koto-gakko Zennichisei Honka Futsu*	Upper secondary school, full day general course	344	General	Yes	2 308 014
Japan	*Koto-gakko Teijisei Honka Futsu*	Upper secondary school, day/evening general course	344	General	Yes	
Japan	*Koto-gakko Zennichisei Honka Sogo*	Upper secondary school, full day integrated course	344	General	Yes	171 452
Japan	*Koto-gakko Teijisei Honka Sogo*	Upper secondary school, day/evening integrated course	344	General	Yes	
Japan	*Koto-gakko Zennichisei Honka Senmon*	Upper secondary school, full day specialised course	354	Vocational	Yes	679 550
Japan	*Koto-gakko Teijisei Honka Senmon*	Upper secondary school, day/evening specialised course	354	Vocational	Yes	
Korea	일반고등학교 (*Ilban-kodeung-hakgyo*)	General High School	344	General	Yes	958 108
Korea	자율고등학교 (*Jayul-kodeung-hakgyo*)	Autonomous High School	344	General	Yes	102 417
Korea	특수목적고등학교_마이스터고 제외 (*Teuksumokjeok-kodeung-hakgyo_excluding Meister kodeung-hakgyo*)	Special-purposed High School (excluding Meister High School)	344	General	Yes	46 263
Korea	특성화고등학교 (*Teukseonghwa kodeung-hakgyo*)	Specialised High School	354	Vocational	Yes	212 294

Country	Name of programme in national language	Name of programme in English	ISCED code	Programme orientation	Access to tertiary education	Enrolments
Korea	특수목적고등학교_마이스터고 (*Teuksumokjeok- kodeung-hakgyo_Meister kodeung-hakgyo*)	Special-Purposed High School(Meister High School)	354	Vocational	Yes	1 8230
Latvia	*Vispārējā vidējā izglītība, īstenojama pēc pamatizglītības ieguves*	Secondary (upper secondary) General Education implemented after acquisition of basic education	344	General	Yes	3 6018
Latvia	*Arodizglītība (2.līmeņa profesionālā kvalifikācija), īstenojama pēc pamatizglītības ieguves. Mācību ilgums 3 gadi*	Vocational education (acquisition of 2nd level professional qualification), implemented after acquisition of basic education. Duration of programme: 3 years	353	Vocational	No	756
Latvia	*Profesionālā vidējā izglītība (3.līmeņa profesionālā kvalifikācija), īstenojama pēc pamatizglītības ieguves. Mācību ilgums 4 gadi*	Upper secondary vocational education (acquisition of 3rd level professional qualification), implemented after acquisition of basic education. Duration of programme: 4 years	354	Vocational	Yes	21 823
Lithuania	*Vidurinio ugdymo programos*	General upper secondary education programmes	344	General	Yes	39 730
Lithuania	*Profesinio mokymo programos kartu su vidurinio ugdymo programomis*	Vocational education programmes for person without basic education aimed at the acquisition of a professional qualification and secondary education	354	Vocational	Yes	14 460

Country	Name of programme in national language	Name of programme in English	ISCED code	Programme orientation	Access to tertiary education	Enrolments
Luxembourg	*Cycles moyen et supérieur de l'enseignement secondaire classique*	Middle and upper general secondary education	344	General	Yes	9 939
Luxembourg	*Formation professionnelle de base menant au certificat de capacité professionnelle (CCP)*	Basic vocational training leading to the vocational capacity certificate (CCP)	353	Vocational	No	
Luxembourg	*Formation professionnelle initiale (plein temps) menant au diplôme d'aptitude professionnelle (DAP)*	Initial vocational training (full-time) leading to the vocational aptitude diploma (DAP)	353	Vocational	No	
Luxembourg	*Formation professionnelle initiale menant au diplôme de technicien (DT)*	Initial vocational training leading to the technician's diploma (DT)	353	Vocational	No	
Luxembourg	*Régime technique*	Technical regime	354	Vocational	Yes	16 131
Mexico	*Bachillerato General, Bachillerato por Cooperación, Bachillerato Pedagógico, Bachillerato de Arte*	Upper Secondary Education (General Programs)	344	General	Yes	3 616 398
Mexico	*Bachillerato Tecnológico, Profesional Técnico Bachiller*	Upper Secondary (combined General and Technical Programs)	354	Vocational	Yes	1 928 210
Mexico	*Profesional Técnico*	Upper Secondary (Vocational or Technical Programs)	353	Vocational	No	
Netherlands	*WEB-basisberoepsopleiding, bol en bbl*	Vocational education, basic vocational training (level 2); school-based and dual programmes	353	Vocational	No	103 316

Country	Name of programme in national language	Name of programme in English	ISCED code	Programme orientation	Access to tertiary education	Enrolments
Netherlands	*WEB-vakopleiding, voltijd bol en bbl*	Vocational education, professional training (level 3); full-time school-based and dual programmes	353	Vocational	No	119 698
Netherlands	*WEB-middenkaderopleiding, voltijd bol en bbl*	Vocational education, middle-management training (level 4); full-time school-based and dual programmes	354	Vocational	Yes	297 987
Netherlands	*Klas 4-5 HAVO*	Senior general secondary education	344	General	Yes	122 315
Netherlands	*Klas 4-6 VWO*	Senior general secondary education	344	General	Yes	132 771
New Zealand	Year 12 - National Certificate of Educational Achievement 2 (NCEA 2) or Year 13 - National Certificate of Educational Achievement 3 (NCEA 3)	NCEA 2/3 normally completed in Year 12/13 - Upper secondary	344	General	Yes	
Norway	*Videregående opplæring, studieforberedende utdanningsprogram*	Upper secondary, general programmes	344	General	Yes	124 088
Norway	*Videregående opplæring, yrkesfaglige utdanningsprogram*	Upper secondary, vocational programmes	354	Vocational	Yes	130 796
Poland	*Ogólnokształcąca szkoła muzyczna II stopnia*	General primary 2nd-level music school	354	Vocational	Yes	14 134
Poland	*Technikum (dla młodzieży)*	Technical secondary school (for youth)	354	Vocational	Yes	647 495
Poland	*Liceum ogólnokształcące (dla młodzieży)*	General secondary school (for youth)	344	General	Yes	639 696
Portugal	*Ensino secundário - Regular - Cursos científico-humanísticos*	Upper secondary education - Regular - Scientific-humanistic courses	344	General	Yes	206 976

Country	Name of programme in national language	Name of programme in English	ISCED code	Programme orientation	Access to tertiary education	Enrolments
Portugal	*Ensino secundário - Cursos profissionais*	Upper secondary education - Vocational courses	354	Vocational	Yes	116 305
Portugal	*Ensino secundário - Cursos de aprendizagem*	Upper secondary education - Apprenticeship courses	354	Vocational	Yes	20 674
Slovak Republic	*Stredná odborná škola - štúdium bez maturitou*	Secondary specialised school - programme without maturita	353	Vocational	No	21 185
Slovak Republic	*Stredná odborná škola - štúdium s maturitou*	Secondary specialised school - programme with maturita	354	Vocational	Yes	62 901
Slovak Republic	*Stredná odborná škola - štúdium s maturitou*	Secondary specialised school - programme with maturita	354	Vocational	Yes	33 276
Slovak Republic	*8-ročné gymnázium, roč.5-8*	Gymnasium - 8 years, Grades 5-8	344	General	Yes	10 522
Slovak Republic	*4-ročné gymnázium*	Gymnasium - 4 years	344	General	Yes	48 142
Slovenia	*Nižje poklicno izobraževanje*	Short vocational upper secondary education	353	Vocational	No	1 202
Slovenia	*Srednje tehniško in drugo strokovno izobraževanje*	Technical upper secondary education	354	Vocational	Yes	37 747
Slovenia	*Srednje splošno izobraževanje (splošna: gimnazija in klasična gimnazija; strokovna: ekonomska, tehniška, umetniška, mednarodna gimnazija)*	General upper secondary education (general: gimnazija and classical gimnazija; gimnazija with specialisation: technical gimnazija, gimnazija of economics, gimnazija of art, international gimnazija)	344	General	Yes	25 559

Country	Name of programme in national language	Name of programme in English	ISCED code	Programme orientation	Access to tertiary education	Enrolments
Slovenia	*Srednje poklicno izobraževanje*	Vocational upper secondary education	353	Vocational	No	17 875
Spain	*Bachillerato*	General upper secondary education	344	General	Yes	640 327
Spain	*Ciclos Formativos de Grado Medio*	Vocational training - intermediate level	354	Vocational	Yes	357 694
Spain	*Formación Profesional Básica*	Basic Vocational Training	353	Vocational	No	76 440
Sweden	*Gymnasieskolan, yrkesprogram*	Upper secondary school (vocational)	354	Vocational	No	102 161
Sweden	*Gymnasieskolan, högskoleförberedande program*	Upper secondary school (general)	344	General	Yes	207 826
Switzerland	*Fachmittelschule, école de culture générale, scuola specializzate, 3 Jahre/années*	Specialised middle schools – 3 years	344	General	Yes	17 145
Switzerland	*Gymnasiale Maturität, maturité gymnasiale, maturità*	School preparing for the university entrance certificate	344	General	Yes	71 300
Switzerland	*2-jährige berufliche Grundbildung mit Berufsattest / formation professionnelle initiale de deux ans aboutissant à une attestation fédérale de formation professionnelle / formazione professionale di base della durata di due anni con certificato federale d*	Vocational education, in dual system 2 years	353	Vocational	No	15 041
Switzerland	*Berufliche Grundbildung mit Eidgenössischem Fähigkeitszeugnis 3-4 Jahre/ formation professionnelle initiale aboutissant à un certificat fédéral de capacité 3 - 4 ans/ formazione professionale di base della durata di due anni con attestato federale di cap*	Vocational education, in school and in the dual system, 3 and 4 years leading to a Federal Diploma of Vocational	354	Vocational	Yes	202 753
Türkiye	*Genel Ortaöğretim*	General Upper Secondary School	344	General	Yes	2 314 500
Türkiye	*Açıköğretim Lisesi*	Open High School	344	General	Yes	1 097 394
Türkiye	*Mesleki ve Teknik Ortaöğretim*	Vocational and Technical Upper Secondary School	354	Vocational	Yes	1 310 629

Country	Name of programme in national language	Name of programme in English	ISCED code	Programme orientation	Access to tertiary education	Enrolments
Türkiye	*Anadolu İmam Hatip Lisesi*	Anatolian Imam and Preacher High School	354	Vocational	Yes	502 847
Türkiye	*Mesleki Açık Öğretim Lisesi*	Open Vocational High School	354	Vocational	Yes	156 613
England (United Kingdom)	AS Level		344	General	Yes	
England (United Kingdom)	A-Level		344	General	Yes	649 426[1]
England (United Kingdom)	Award Level 3; Certificate Level 3; Diploma Level 3 (T-levels?)		354	Vocational	Yes	
England (United Kingdom)	Advanced Apprenticeship		354	Vocational	Yes	782 730[1]
England (United Kingdom)	T-Levels		354	Vocational	Yes	
Northern Ireland (United Kingdom)	AS Level		344	General	Yes	
Northern Ireland (United Kingdom)	A-Level		344	General	Yes	649 426[1]
Northern Ireland (United Kingdom)	Award Level 3; Certificate Level 3; Diploma Level 3 (T-levels?)		354	Vocational	Yes	
Northern Ireland (United Kingdom)	Advanced Apprenticeship		354	Vocational	Yes	782 730[1]
Scotland (United Kingdom)	Higher (Scotland)		344	General	Yes	
Scotland (United Kingdom)	Advanced Higher (Scotland)		344	General	Yes	
Scotland (United Kingdom)	National Certificates; National Progression Awards; SVQ		353/354	Vocational	Yes/No	
Wales (United Kingdom)	AS Level		344	General	Yes	
Wales (United Kingdom)	A-Level		344	General	Yes	649 426[1]
Wales (United Kingdom)	Award Level 3; Certificate Level 3; Diploma Level 3 (T-levels?)		354	Vocational	Yes	

Country	Name of programme in national language	Name of programme in English	ISCED code	Programme orientation	Access to tertiary education	Enrolments
Wales (United Kingdom)	Advanced Apprenticeship		354	Vocational	Yes	782 730[1]
United States	Secondary/high school education (Grades 10-12)		344	General	Yes	12 248 258

Notes: [1]Enrolments represent England, Northern Ireland and Wales together.
Germany, Japan, Korea and England provided additional guidance to help identify the actual main upper secondary programmes in their country.
Source: (OECD, 2020[16]), *INES data collection on ISCED programmes*.

Table A.2. Compulsory subjects in upper secondary education

Country	All programmes	General programmes	Vocational programmes
Austria		Religious instruction German Modern foreign language Latin / second modern foreign language History and social studies / citizenship education Geography and economics Mathematics Biology and environmental studies Chemistry Physics Psychology and philosophy Computer science Music Art Physical education	Religious instruction, German and communication An occupation-specific foreign language Citizenship education, Business studies and theoretical and practical subjects required for the respective apprenticeship
Chile		Spanish language and communication Foreign language Mathematics History and social sciences Philosophy and psychology Biology Physics Chemistry Art or music education Physical education Religion	Spanish language and communication Foreign language Mathematics History and social sciences
England	English and mathematics, but only if not achieved to a minimum standard by age 16		

Country	All programmes	General programmes	Vocational programmes
Finland		Mother-tongue and literature Two foreign languages Mathematics Biology Geography Physics Chemistry Philosophy Psychology History Social studies Religion/ethics Health education Art (includes music) and physical education Guidance counselling	Competences in communication and interaction Competences in mathematics and natural sciences Social and labour market competences Social and cultural competences ICT Occupational well-being Compulsory on-the-job learning
France		First year: French History and geography Two modern languages Economic and social sciences Mathematics Physics and Chemistry Life and Earth Sciences Physical and sports education Moral and civic education Digital sciences and technology Second and third year: French History and geography Two modern languages Scientific education Physical and sports education	The compulsory general subjects for all students preparing a three-year *baccalauréat* under school status are: Applied arts and artistic cultures Economics-law Physical and sports education French History-geography Moral and Civic Education Foreign modern languages Mathematics and physical and chemical sciences Prevention Health Environment The compulsory general subjects for all pupils preparing a two-year CAP under school status are: Applied arts and artistic cultures Physical and sports education French History-geography Moral and Civic Education Foreign modern languages Mathematics, physics, chemistry Prevention Health Environment Physical education French A modern language Mathematics History and geography Applied art and culture Health and the environment Compulsory on-the-job learning
Ireland	Irish		
Italy		Italian language and literature Foreign language and culture Geography History Philosophy Mathematics Physics Natural sciences History of arts Sports Citizenship and Constitution	Italian language and literature Foreign language and culture Geography History Mathematics Science Sports Citizenship and Constitution Law and economics
Japan	The statutory curriculum for all students in post-compulsory upper secondary education (age 15-18)	-	-

Country	All programmes	General programmes	Vocational programmes
	includes: Japanese language; foreign language (English); geography and history; civics (public, politics and economics and ethics); mathematics; science (a selected combination of science subjects); information; health and physical education; art (one subject selected from art or music options); basic home economics (or home economic). Period for Inquiry-Based Cross-Disciplinary Study		
Korea	The compulsory subjects (National Common Courses) of the junior high school curriculum (12-15 year-olds) are: moral education; Korean language; mathematics; social studies; science; physical education; music; fine arts; practical arts (technology and home economics); and foreign language (English). All students must also study extra-curricular activities and take some optional courses (school discretionary time). In upper secondary education, students in Grades 11 and 12 (age 16-18) select the subjects to make up their curriculum (from specified compulsory subject groups), while students in Grade 10 of high school (age 15-16), study the same compulsory subjects (National Common Courses) as students in junior high school.		
Mexico	Mathematics Spanish English Biology Chemistry Physics Geography History Economics		
Netherlands		Dutch language and literature English language and literature Social studies Culture and the arts/classics Physical education	Literacy skills Numeracy skills Citizenship skills Career management skills Compulsory practical/on-the-job learning
Norway		Religion and Ethics Norwegian Second language Sami/ Norwegian/ Finnish Norwegian for pupils with hearing disabilities Norwegian sign language Mathematics Natural Science English Foreign Language Social Studies Geography History Physical Education	Norwegian Mathematics Natural Science English Social Studies Physical Education

Country	All programmes	General programmes	Vocational programmes
Sweden	In upper secondary phase education (age 16+), students currently select one of 17 upper secondary school programmes, and this determines the curriculum followed, which consists of three groups of subjects: core subjects; subjects specific to a national programme; and individual options. The government determines which subjects should be specific to a programme.	Physical education and health Swedish (or Swedish as a second language) English History Social studies Religious studies Mathematics Science	Physical education and health Swedish (or Swedish as a second language) English History Social studies Religious studies Mathematics Science Compulsory work-based learning
United States	There is no national curriculum or curriculum framework in the United States. The intended curricula are determined at the school-district level in accordance with individual state guidelines. There is, however, a current commitment on the part of the Governors and the State Commission of Education from 48 states, two territories and the District of Columbia to develop a common core of state standards in English language arts and mathematics for Kindergarten to Grade 12 (students age 5 to 18).		

Sources: (Sargent, Houghton and O'Donnel, 2012[65]), *International Review of Curriculum and Assessment Frameworks*; (O'Donnell, 2018[29]), *Upper Secondary Education in Nine Jurisdictions: Overview Report*, https://ncca.ie/en/resources/upper-secondary-education-in-nine-jurisdictions-overview-report/; (OECD, 2018[66]), *Education Policy in Japan: Building Bridges towards 2030,* https://doi.org/10.1787/9789264302402-en.