



# Managing Choice, Coherence and Specialisation in Upper Secondary Education

Upper secondary education differs from earlier levels of education by offering students greater choice and more specialised instruction. At the same time, upon completion of this final stage of schooling, students also need a coherent and relevant set of skills and competencies to access rewarding and fulfilling work and contribute value to their societies. This Education Spotlight explores how countries balance these central and, at times, competing goals of upper secondary education: choice, specialisation, and coherence.

This Education Spotlight summarises the key findings of the working paper: “The design of upper secondary education across OECD countries: Managing choice, coherence and specialisation” (Stronati, 2023<sup>[1]</sup>).

## Upper secondary education from a comparative perspective

As upper secondary education has become the recognised minimum standard for successful integration into modern labour markets and society more broadly, it needs to fulfil several roles:

- Accommodate a wide range of student interests, aspirations and learning levels to avoid the risk that learners disengage, do not reach their potential or leave education prematurely.
- Equip students with relevant, specialised and transversal skills and awareness of their strengths and talents, enabling them to contribute value to society.
- Help students narrow their areas of interests, deepen their skills and knowledge and develop awareness of the world beyond school to create pathways into fulfilling and rewarding careers.

To meet all these objectives, countries design upper secondary systems in different ways. The diversity of upper secondary systems internationally can make it challenging for countries to compare policies and has limited comparative analysis to date. This analysis aims to fill this gap by 1) developing a common language for the design of upper secondary systems, 2) categorising how countries organise upper secondary education, and 3) identifying benefits and strategies to mitigate the risks associated with different approaches to upper secondary design features for students, education systems and society.

### ***Developing a common language: principal characteristics of upper secondary education***

To define upper secondary education and the main programme differences at this level, this Education Spotlight uses the International Standard Classification of Education (ISCED) as the starting point (UNESCO Institute for Statistics, 2012<sup>[2]</sup>).

ISCED was developed to provide an international system for classifying countries' education systems to understand and interpret the inputs, processes and outcomes of education systems from a global perspective and ensure comparable data. According to ISCED 2011, upper secondary education (ISCED level 3) is characterised as:

- typically designed to complete school education in preparation for tertiary education or provide skills relevant to employment, or both.
- offering students more varied, specialised and in-depth instruction than programmes at ISCED level 2. Education is more differentiated, with an increased range of options and streams available.
- beginning after 8 to 11 years of education since the start of ISCED level 1 (primary education), typically between age 14 and age 16. ISCED 3 usually ends 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.

ISCED is the standard framework to categorise and report cross-nationally comparable education statistics. However, it focuses mainly on programmes, providing limited information on skills and pathways, and how upper secondary education compares and contrasts from an international perspective, such as differences in how and where countries provide choice or promote coherence. This Spotlight, and the Working Paper on which it is based, builds and expands on ISCED, suggesting a more comprehensive approach to categorising upper secondary education (see Table 1 and Table 2). In the future, the OECD will work towards an international framework focused on skills and pathways for upper secondary education.

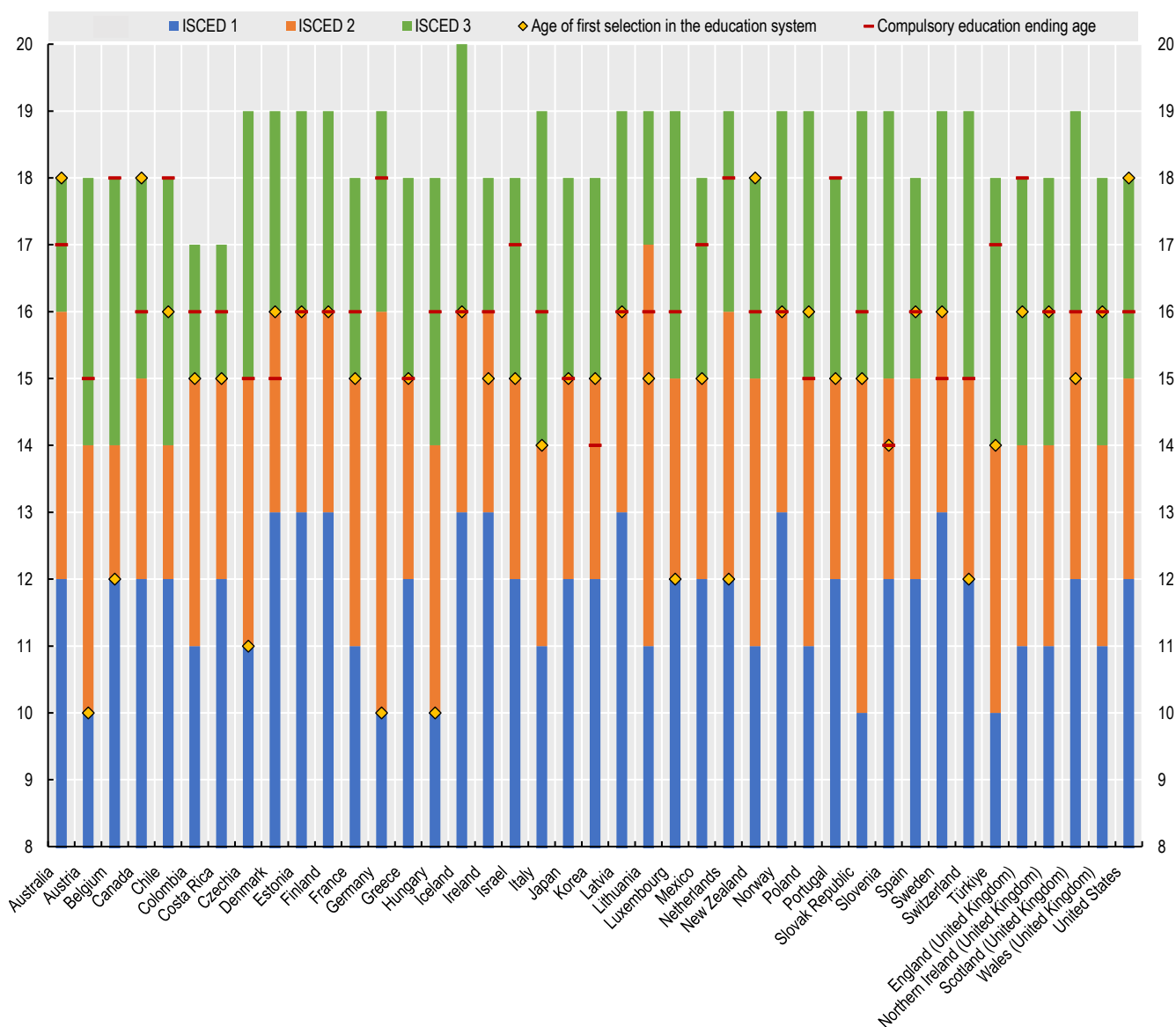
### ***Categorising how countries organise upper secondary education: what does upper secondary education look like across OECD countries?***

Figure 1 shows how upper secondary education differs among OECD countries in terms of starting and ending age, duration but also in terms of when selection occurs for the first time in the system, and when compulsory education ends:

- **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.
- **Selection into upper secondary programmes:** 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 (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 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. Countries are ranked in alphabetical order.

Sources: OECD (2022<sup>[3]</sup>), *Education at a Glance 2022: OECD Indicators*, <https://doi.org/10.1787/3197152b-en>; OECD (2019<sup>[4]</sup>) PISA 2018 Database, <https://www.oecd.org/pisa/data/2018database/> (accessed January 2022).

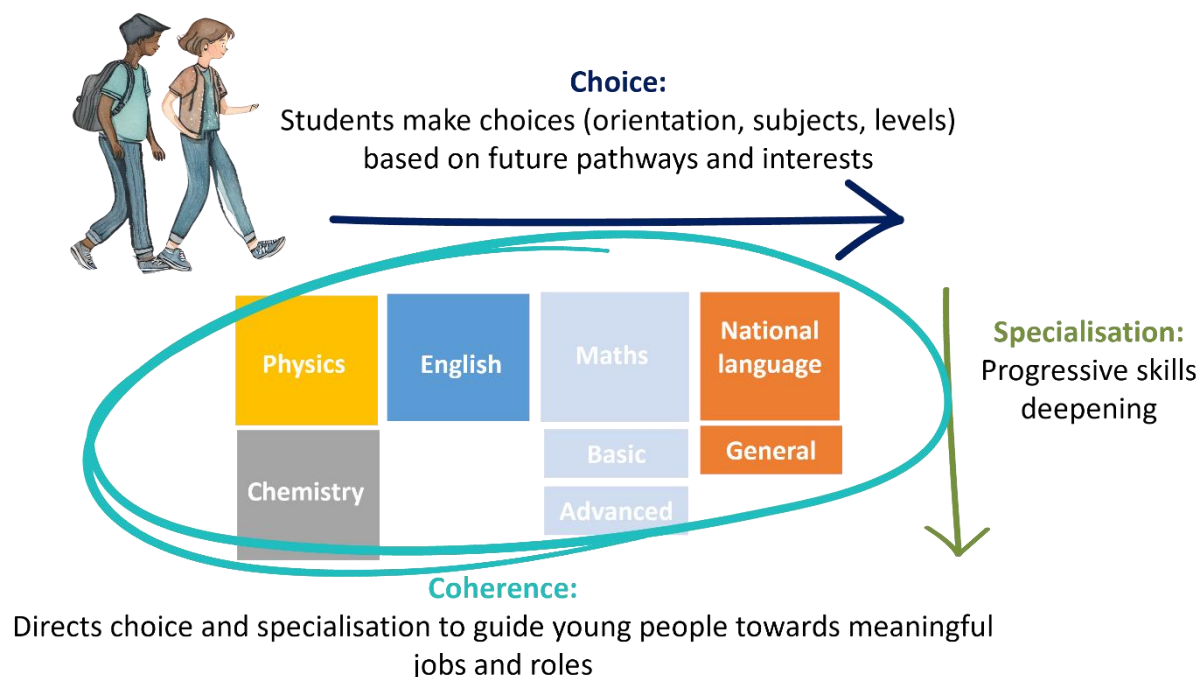
***Identifying benefits and strategies to mitigate the risks associated with different approaches: three key principles for upper secondary design***

Countries need to be responsive to differences in student interests, needs and ambitions while also providing sufficient depth and direction for upper secondary education to be an effective pathway to jobs and post-secondary education. Countries need to balance three key dimensions when designing upper secondary systems (Figure 2).

These dimensions include:

- **Choice:**  
can help keep students engaged, supporting motivation and completion, and building 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). For example, most systems provide students with a choice of upper secondary programme, and then within that programme, a choice of subjects, levels and specialisations.
- **Specialisation:**  
Helps students start defining their interests, while developing greater depth of knowledge and skills in specific domains. Students use 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. For example, in vocational programmes, specialisation tends to be 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).
- **Coherence:**  
aims to ensure that all students complete the last stage of schooling with a 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 Spotlight 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, creating pathways into meaningful jobs and contributions to their societies.  
  
Unbalanced systems, with undirected choice and/or extensive specialisation risk that young people pursue interests without a clear understanding of the jobs that their skills might be connected to, making individuals vulnerable to unemployment and unachieved potential. Yet in a very coherent upper secondary programme, each subject and course that a learner takes builds on prior skills to provide clear pathways into post-secondary education and work.

Figure 2. Key features for the design of upper secondary systems



Note: AI-generated image for the OECD by [Magic Media™](#).

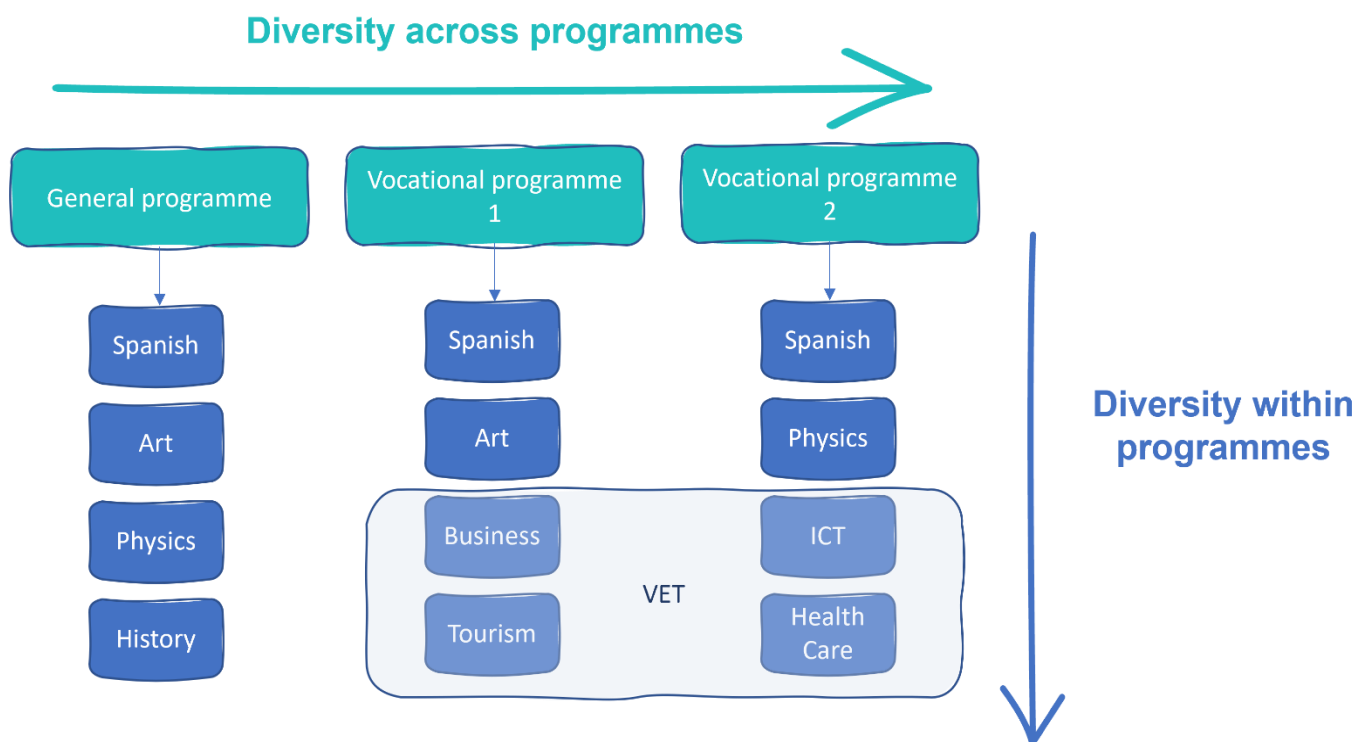
Source: Above and Beyond: Transitions in Upper Secondary Education, OECD project

## Countries provide diversity either at the programme level or within programmes

Diversity in upper secondary education aims to respond to students' different interests and aspirations, but also to meet countries' economic needs (Perico e Santos, 2023<sup>[5]</sup>). There are two main types of diversity in upper secondary education (see Figure 3) (Stronati, 2023<sup>[1]</sup>):

- **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 diversity across programmes. Countries with a comprehensive system, such as Canada and the United States, have a low level of diversity across programmes, since they do not sort students into different programmes. However, in these systems there is sometimes significant diversity within programmes.
- **Diversity within programmes** provides students with significant choice regarding the subjects they study within upper secondary programmes. 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 within general programmes (e.g. students can choose some of the subjects that they study). In systems where students are all enrolled in the same upper secondary programme, this type of diversity is more pronounced.

Figure 3. Different types of diversity in upper secondary design



Source: Above and Beyond: Transitions in Upper Secondary Education, OECD project.

### ***Programme diversity across upper secondary education systems***

One way to understand how countries provide choice, coherence and specialisation is to look in detail at the upper secondary programmes. 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<sup>[2]</sup>).

Programmes can help diversify the offer at the upper secondary level giving some choice to students for specialising while also ensuring that the curriculum is coherent. 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 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.

Five main dimensions of diversity impact the provision of choice, specialisation and coherence in upper secondary education:

#### *1. Separate provision of general and vocational programmes*

A common way for countries to provide diversity, while also ensuring coherence and specialisation, in upper secondary programmes is through separate provision of general and vocational programmes:

- **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-based or based in a tertiary education institution. 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** 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 qualifications acknowledged as occupationally oriented by the relevant national authorities and/or the labour market.

In ISCED, this distinction is referred to as the programme orientation (UNESCO Institute for Statistics, 2012<sup>[2]</sup>). 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 a coherent set of skills that are relevant to the labour market.

On average, 37% of upper secondary students are enrolled in upper secondary vocational education across the OECD, but the share across individual countries varies significantly (OECD, 2022<sup>[3]</sup>). The provision of separate orientations, also called **differentiated programmes**, at the upper secondary level is very common across OECD countries (OECD, 2023<sup>[6]</sup>). 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 upper secondary vocational programme according to the ISCED classification. Instead, vocational learning is available in the form of individual optional courses.

## *2. Programmes that provide no or partial completion of ISCED 3*

Four types of upper secondary programmes, the ones that account for the greatest share of student enrolment, provide students with a certificate of full completion of upper secondary education (UNESCO Institute for Statistics, 2012<sup>[2]</sup>). Some countries (20 countries across the OECD) also offer programmes that do not provide full completion of ISCED 3 (OECD, 2020<sup>[7]</sup>). In general, these programmes help countries manage diverse levels of learning by helping students to build their foundational skills before tackling more complex material for programmes that provide full completion.

- A few countries provide **preparatory programmes** to help students transition into upper secondary education. In Sweden, for example, the Introductory Programmes serve a specific group of students whom the system considered to not yet have demonstrated the necessary knowledge and skills to be able to meet the demands of the full ISCED 3 programmes. 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. For this reason, the Swedish government is currently undertaking a national consultation process to reform these programmes.
- 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, such as having stronger foundational skills or thinking about the subjects they enjoy the most before entering upper secondary education.

- Other 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.

### *3. Programme destination*

Pathway destination is important 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. Among the four types of ISCED programmes that give a certification of completion, two types give students direct access to tertiary education (345 and 355) and two do not (344 and 354).

Across the OECD, while 90% of students enrolled in general programmes have direct access to tertiary education, the proportion falls to 70% for those enrolled in vocational programmes. 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, Norway and Sweden) have almost 100% of vocational students enrolled in programmes with no direct access to tertiary education (OECD, 2022<sup>[3]</sup>).

### *4. The number of educational programmes in upper secondary education*

Most countries that distinguish between general and vocational education offer differentiated and multiple upper secondary programmes (OECD, 2023<sup>[6]</sup>). The most frequent number of programmes across OECD countries is three, and the most common combination is one general and two vocational programmes (OECD, 2020<sup>[7]</sup>).

Countries with more than three programmes (such as Austria, Belgium, Czechia, 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 programmes (OECD, 2020<sup>[7]</sup>). Countries usually distinguish between more practically oriented vocational programmes and more academically oriented vocational programmes. In some countries, this distinction is made by providing a more technical programme. In Italy for example, the Technological Institutes train students in more technical fields (such as science and technology, but also in tourism and accounting) while the Vocational Institutes prepare students with more practical training and provide a vocational certificate in addition to the upper secondary certificate of completion (OECD, 2020<sup>[7]</sup>).

### *5. The age at which selection into programmes is made*

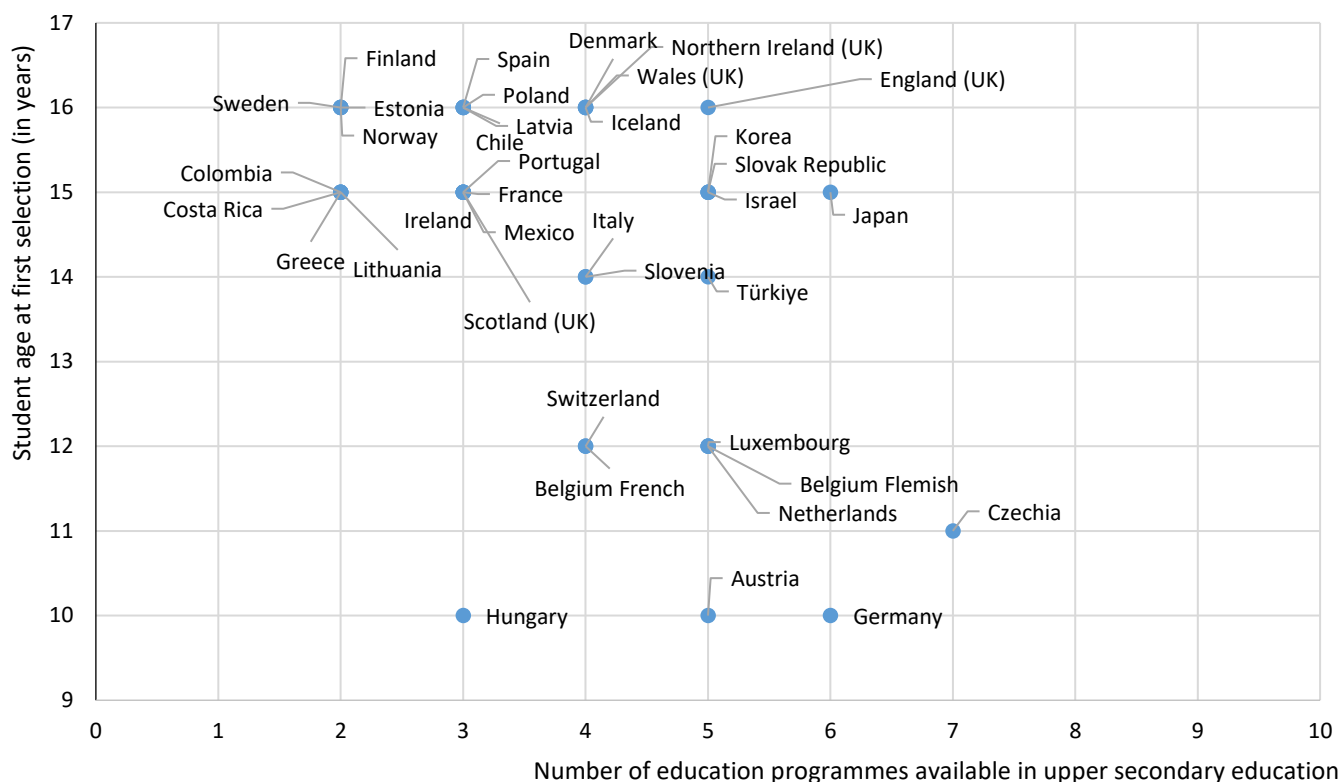
Selection into different pathways might occur very early, as in Austria and Germany (at around age 10) or, as is most common across the OECD, not until the end of lower secondary education, as in Finland and Norway (at around age 15 or 16). In other countries, such as the New Zealand and United States, there is no formal differentiation between programmes at the upper secondary level, although students in these countries may pursue different levels, options and specialisations within programmes. Across the OECD, the most frequent age of selection is 15 (Figure 1).

There is a correlation between when selection occurs and the number of programmes in upper secondary education. 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 Finland, Norway, Sweden



but also, Canada (except Quebec), New Zealand and the United States (not shown in the figure as there is no age of selection) (Figure 4).

**Figure 4. Education programmes available to students in upper secondary education and age at first selection**



Sources: OECD (2022<sup>[3]</sup>), *Education at a Glance 2022: OECD Indicators*, <https://doi.org/10.1787/3197152b-en>; OECD (2020<sup>[7]</sup>), *INES data collection on ISCED programmes*.

### **Policy framework for managing diversity in upper secondary programmes**

Countries offer diversity across upper secondary programmes in different ways, each associated with both benefits and risks. Table 1 provides a policy framework that outlines the ways in which countries provide diversity in upper secondary programmes. It also sets out the range of approaches that exist across OECD countries, the associated challenges 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 policies so that they can take steps to address potential risks through policy making.

As countries design and reform their upper secondary programmes, they need to consider the different dimensions of provision diversity. For example, one dimension of provision diversity, such as a high number of separate upper secondary programmes and early selection, can make it more challenging to promote equitable learning experiences and outcomes across different, separate educational programmes. Giving significant consideration to initial selection measures and providing flexibility across programmes can help offset some of these risks.

Table 1. Types of diversity in upper secondary programmes and implications for policy making

Type of diversity	Key policy objectives	Main approaches	Country examples	Risks	Mitigating strategies
Separate provision of general and vocational programmes	Respond to diversity of student interests and abilities	50% or more of 15-19 year-olds are enrolled in VET options	10 OECD countries, including Austria, Czechia, Netherlands and Poland	Separate provision of VET and general programmes risks inequities across programmes.	Review transitions into upper secondary
	Meet economic goals	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	Ensure equal quality and opportunities across programmes
		No official VET programme	4 OECD countries, including Canada, Ireland, New Zealand and the US	Students without professional skills may find it difficult to enter the labour market	Provide flexibility across programmes
Entry-level and sequential programmes	Respond to varying levels of student learning	Provision of entry-level programmes for low-performing students	Introductory programmes, Sweden	Low performers are isolated from rest of cohort	Organise introductory programmes flexibly so that students are integrated with full cohort
	Prepare students for high stakes upper secondary education	Entry-level / transitional programmes	Transition year, Ireland	Students get “stuck” in introductory programmes	Provide tailored support for students
		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
		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 with no direct access to tertiary are considered less attractive	Provide guidance to identify post-secondary options
Number of programmes	Respond to diversity of students' interests and abilities	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.	Provide students with guidance
		Countries with average number of programmes (2-3)	18 OECD countries, including Chile, Finland and Norway		Ensure equal outcomes across programmes
	Meet economic goals and ensure better outcomes for students	Countries with few programmes (<2)	3 OECD countries, including Canada, New Zealand and the United States	Offering few programmes provides less space to respond to student and economic needs.	Provide permeability between programmes
Age of selection	Meet economic goals	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	Provide choice within programmes
	Target teaching to students needs	Selecting at age 15 or never	25 OECD countries, including Chile, Sweden and systems in the UK		Use transition as a “check-up” point
					Ensure career guidance at an early age
					Provide flexibility across programmes

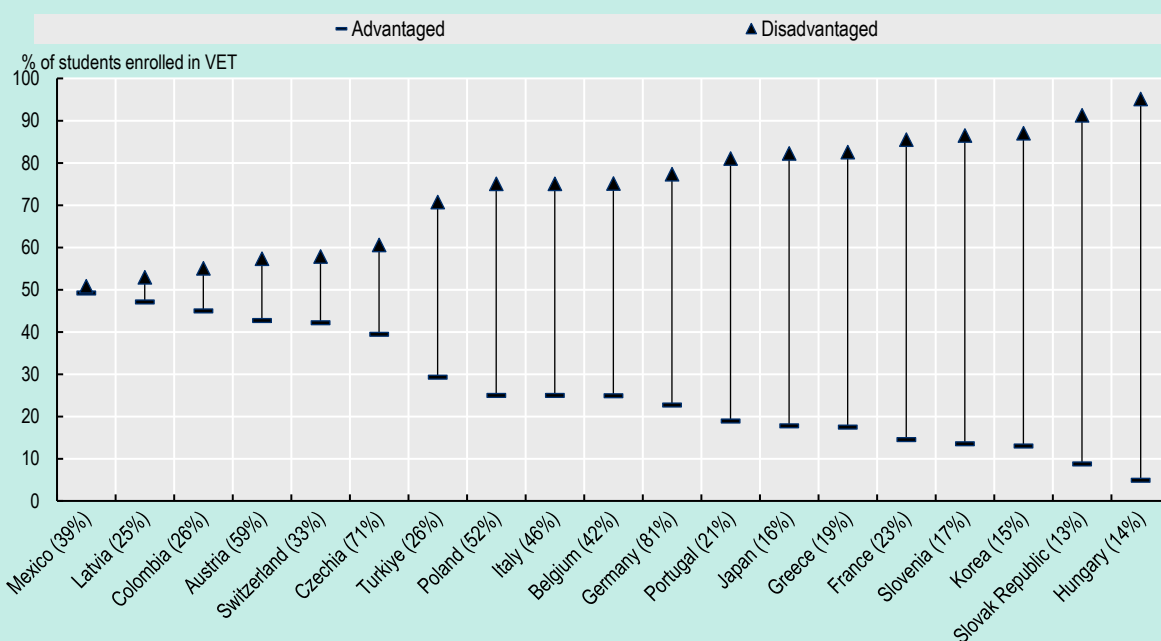
Source: Stronati (2023<sup>[1]</sup>), "The design of upper secondary education across OECD countries: Managing choice, coherence and specialisation", OECD Education Working Papers, No. 288, <https://doi.org/10.1787/158101f0-en>.

## Policy considerations when providing separate vocational and general programmes

While systems with a strong vocational sector can provide opportunities for students, separating students carries a risk that programmes are inequitable in terms of access, quality and outcomes. A key concern for systems with highly diversified provision is that separate programmes reinforce existing social inequities, as advantaged students are often over-represented in general education and disadvantaged students in vocational education (Figure 5). Despite the often inequitable distribution of students during schooling, many systems with highly diversified provision achieve strong employment rates for all students, including vocational students (Figure 7).

**Figure 5. Students attending upper secondary vocational education, by 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: The share in parenthesis indicated the share of students enrolled in upper secondary vocational education in the country. Countries that have less than 10% students enrolled in vocational education and students who are enrolled in ISCED 2 are not included in the figure. Countries are ordered in ascending order by percentage of disadvantaged student enrolled in vocational education. Source: OECD (2023<sup>[8]</sup>), PISA 2022 Database, <https://www.oecd.org/pisa/data/2022database/> (accessed January 2024).

Some of the ways that countries can promote equity across different programmes include:

- **Combining a range of sources of evidence to inform decisions about student transitions into upper secondary education:** this can help balance the risks of individual sources of information.
- **Educating teachers, families and students on upper secondary choices and how to make decisions about transitions:** evidence shows that teachers', families' and students' decisions regarding upper secondary programme choices are often informed by subjective views rather than informed data and evidence about future options.

- **Increasing flexibility to move between programmes:** 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:** enabling all students to have opportunities to progressively build on and deepen their skills and knowledge after upper 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.

Source: Perico e Santos (2023<sup>[5]</sup>), Managing student transitions into upper secondary pathways, <https://doi.org/10.1787/663d6f7b-en>.

### ***Options and specialisations within upper secondary programmes***

Another way for countries to provide diversity at the upper secondary level is by giving students options and specialisations within programmes. This can entail choosing the levels at which they study certain subjects, their subjects and the specialisation of their studies. In differentiated systems (e.g. Italy and the Netherlands), students already express a preference when selecting their programme so they typically have less choice in terms of the subjects they study within those programmes. In undifferentiated systems (e.g. New Zealand and the United States), where students are all enrolled in the same upper secondary programme, this type of diversity is more pronounced.

#### *1. Compulsory content in upper secondary programmes*

In line with the coherence goal, most countries build their curricula around a set of core skills and knowledge that are considered essential for students to master. Countries use compulsory content to promote coherence in students’ skills and knowledge with evolving labour market needs and society more broadly. All OECD countries have some core requirements in mathematics and mother-tongue language in upper secondary education, reflecting the centrality of these competencies for future life and work. However, the way this is implemented varies significantly:

- **Setting minimum standards with flexibility on when (and sometimes how) this is demonstrated:** Countries such as 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. In these systems, students can achieve their literacy and numeracy standards early in upper secondary education.
- **Giving students choice over the level at which they study core competencies:** Most OECD countries give students the opportunity to choose the level at which they study numeracy and literacy requirements. In Finland for example, students can choose from Basic and Advanced 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.

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

In countries where students are separated into general and vocational programmes, curriculum requirements may differ between programmes. 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. In some countries, even if the core subjects across orientations are the same, the time spent on these subjects and the content differ. 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. However, 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.

## *2. The role of student choice in upper secondary subjects*

Students across the OECD often have some choice over their programme in upper secondary education and the subjects and specialisation within that programme (Perico e Santos, 2023<sup>[5]</sup>). 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.

At the same time, upper secondary education has the obligation to ensure that students develop a set of skills that are useful for their adult and working life. To ensure this, the range of subjects that students choose needs to create a coherent foundation for future learning or employment. Career education and building young people's awareness of the world beyond school is also essential to enable them to make informed choices, that are coherent with their future ambitions. Choice can also enable space for greater depth and specialisation, provided it is coherent.

Countries have different approaches to providing choice, which can be grouped as follows:

- **Countries that provide students with 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. For example, the National Certificate for Educational Achievement (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. Once students have achieved English and mathematics at Level 1, they are free to choose any subjects they wish for these five subjects while the degree of choice that these systems provide can be rewarding and engaging for students, high choice systems risk the coherence of learners' competencies and alignment with work and societal needs. Some high choice systems, such as England (United Kingdom) and New Zealand, have recently taken steps to promote greater coherence in learners' upper secondary choices, through more structured options (Department for Education (UK), 2023<sup>[9]</sup>; Ministry of Education (New Zealand), 2024<sup>[10]</sup>).

- **Countries where students cannot choose the subjects they study, as the core takes up almost 100% of the curriculum**



Countries, such as Austria, the Netherlands and Switzerland, tend to be systems with multiple upper secondary programmes, so differences in student interests are accommodated by more specialised, differentiated programmes.

- **Countries that provide students with some choice, although this is limited by also having a large core**

Most OECD upper secondary systems fall in this middle category, providing some choice to students. 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.

### *3. 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 start defining their interests while developing knowledge and skills in specific domains which will be required to enter the labour market or to build on in tertiary 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. As students move through upper secondary education, the range of subjects that they study often falls, in line with increasing specialisation. This structure enables students to explore different domains at the beginning of upper secondary while becoming more specialised in the final year. For example, in Sweden, the range of subjects narrows as students move through upper secondary and choose a specialisation in their second and third years.

In systems with significant student choice, such as Canada, New Zealand and the United Kingdom, 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.

Internationally, all vocational systems provide students with a specialisation as well as a choice over their specialisation. 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 and Germany), 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.

### ***Policy framework for options and specialisation within upper secondary programmes***

In order to meet countries' economic needs, and students' interests and aspirations, education at the 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.

Countries structure their curricula in different ways, each associated with benefits and risks. Table 2 provides a policy framework that outlines the ways in which countries can balance choice, specialisation and coherence. 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 policies so that they can take steps to maximise the benefits of the policies that they decide to adopt.

**Table 2. 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
	Provide students with a coherent set of study options	Wider core that includes around seven domains internationally	Most OECD 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
		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	Review common core to ensure both general and vocational students develop a coherent set of skills
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  Degree of specialisation does not correspond to labour market and further education needs	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		Close collaboration and feedback from labour market and further education

Source: Stronati (2023<sup>[1]</sup>), "The design of upper secondary education across OECD countries: Managing choice, coherence and specialisation", OECD Education Working Papers, No. 288, OECD Publishing, Paris, <https://doi.org/10.1787/158101f0-en>.

## Policy considerations for supporting informed student choice

Systems that provide a large amount of subject choice, such as those in Ireland, New Zealand, the United Kingdom, can be motivating and engaging for students. Nevertheless, a high degree of choice is associated with high stakes because students' subject choices in upper secondary often influences 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, and students and their parents often make decisions based on perceptions or parents' own experiences rather than objective information about the labour market outcomes associated with different options. Approaches for promoting coherence in students' choices include:

### Ensuring equitable access to career guidance

Student guidance is particularly important 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 tertiary education would have chosen different subjects in upper secondary education had they received better careers advice. The same study found that students attending private schools were more likely to start thinking about tertiary education earlier and to receive more information on subject choices compared to those attending public schools.

It is fundamental to ensure that everyone has access to up-to-date, accurate sources of information about different employment pathways, including how easy it is to access jobs across different sectors, typical salaries and opportunities for progression. In some countries, for example in Scotland (United Kingdom), there is a dedicated website, promoted in schools, that contains all the updated information in one place.

### Supporting personal development and pathways into work

On average across the OECD in PISA 2018, a quarter of 15-year-old students were unable to name the job that they expected to be doing by the time that they were 30. Even when students were able to name a job that they expected to do, some demonstrated weak understanding of the qualifications needed to access that job. Reflecting on one's future and making changes and adjustments based on new information and experiences is a skill that has to be practised and cultivated. Recognising the importance of personal reflection during upper secondary education, some systems offer a dedicated course on personal development and awareness of the world. In British Columbia (Canada), upper secondary students are required to take two compulsory career courses, Career-Life Education and Career-Life Connections, which provide counselling, cover career options, and support exploration of future goals.

### Upper secondary design features to promote coherence

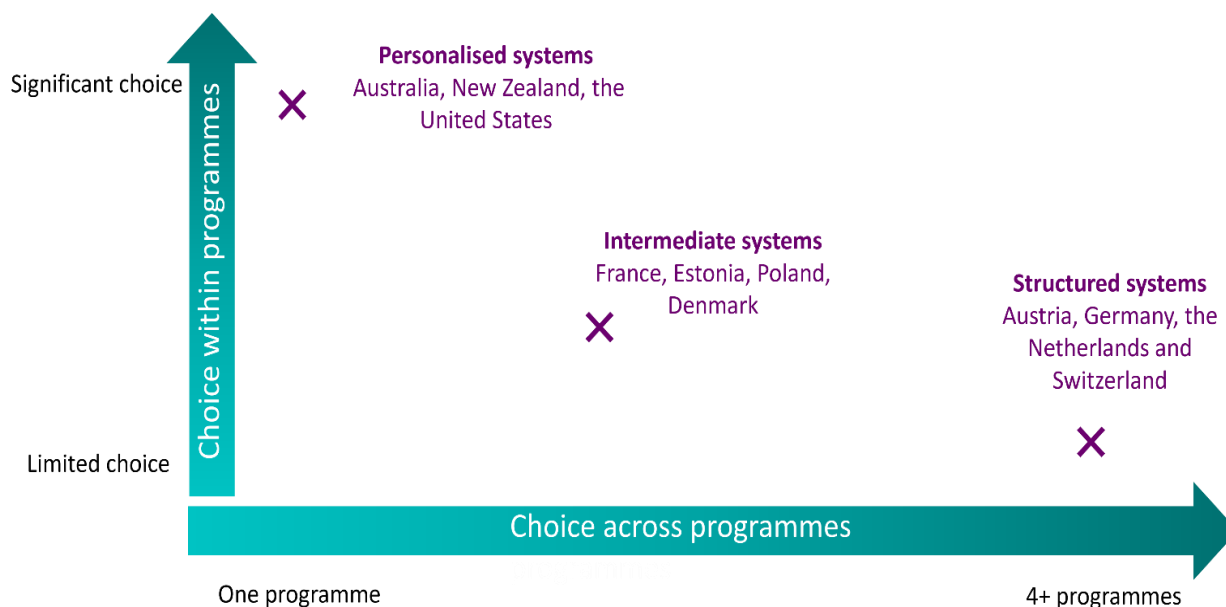
One of the challenges of student choice is ensuring that students' decisions lead to a coherent body of learning. Coherence means that, overall, students have sufficient coverage of foundational skills and some advanced skills to provide a platform to access more complex learning and employment in related fields after school. To promote coherence, but still give options to students, many systems define profiles or suggest certain combinations of subjects such as sciences and mathematics, languages and literature, etc., that students might typically follow. In France, for example students choose their specialisations (*enseignements de spécialité*), such as Arts or Economics and Social Sciences, that correspond to a specific range of subjects.

Sources: Government of British Columbia (n.d.<sub>[11]</sub>), *Certificates of Graduation*, <https://www2.gov.bc.ca/gov/content/education-training/k-12/support/graduation>; Mann, et al., (2020<sub>[12]</sub>), "Dream Jobs? Teenagers' Career Aspirations and the Future of Work", <https://www.oecd.org/education/dream-jobs-teenagers-career-aspirations-and-the-future-of-work.htm>; Ministère de l'Éducation Nationale et de la Jeunesse (2023<sub>[13]</sub>), *Les programmes du lycée général et technologique*, <https://www.education.gouv.fr/les-programmes-du-lycee-general-et-technologique-9812>; OECD (2019<sub>[4]</sub>), PISA 2018 Database, <https://doi.org/10.1787/5f07c754-en>; Hall (2021<sub>[14]</sub>), One in five students say bad A-level advice led to lack of degree choice, The Guardian, <https://www.theguardian.com/education/2021/mar/25/one-in-five-students-say-bad-a-level-advice-led-to-lack-of-degree-choice-poll>; Perico e Santos (2023<sub>[5]</sub>), Managing student transitions into upper secondary pathways, <https://doi.org/10.1787/663d6f7b-en>; Skills Development Scotland, Skills (2022<sub>[15]</sub>), *Support your child on their career journey*, <https://www.myworldofwork.co.uk/parents-carers>.

### Overview of models for designing upper secondary education

Based on the different approaches to manage choice, coherence and specialisation in upper secondary education, systems can be organised into three broad categories (Figure 6): personalised, structured, and intermediate systems. The categories of upper secondary systems reflect how far choice and specialisation are structured by the programmes and how far students have the space to determine these features themselves.

Figure 6. Key design features of upper secondary systems internationally



Source: Stronati (2023<sub>[11]</sub>), "The design of upper secondary education across OECD countries: Managing choice, coherence and specialisation", OECD Education Working Papers, No. 288, OECD Publishing, Paris, <https://doi.org/10.1787/158101f0-en>.

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, the following analysis provides a preliminary overview of descriptive data to explore some of the relationships between upper secondary systems and labour market outcomes. More complete analysis could use longitudinal data from different countries to compare students' learning and career pathways and identify patterns across upper secondary systems.

### ***Personalised systems***

In personalised systems, the core compulsory subjects that students are required to study are typically quite limited, frequently based just on mathematics and language achievement, 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 and the United States which are characterised by a comparatively high degree of space for individual students to design their own programme (Figure 6).

In most personalised systems, such as Australia and the United States, there is a wide gap in employment between tertiary graduates and upper secondary general graduates (Figure 7). 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 might, in part, reflect the more generic nature of skills development during upper secondary education and the absence of opportunities to develop specific technical skills that prepare young people to directly enter the labour market.

### ***Structured systems***

In structured systems students have far less scope to adapt their individual programmes of study, since it is the programme 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 (Figure 6). 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.

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. In contrast, these systems risk providing little choice for students.

In structured systems (as in Austria, the Czech Republic, Germany, Hungary, Luxembourg, the Netherlands, the Slovak Republic 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 (Figure 7). This is also the case in a number of intermediate systems such as Denmark, Iceland, Norway and Sweden. In these countries, the structured design of upper secondary vocational education might enable young people to develop specific, technical skills that enable them to integrate comparatively well into the labour market. There are, of course, many other factors influencing employment rates that are not captured here, such as the structure of the economy and the role of signalling skills in the labour market.

In a number of these systems, young people completing upper secondary education vocational programmes also achieve comparatively high skills. In Austria, Czechia, Germany and the Netherlands, 24-34-year-olds attaining vocational upper secondary education achieve similar numeracy skills as graduates from general programmes across the OECD on average. Young people graduating from upper secondary vocational programmes in these countries also achieve similar or higher numeracy scores as graduates from general programmes in many high choices systems, notably Canada, England, Ireland, New Zealand and the United States (OECD, 2012, 2015, 2018<sup>[16]</sup>). This pattern of skills development might reflect that systems with strongly developed vocational options are more effective at scaffolding key skills in ways that meet learners' needs and interests, and labour market needs. \*

### ***Intermediate systems***

These systems combine some personalisation and structuring to varying degrees. In intermediate systems, specialisation is frequently a feature of the programme where a student is enrolled. Students often have



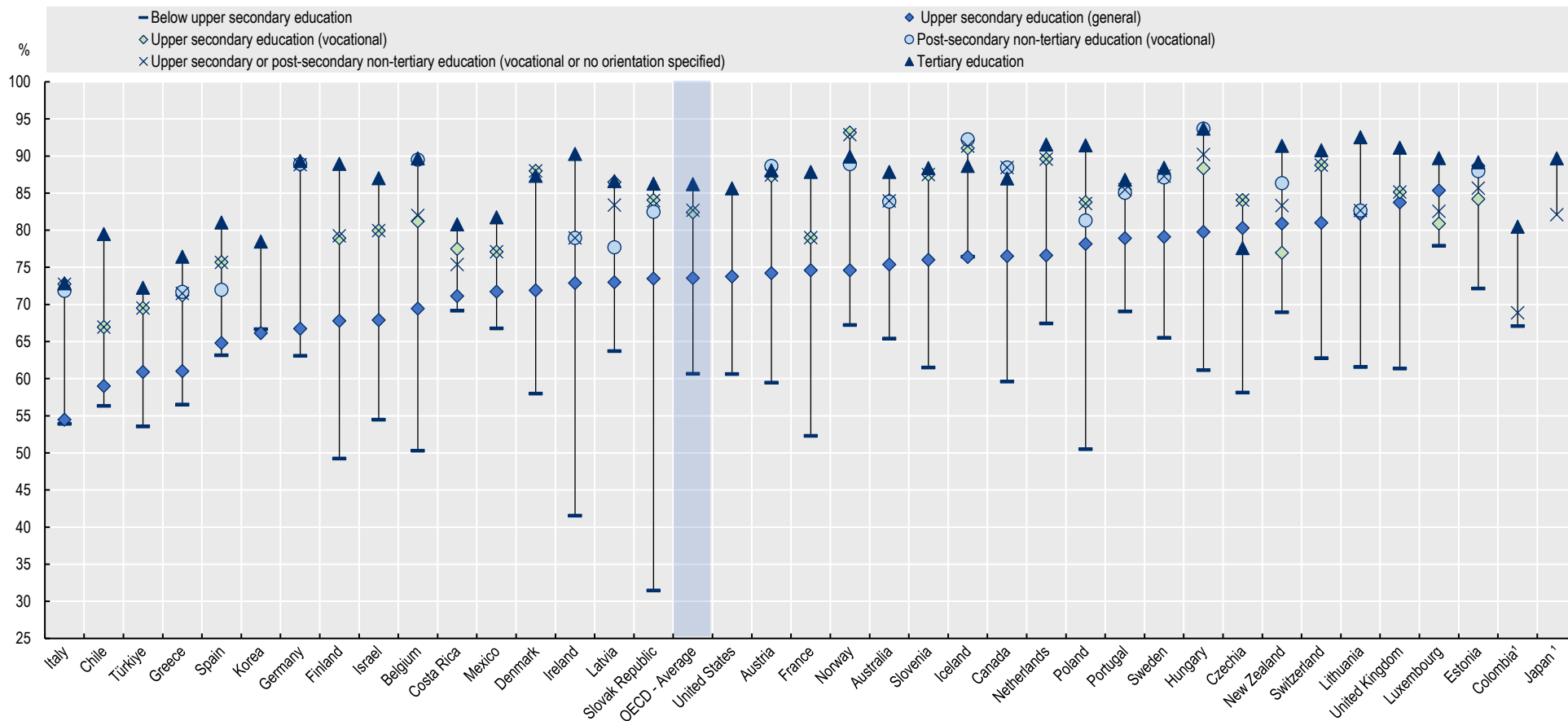
choice about the specialisation (e.g. students in Sweden choose one specialisation from 16 possible choices), as well as choices among the specific subjects within their specialisation (e.g. between economics or law within the economics programme). These systems are found in many central and western European systems (such as France and Italy) and in the Nordic countries (such as Finland, Norway and Sweden) (Figure 6).

Intermediate systems also combine the risks and benefits of the structured and personalised systems. While students have some choice, which can be motivating 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. In all these countries, 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. In both intermediate and structure systems, future analysis might explore why upper secondary vocational graduates perform so well in the labour market 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 among all young people and graduates from upper secondary general education in particular. This might be related to factors affecting the economy, however the economic structure might also reflect the structure and patterns of skills development.

\* For data on vocational education, some may also have completed post-secondary non-tertiary education, but this varies across countries. Data on individuals who have completed upper secondary education focuses on individuals for whom this is the highest level of education they have attained, meaning it does not include students with tertiary qualifications. It may therefore underestimate the contribution of upper secondary general education to skills development.

Figure 7. Employment rates of 25-34 year-olds, by educational attainment and programme orientation (2022)



Note: <sup>1</sup> 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 (OECD, 2023<sup>[6]</sup>) Education at a Glance 2023: OECD Indicators, <https://doi.org/10.1787/e13bef63-en>.

## The bottom line: choice, specialisation and coherence are essential goals for upper secondary education

With a far greater share of the student cohort progressing into upper secondary education than in previous generations, modern upper secondary systems need to accommodate a wider variety of student interests, aspirations and learning levels. To respond to these needs, countries need to balance choice and specialisation to promote coherence. Systems that provide too much choice or specialisation risk hindering coherence, while those with too little choice or specialisation risk that upper secondary does not enable students to identify their interests and deepen their skills in those areas, which is essential for smooth transitions into post-secondary pathways and the labour market. This Education Spotlight provides a framework for countries to consider how far their current system supports the goals of choice, specialisation and coherence and provides examples from across OECD countries as inspiration for future reforms.

## Above and Beyond: Transitions in Upper Secondary Education

This document was prepared by Camilla Stronati, based on the working paper “The design of upper secondary education across OECD countries” as part of the work of the Above and Beyond: Transitions in Upper Secondary Education team within the Policy Advice and Implementation Division at the OECD’s Directorate for Education and Skills.

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.

### For more information

**Contact:** Hannah Kitchen, project leader, [Hannah.Kitchen@oecd.org](mailto:Hannah.Kitchen@oecd.org)

See: [OECD Above and Beyond](#)

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

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