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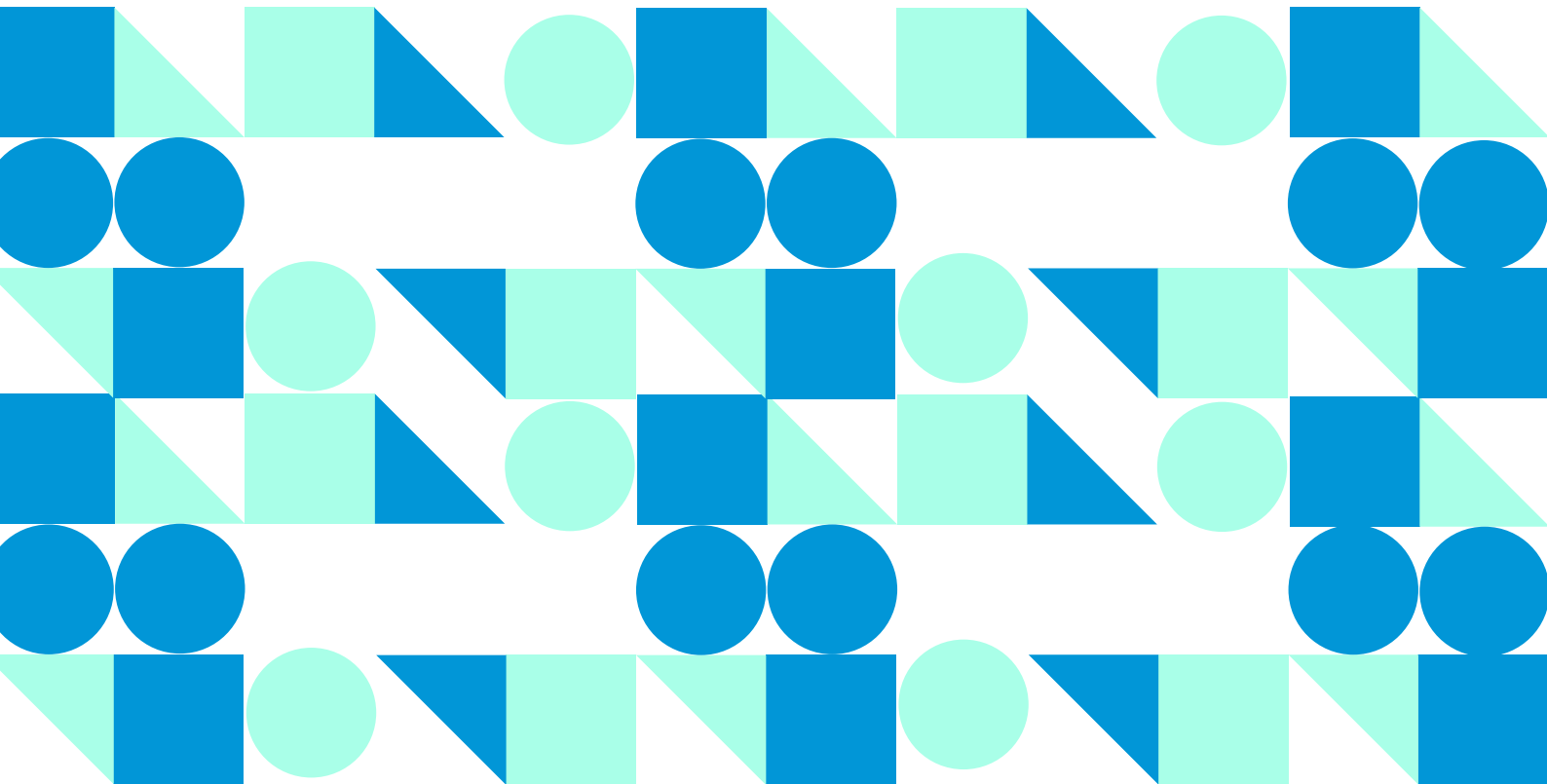
Volume 1

The changing content and profile of VET: epistemological challenges and opportunities



CEDEFOP

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The changing content and profile of VET: epistemological challenges and opportunities

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The **European Centre for the Development of Vocational Training** (Cedefop) is the European Union's reference centre for vocational education and training, skills and qualifications. We provide information, research, analyses and evidence on vocational education and training, skills and qualifications for policy-making in the EU Member States.
Cedefop was originally established in 1975 by Council Regulation (EEC) No 337/75. This decision was repealed in 2019 by Regulation (EU) 2019/128 establishing Cedefop as a Union Agency with a renewed mandate.

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Foreword

This report was prepared as part of the Cedefop project The future of vocational education and training in Europe.

Building on the findings of the previous Cedefop project (2015-18) on The changing nature and role of vocational education and training in Europe, the purpose of the research was to gain an in-depth understanding of vocational education and training in the 27 Member States of the EU as well as in Iceland, Norway and the United Kingdom. The project analysed how VET has changed since the mid-1990s and how this influences future opportunities and challenges. The research is divided into five separate but interlinked themes:

(a) the changing content and profile of VET; epistemological challenges and opportunities;
(b) delivering IVET; institutional diversification and/or expansion?
(c) facilitating vocational learning; the influence of assessments;
(d) delivering lifelong learning; the changing relationship between IVET and CVET;
(e) European VET; synthesis and trend.

The study builds on the multi-perspective approach developed by the Changing nature and role of VET project. An in-depth understanding of VET not only requires a focus on institutions and systems, it must also analyse the relationship of VET to the labour market and society, systematically seek to understand how the content of VET is changing, and the implications of this teaching and learning.

This report focuses on the last perspective and explores how the content and profile of VET has changed over the last 25 years. It systematically maps and explores the changing epistemological basis of initial VET in Europe, deepening our understanding of its core orientations and outcomes and how they have developed over time.

It also identifies and describes changes in the way that knowledge, skills and competence are differentiated in curricula, and how learning is organised across different learning sites, in classrooms, workshops or laboratories, and at workplaces.

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Executive summary

This report was prepared in the course of the Cedefop project The future of vocational education and training in Europe. The aim of the report is systematically to map and explore the changing epistemological basis of initial vocational education and training (VET) in Europe, deepening our understanding of its core orientations and outcomes and how they have developed over time. The study seeks to identify and describe changes in the way that knowledge, skills and competence are differentiated in curricula, and how learning is organised across different learning sites: in classrooms, workshops or laboratories, and at workplaces. A key question of the project was 'How has the balance between occupation-specific skills, general subjects, and transversal skills evolved over time?'. The study thus directly addresses research gaps identified in a predecessor project – The changing role and nature of VET – and follows a tradition of comparative work on learning outcomes, qualifications and curricula that Cedefop has been conducting for some time. The focus of this study has been on the written curriculum.

Policy debates on the current and future role of VET often revolve primarily around changes in future labour demand. There is extensive research on how workplaces and work organisation have changed, and may change in the future, and the resulting consequences for skills. This focus of research on the skills demand side has not been matched by an equivalent body of research on the supply side. We know surprisingly little about how the structure and content of VET curricula and programmes actually interact with changes in the wider economy and society, especially over the long term.

To explore changes in the content of VET, the study collected information through a survey among Cedefop's ReferNet network, eight in-depth country case studies, complementary ad-hoc research for the remaining 22 countries, and a VET provider survey, addressing managers, heads or directors of VET provider institutions. The ReferNet experts provided comprehensive descriptions, evidence and sources following our guiding questions. The case studies are available at the project website. The provider survey yielded 958 responses from 29 countries. However, this report mainly presents results for 10 countries for which the sample is sufficiently large to come to reasonably robust conclusions (n = 881). The geographical scope of the study comprised 30 countries, including the EU-27 plus Iceland, Norway and the United Kingdom.

Both the VET provider survey and the survey among ReferNet experts prove that several countries have strengthened the general education component of VET programmes using different means (either by increasing the extent of

teaching general subjects or by better integrating them into the vocational curriculum). An increase in the occupational skills component is reported only in a few cases and usually due to an initially low level of VET content or shortcomings in the practical skills of VET students.

The increased emphasis on general skills has not taken place at the expense of workplace learning. On the contrary, the increase in workplace learning in IVET curricula has been ubiquitous, although it becomes increasingly difficult to assess the exact extent, due to increased flexibility allowed at provider/individual level in the combination of different learning environments. A parallel increase in general skills and workplace learning is possible either by greater integration of general skills into workplace and workplace-related learning, such as occupation-related theoretical instruction, or by increasing the extent of general subjects in school. Evidence shows that the latter can be at the expense of occupation-related theoretical knowledge or practical skills in schools.

A number of countries increasingly integrate workplace learning into the learning process by combining different learning environments flexibly. Yet, there are many examples where workplace learning is a relatively detached element in the learning process, a weakly integrated component.

Overall, there is a trend of transversal skills being increasingly visible in reference documents for VET qualifications and programmes. However, they are expressed in a variety of different forms and are, for example, either included in general education or in vocational studies, or indirectly covered, e.g. via teaching approaches/methods. Despite this overall trend, there are many systems where transversal skills are not specifically labelled and it is a struggle to determine their extent or share. At first glance, it might be concluded that transversal skills are mostly integrated into general knowledge, but the analysis shows that transversal skills are included in general and vocational education, depending on the country. This seems to confirm a conclusion made in the previous project that an emphasis on transversal skills could be both a sign of either vocational or academic drift, depending on the type of skills.

The study also asked about the extent to which we can observe changes in the number of IVET qualification (standards) across Europe. In some countries, the observed reduction in the number of VET qualifications over time is the outcome of a deliberate strategic process at VET system level (for instance to broaden profiles or simplify bureaucracy); in other cases, such developments seem to appear ‘less planned’ and simply reflect changing demand. A reduction in the number of VET qualifications is not necessarily linked to a deliberate broadening of profiles.

While we were able to answer the main research questions, there are also a number of challenges and limitations to the research. For instance, analysing and

comparing the content of VET is becoming increasingly difficult because optional elements and modularisation play an increasingly important role. Quantitative information on the balance between different types of knowledge and skills was only available in a few cases when timetables were available and have also been used in the past.

We suggest continuing this research and propose four concrete actions for further research which can be summarised by the following headings:

(a) improving the conceptual basis for comparative vocational curriculum research and initiating more VET curriculum research in general;
(b) improving access to curricula and securing continuity of research by building up a European database for well-selected reference curricula;
(c) setting up a rudimentary European monitoring system for curriculum change in VET;
(d) linking research on the written curriculum with research on the enacted and experienced curriculum.

This research has looked in depth at the concepts and practices of the written, and to some extent of the enacted, curriculum and how they have changed over time. No direct conclusions on the effects on the experienced curriculum (learning achievements) can be made based on this study.

CHAPTER 1.

Introduction

The aim of this report is systematically to map and explore the changing epistemological basis of initial vocational education and training (VET) in Europe, deepening our understanding of its core orientations and outcomes and how they have developed over time. The study seeks to identify and describe changes in the way that knowledge, skills and competence ([1]) are differentiated in curricula, and how learning is organised across different learning sites, in classrooms, workshops or laboratories, and at workplaces. There are different opinions and profound scientific and political debates on what a vocational curriculum should look like. This report addresses empirical information gaps to inform these debates. It brings together examples of changes in the content of VET in Europe as prescribed in national curricula for VET programmes. The study directly addresses research gaps identified in a previous project (Cedefop, 2020d) ([2]) and follows a tradition of comparative work on learning outcomes, qualifications and curricula that Cedefop has been conducting for some time (Cedefop, 2010, 2012a, 2020b, 2020c, 2021a).

Policy debates on the current and future role of VET often revolve primarily around changes in future labour demand. Existing jobs might require significantly different sets of skills than a few years earlier, and many jobs are expected to change dramatically or disappear fully. There is a general concern that the knowledge and skills taught today may be largely useless for the challenges of tomorrow; the content of vocational education and training needs to be defined with a long-term perspective emphasising a robust canon of knowledge. Reconciling these characteristics represents a significant challenge and will also have to take into account the fact that curriculum change inevitably takes time.

There is extensive research on how workplaces and work organisation have changed, and may change in the future, and the resulting consequences for skills. For example, there is evidence that, particularly in the area of lower skills, machines may increasingly replace human labour, as they become more efficient and can take over manual and repetitive work: the ‘substitution thesis’. With further advances of self-learning machines and algorithms, similar substitution processes are likely to take place for middle and higher-level skills. But this effect can be offset

([1]) If we make a distinction between knowledge, skills and competences, we state this explicitly, otherwise we use those terms largely synonymously (see also Chapter 2).

([2]) The project analysed how VET had changed in the past two decades (1995-15), in the European Union (as well as Iceland and Norway). The study aimed at showing the ‘big picture’ in identifying and describing major trends in VET in Europe, while in parallel also analysing the direction of change for each individual country (Cedefop, 2020).

by the fact that some technology solutions require the use of specially qualified personnel: the 'complementarity thesis'. Another effect of digitalisation is the so-called platform economy, that is transforming labour markets into 'task markets' potentially promoting the dissolution of the types of work processes and 'disciplines' that were ushered in by the first industrial revolution.

These developments naturally impact the skills in demand in the labour market. A theme that emerges in respect of all the demand-side changes noted above is the need for workers to have more of the right sort of transversal skills which might be applicable in a variety of work contexts, providing workers with the ability to respond to rapid shifts in employment opportunities. For example, workers in the new platform economies may require skills in self-marketing and self-organisation. At the same time, technical skills remain key and continue to evolve, such as those related to new occupations in technology-related sectors, such as machine-learning engineers.

The focus of research on the skills demand side has not been matched by an equivalent body of research on the supply side. We know surprisingly little about how the structure and content of VET curricula and programmes actually interact with changes in the wider economy and society, especially over the long term. What we do know is that the relationships are likely to be complex. VET does not simply respond to wider changes but has agency, and is thus implicated in those changes. The idiosyncrasies of different European VET systems, their internal dynamics and their diverse effects on recruitment and deployment of skills in firms highlights the significance of VET as an 'input' to companies' decisions and processes. In this context it is vital to start to develop an understanding of how changes in working life and labour demand interact with the provision of VET in Europe, and especially what has happened in terms of the content of provision, in contrast to the surface statistics.

Previous research by Cedefop based on the analysis of national education statistics has revealed that, in almost all countries in Europe, enrolment in shorter, more practical VET programmes at upper secondary level has declined since the 1990s; in contrast, enrolment in more technical and 'theoretical' VET programmes providing direct access to higher education has increased (Cedefop, 2020d). This has happened in school-based VET systems, such as in central and eastern Europe countries and in mixed VET systems, e.g. in Austria and the Netherlands. Even within apprenticeship programmes this trend can be observed, as statistics for France or the UK show (Cedefop, 2020d). These figures seem to suggest that some academic drift has taken place within initial VET as far as there is greater demand for more general, advanced and theoretical VET content. However, these numbers do not tell anything about how the content of programmes themselves may have changed. Further, how far these developments are related to trends in continuing VET (CVET) is unclear. With CVET now seen as having a critical role

to play in upskilling and reskilling workers in response to rapid shifts in skill needs, there is renewed interest in the role that might be played by short courses, certificates and microcredentials ([3]).

This study seeks to go further than previous research, and look at 'deeper' levels and phenomena, particularly changes at the level of curriculum and content. To show how far this is required, the example of Czechia is informative. The country has shown very stable enrolment statistics in IVET compared to general education since the mid-1990s, but the number of those enrolled in VET programmes leading to the *maturita* examination (which provides access to higher education) compared to those studying VET without access to higher education, increased from 40% to 70%. More emphasis has been given to general subjects and the number of VET qualifications has been significantly reduced. Hence, the actual extent of changes in the content of VET cannot be adequately assessed without looking into curricula and seeing how far the learning content and the design of the programmes may have changed.

Such information cannot be retrieved from international statistics alone; it requires detailed work to analyse national education statistics alongside curricula from different decades. The current study has followed this approach in order to answer several research questions.

(a) To what extent can we observe changes in the number of IVET qualifications ([4]) across Europe, and is this related to a broadening/narrowing of occupational focus?
(b) How has the balance between occupation-specific skills, general subjects, and transversal skills evolved over time?
    i. To what extent can we observe increased emphasis on transversal skills in IVET programmes and qualifications? If so, how are these integrated and what do they replace?
    ii. To what extent can we observe increased emphasis on general subjects in IVET programmes and qualifications? If so, how have these been integrated and what do they replace?
(c) What is the role of research-based knowledge in IVET?
(d) What are the reasons for past changes and which further changes can be expected in the near future in the relationship between occupation-specific skills, general subject knowledge and transversal skills?

The analytical approach and methodology we have taken to achieve these goals are set out in the next chapter (Chapter 2). Chapter 2 presents our

([3]) One yet to be published study of the Future of VET project looks at the changing relationship between IVET and CVET (Cedefop, 2022, forthcoming-a).

([4]) In this study, the term 'qualification' is used as a short form for 'qualification standards', see also Glossary.

observations on the overall degree of change in VET systems and VET curricula and discusses issues of curriculum autonomy (on this topic see also Cedefop, 2022, forthcoming-a). It provides the background for the analysis in the two subsequent main chapters. Chapter 3 presents changes in the organisation and delivery of VET, such as the trends towards increased learning at the workplace, increased integration of vocational and general subjects, and increased integration of different learning environments. Chapter 4 discusses national approaches to structuring curricula, the relationship between general subjects and occupation-specific skills, and how this balance has changed in the past two decades. Particular emphasis is given to the question of how transversal skills have been integrated into VET programmes. Chapter 5 presents our conclusions.

The results of this study should be read in context with further research on institutional diversification, assessment and the relationship of IVET and CVET carried out in the course of the Future of VET project.

CHAPTER 2.

Research background and approach

This chapter begins by reviewing international comparative curriculum research in VET and discusses some of its challenges. Such research in VET is still fragmented and there is a lack of studies that offer a long-term comparative perspective on developments in different national contexts. The chapter then introduces the analytical approach chosen, specifies the scope of the study and provides working definitions of the main concepts used for the analysis. The section on the methodological approach lists the main data sources of the study and research activities carried out. The remaining part of the chapter addresses the question of overall change in VET at the system and institutional levels, which is an important background for the analysis of changes in qualifications and curricula.

2.1. Research background and challenges

Changes in VET curricula are often incremental and take place almost unnoticed but are enabled by diverse informal and formal feedback mechanisms (Cedefop, 2013, 2021a), intended to ensure the responsiveness of VET to changes in the world of work. However, in some cases a radical renewal of content occurs in the context of larger reforms of the education system. Some curriculum reforms also evolve in the framework of complex project structures, involving a wide range of actors (education researchers, teachers, teacher trainers, politicians and the general public); in other cases the curriculum is developed by a highly restricted group of specialists (Rosenmund, 2007; Ulmer et al., 2020) ([5]).

Depending on the situation, debates on the content of curricula are conducted with varying degrees of debate and even controversy. The main influencing factors are the skills requirements as dictated by business and industry and conceptual considerations by educators and educational researchers. Often these debates are characterised by tensions between utilitarian, functional and pragmatic approaches to VET (what the economy needs), on the one hand, and scholastic, intrinsic and ideological approaches to VET (how society should be) on the other. The first approaches rely upon an arsenal of instruments for researching constantly changing skill needs; the second rely upon a rich tradition of vocational pedagogy going back to Dewey and Kerstensteiner. In practice, this is reflected in the

([5]) The overall level, extent and sustainability of change is an important context variable for our study to which we come back to in Section 2.4.

question of the extent to which the vocational curriculum should be derived exclusively from specific tasks derived from workplaces and work processes, or (also) offer general and civic education going beyond narrower job requirements. There is a rich and lively scholarly debate about the future of the vocational curriculum and the question of when it can be considered educationally valuable (Allais and Shalem, 2018; Wheelahan, 2010; Young and Hordern, 2020). Within that debate, rationalist, pragmatic and critical perspectives on vocational knowledge ([6]) and curriculum can be distinguished (Hiim, 2017), but few of these conceptual considerations have found their way into empirical comparative curriculum research on VET.

There is much current discussion on which skills VET systems need to deliver to make education and training systems 'fit for the future', relying upon different traditions, sources and general approaches to the subject. However, less attention is paid to how any changes in skills needs actually impact the content level of VET, and the extent to which changes in curricula eventually take place irrespective of skills needs expressed by business and industries. There is a lack of comparative research on the content and forms of VET curricula, programmes and qualifications both between countries as well as within countries over time. The scarcity of comparative curriculum research in VET is certainly due to the relatively large number of curricula and to the challenges of standardisation of VET qualifications in comparison to general education (Chen et al., 2021; Markowitsch and Hefler, 2018).

Compared to VET, general education and higher education are in a good position, as both school subjects and disciplines are internationally more standardised and homogeneous than occupational domains. Here, there are three decades of comparative curriculum studies and the field has evolved into a well-developed discipline, with an established body of theoretical concepts that can be drawn on. There are comprehensive international studies on the primary and secondary levels (e.g. Benavot, 2006; Benavot and Braslavsky, 2007) as well as on higher levels (e.g. Drori and Moon, 2006; Frank and Gabler, 2006).

In contrast, comparative curriculum research in VET is still fragmented and largely consists of studies which cover only two or three countries (rarely more), and which focus on ways of organising the curriculum or subsystems of VET; examples are modularisation (Pilz, 1999), business education (Frommberger, 2003) and prevocational education (Pilz; Berger and Canning, 2014).

Studies which take a longitudinal approach, comparing change in curricula over time, are the exception. However, a dominant theme over recent years has

([6]) The epistemological literature tends to use knowledge as all-encompassing term, the economic literature favours skills. Education and expertise research largely prefer to use competence(s) as guiding concept.

been the ‘shift towards learning outcomes’ as a principle of curriculum design that has been new to many European countries, which has evoked great attention amongst national curriculum designers, and has prompted empirical analysis (Cedefop, 2010, 2012a, 2016; Frommberger and Krichewsky, 2012).

(Cedefop, 2010) explored how the principle of learning outcomes was implemented in nine EU Member States. A follow up study included all EU Member States, but case studies conducted were limited to 15 countries (Cedefop, 2012a). Both studies analysed the application of the ‘formal’ principle of learning outcomes, but less so changes to content. Based on interviews with national stakeholders, the latter study concludes that major drivers are ‘new output-based governance arrangements; and EU policy on transparency and international mobility’ (Cedefop, 2012a); they are less about issues of content, its learning and instruction, which are of interest here. However, an interesting finding was that, in school-based VET, there is a strong curricular segregation of vocational and general content in which the general content is associated with classical school-based instruction in academic subjects (languages, maths, etc.). In settings that involve alternating modes of learning between school and the workplace, integrative forms are more likely: ‘Curricula which integrate generic skills and job-specific skills into learning outcomes may be understood as an advanced form of the learning outcomes approach’ (Cedefop, 2012a).

A recent project of particular interest to our research, both methodologically and in terms of content, has compared the development of general subjects and civic competences in VET over time in Sweden and Finland (Nylund et al., 2018; Nylund and Virolainen, 2019; Rönnlund et al., 2019). The project identified considerable differences in the approach to integrating vocational and generic content within initial upper secondary vocational education and training (VET) during the 1990s and 2010s. The comparison clearly shows that the Finnish VET system has developed a new vocational ‘code’ as opposed to the Swedish system in which the separation between general and vocational content persists (Nylund and Virolainen, 2019). With reference to Cedefop’s framework to describe trajectories of national VET systems (Cedefop, 2020d) it seems that, in Finland in contrast to Sweden, a more ‘distinct’ conception of VET has developed.

Expanding the research approach chosen for the two Nordic countries to all EU Member States, Iceland, Norway and the UK would have practical limits in terms of the degree of in-depth work required. However, there are a number of other issues which make comparison between countries and across time challenging, some of which are also known from comparative curriculum studies in general education (see for instance: Epstein, 2014; Rosenmund, 2007; Rosenmund; Fries and Heller, 2002). First, a major concern is that curricula are a ‘moving target’. Determining changes in content is often jeopardised by changes in organisation. For instance, the time allocated to certain subjects over time loses

its value as an indicator when subjects are being changed or merged to foster interdisciplinarity or when the traditional separation of subjects is abolished in favour of a more integrated approach, as in the case of the German 'learning fields' (*Lernfelder*) in VET (Chapter 3.1). Second, decentralisation in education and training has increased and led to more curriculum autonomy at provider or regional level since the 1990s (Lipsmeier, 2001; Psifidou, 2007). Third, and linked to the previous point, increased individualisation and modularisation of curricula make it difficult to study changes in content (Stanwick, 2009). Fourth, the trends towards learning outcomes have impacted the design and the 'technical form' of VET curricula and complicated comparability over time. Fifth, curricular approaches are deeply embedded into their respective national discourses and cultures which, in international comparison and the associated terminology, leads at best to limitations and, at worst, to bias. The comparative curriculum analyst Popkewitz (2000) has coined the terms 'travelling libraries' and the 'indigenous foreigner' for the hybrid knowledge base that is often referred to in international discourses and researchers that apply concepts from other socio-economic and cultural contexts to their own. Finally, an issue that is more pertinent to VET is that different concepts of the workplace, approaches to structuring vocational knowledge (e.g. Hordern, 2016), vocational pedagogies (e.g. Billett, 2003) and vocational curricular concepts (e.g. Hiim, 2017) have not yet been integrated into existing comparative research.

We turn to some of these limitations in the next section when presenting the research approach. The picture painted by this short review clearly points to the need for VET to catch up with research in other education fields. International comparative VET curriculum analysis has yet to develop as a research strand in its own right. This exploratory study contributes to the endeavour.

2.2. Scope, definitions and analytical approach

2.2.1. Scope and definitions

Most concepts of and approaches to curriculum have in common that they cover a wide spectrum of educational issues: the goals and intentions behind the teaching and learning process; the relevant content in relation to such goals and in relation to the (changing) context of development and application of knowledge; forms of teaching, learning and knowledge acquisition; and appropriate ways and mechanisms of assessing learning progress (Buchmann and Huisinga, 2018). In their inventory of curriculum research in vocational education, Buchmann and Huisinga (2018) request a wide range of theoretical foundations for each of the different aspects, including theories of knowledge, economic and social restructuring, philosophical and theoretical considerations on the principles for the selection of content and its structuring, as well as teaching and learning processes.

We have tried to meet this request for comprehensive theoretical considerations, but at the same time we clearly limit ourselves with regard to the actual object of analysis.

This study is concerned with changes in (the number of) qualifications and in the structure and content of the vocational curriculum, and hence the knowledge and skills that VET providers and systems expect successful students to acquire. To be more precise, the focus is on the vocational curriculum on paper, i.e. the explicit or written curriculum. In curriculum theory, other forms of the curriculum are equally important: the 'implicit', 'unintended' or 'hidden' curriculum; the enacted or taught curriculum or the curriculum in action, i.e. the actual curriculum content that students engage in VET; and the attained or learned curriculum, i.e. the learners' experiences and outcomes. Although these forms of the curriculum are conceptually firmly established in curriculum theory, the boundaries between them tend to blur when empirically scrutinised. For instance, the implicit curriculum usually refers to the norms, values, and beliefs conveyed in the classroom by the teacher's behaviour and the social environment, but the written curriculum also builds on implicit assumptions, such as the way knowledge is viewed and structured. The empirical focus of this study, in terms of evidence collected, is on the curriculum on paper with a specific interest in its frequently implicit epistemological and pedagogical-didactical dimensions and the views of practitioners on the taught and learned curriculum.

A concern of good curriculum design and pedagogical practice is to keep the gap between the written, enacted and learned curriculum small. However, in this study we were not able to collect any evidence about this gap. We have applied a narrow definition of the curriculum as a normative document (or a collection of documents) setting the framework for planning learning experiences. It is the official curriculum document known as syllabus in some contexts and related reference documents (such as training guidelines, qualification requirements or standards or specifications) that has been the central starting point for the analysis at country level (either as a primary source or through secondary sources) along with an opinion survey among VET providers (Section 2.3 on methodology). These documents are usually publicly accessible texts, although access to curricula from the 1990s has been difficult in some cases.

The focus of the study is further on the basic curriculum structure and content, which are essential but not the only parts of the written curriculum ([7]). Any written curriculum contains some form of a grid or categorical system that depicts and classifies in some way a specific fraction of human knowledge and practice. It is

([7]) We did not systematically address other parts of the written curriculum such as educational goals, teaching methods or teaching materials, although we occasionally refer to such aspects. There is a separate study on assessment as part of this project.

this particular element of the written curriculum that could be called its 'knowledge map', as it usually forms a map of skills, knowledges, competences, capacities, abilities and attitudes or other cognitive or personal human characteristics.

VET curricula vary across countries but also between subsystems of VET; within one country these can differ in the way they 'map' knowledge. For instance, some use subjects while others, such as the German dual system, use 'learning fields', which could be compared to core fields of work activities and processes. The German example of mapping knowledge is instructive, as different documents of the written curriculum use different approaches and the German case refers to interesting distinctions, such as 'professional competence, personal competence and social competence' on the one hand and 'skills, knowledge and abilities' on other hand. However, these distinctions are, in the end, not applied and used to structure curricula (Box 15). Curricula also differ in the level of prescription or granularity (Cedefop, 2012a), an issue which, in education research, is very much debated in relation to teacher autonomy and professionalisation (Helsby and McCulloch, 1996). The knowledge maps in official national curricula or related documents also differ in the way knowledge categories are expressed (e.g. behaviouristic tasks versus traditional content statements). Essentially, it is possible to distinguish between a traditional content model, a process-based model and an outcomes-based model, although in practice there are mostly blends of these models. In the past two decades, an important debate within VET related to qualifications frameworks has evolved around the advantages and disadvantages of moving from the content model to the outcomes-based model (Allais, 2014; Cedefop, 2010, 2012a; Young and Matseleng Allais, 2011). Irrespective of the approach taken, any written curriculum uses some forms to express and classify knowledge and some elements to structure this knowledge or the sequence of its acquisition (e.g. subjects, learning fields or areas, modules, courses) which, for lack of a better term, we refer to here as a knowledge map ([8]).

2.2.2. Analytical approach

For the purpose of this study, which aims to identify major changes in the knowledge maps of VET curricula in all EU Member States, Iceland, Norway, and the UK over the past two to three decades, a very detailed analytical grid for comparison would be of little help. Such a grid would constantly run up against limits because appropriate distinctions are not made in practice (Box 15). Instead, we focus on basic differentiations which are commonly used in VET curricula across countries, while at the same time ensuring connectivity with previous Cedefop work (Cedefop, 2020d).

([8]) A related term is the 'technical form' of the curriculum which is often neglected (Luke; Woods and Weir, 2013). However, by 'map' we refer both to the form and the content.

The approach suggested, therefore, builds on a model developed for the first time in the preceding Cedefop project The changing nature and role of vocational education and training in Europe (Cedefop, 2017a, 2020d). The model allows us to describe differences in VET over time and across countries from three different, partly overlapping key perspectives: an epistemological and pedagogical-didactical perspective, an education system perspective, and a socio-economic and labour market perspective.

(a) The epistemological and pedagogical-didactical perspective argues that the identify of VET is rooted in distinctive understanding, production, representation, use and transfer of knowledge, which can be associated with distinctive ways of teaching and learning.
(b) The education system perspective takes a look at the way in which VET as an institution has evolved. It focuses on the variety of forms of VET, types of provider, levels and funding sources and mechanisms. The relationship with other sectors, particularly general education, is of special interest here.
(c) The socio-economic and labour market perspective reflects on the wider functions of VET, i.e. the ways in which it contributes to social stratification by providing access to particular career pathways and to the skills, competences and attitudes demanded by companies and their work systems; the focus is allowing workers to meet the challenges of their workplaces, while workplaces at the same time can allow for the acquisition of skills (Cedefop, 2020d).

While originally designed, as part of the previous project, to analyse conceptions of vocational education and training on a cross-national basis, and their changes over time, the framework has since been extended to address the specific requirements of the first two strands of the Future of VET study ([9]): to strengthen the epistemological and pedagogical-didactical perspective of the model.

A focus on this perspective does not mean that other perspectives can be ignored: that would undermine the idea of multi-perspectivism on which the model builds. Taking the interplay of different learning sites as an example, the pedagogical-didactical perspective explores how VET curricula integrate classroom-based learning, workplace learning and other forms of practical learning. This aspect, however, cannot be analysed fully without asking how the learning sites are coordinated at institutional level (an aspect that is covered by the education system perspective) or financed (a governance aspect that is covered

([9]) Theme 1 focuses on the changing content and profile of VET: epistemological challenges and opportunities (i.e. the focus of the present report). Theme 2 (to be published as a separate report) focuses on the topic of Delivering IVET: institutional diversification and/or expansion.

in the third perspective) ([10]). Moreover, any curriculum in VET also addresses an implicit or explicit conception of work (socio-economic and labour market perspective) or the 'responsible citizen' (education system perspective) that is crucial to understanding and interpreting the aims and the way knowledge and learning are structured. Table 1 presents details of the epistemological and pedagogical-didactical perspective. The following sections briefly discuss those dimensions of the model that are most relevant to addressing the research questions for this work ([11]): the distinctions between general and vocational skills or subjects; the distinction of learning sites (e.g. classroom or workplace); the mode of learning or instruction (e.g. learning by doing or instruction-centred); and the type of knowledge acquired (e.g. practical or theoretical knowledge). The last of these is the most challenging distinction, as we will see. Although these distinctions are common, a very important question is the extent to which these distinctions are made. The boundaries between, for instance, general and vocational content may be strong or weak. Thus, the very fact of whether distinctions are made at all, and the extent to which knowledge is strongly or weakly separated (classified), resulting in closed (isolated) or open (integrated) formats, is an important issue ([12]).

([10]) Some of these aspects are dealt with in Theme 2 (Cedefop, 2022, forthcoming-a).

([11]) The model is intended as a tool for comparative study that goes beyond the immediate research questions for this particular study. Hence, not all dimensions listed in the table have been analysed in detail for this report.

([12]) Compare Basil Bernstein's concept of classification (Bernstein, 2003) Where classification is strong, there are strong boundaries between subjects and where classification is weak there are blurred boundaries between them (integrated).

Table 1. **Concepts of the epistemological and pedagogical-didactical perspective**

	Dimensions	Variants / Features		
Epistemological and pedagogical-didactical perspective	**1. Knowledge approach**	Practical knowledge / experience-based	Theoretical knowledge / subject- or disciplinary-based	
	2. Pedagogical/ didactical approach	Learning by doing	Instruction-centred learning	
	3. Relationship between general and vocational subjects	General subjects integrated / related to vocational content	General subjects clearly separated from vocational content	
	4. Reference points for curriculum design	Subjects / Disciplines	Work/job tasks/business processes	
	5. Breadth or specificity of learning outcomes	Occupation-/profession-specific (e.g. brickmaker, nurse)	Broader vocational field related (e.g. construction, health)	Vocational preparation (various vocational fields, polytechnic)
	6. Learning sites	Mainly on the job/work-based learning in real work contexts	Multiple learning sites (e.g. some form of duality)	Mainly in classrooms with some practical experiences or workshops
	7. Learning environment (digital/real)	Digital/simulated learning environments	Physical/real learning environments	
	8. Integration of different learning sites	Strongly integrated/adjusted	Weakly integrated/separated	
	9. Teacher-learner relationship	Master-apprentice	Teacher-student	Different types of instructors (e.g. teachers and workshop trainers)
	10. Teacher role	Facilitator, coach, moderator, adviser	Lecturer, teacher (knowledge carrier)	
	11. Control over learning	Self-directed; student-centred	Instruction-centred; teacher-centred	
	12. Approach to knowledge acquisition	Knowledge transmission through instruction	Knowledge acquisition through socialisation	
	13. Assessment	Standardised, closed formats (e.g. quantitative, separated from learning, by teachers, outcome-focused)	Practice-oriented, open formats (e.g. qualitative, authentic, part of learning, by peers)	

Source: Cedefop (2022, forthcoming-b); based on Cedefop (2017a).

Before turning to these aspects, a general warning must be issued when presenting and using this framework. While approach necessarily makes use of simplifications, it is not the intention to propagate a dichotomous view of the world. Even if dichotomous poles are suggested for certain categories, they actually reflect a continuum. Andrew Sayer (1992) claims that a problem with dualisms is that meanings or associations on each side of the dichotomy 'leak' into each other, so that a phenomenon becomes either one thing or another, without the possibility

of examining the complexity in each, or without the possibility that there may be alternative positions. In debates about competence-based education in Australia, Canada, South Africa, the UK and the US, this has led to a situation of 'you are either for us or against us'. Similarly, the debate over modern mathematics in the US (traditional versus reform mathematics) has led to a situation which has become known as the 'math wars' (Klein, 2007). In general, 'Deweyan' approaches to curriculum were criticised, for the ineffectiveness of supporting weaker learners in achieving the standards required. On the other hand, the rigorous 'academic' standards including large-scale assessments (Ravitch, 1995) which were introduced to tackle this problem would no longer allow for the innovative and integrated teaching practices and teachers' freedom that were the basis for modern democracy (Journell, 2007). Empirical investigations of the effects on instructional concepts, such as *Handlungsorientierung* in German VET, can be placed in this debate (Nickolaus; Heinzmann and Knöll, 2005).

We are neither advocating for a certain 'side' nor do we consider one approach better than the other. We use these as analytical concepts provided by research to identify possible differences between countries; these need to be scrutinised with further, more detailed tools (beyond the scope of this study). In this sense, the three-perspective model can be used to zoom in and out on certain aspects, while striving for balance between different views (Cedefop, 2022, forthcoming-b).

2.2.2.1. *Relationship between general and vocational content and reference points for curriculum design*

Many countries distinguish between general and vocational subjects or skills in their VET curricula, although this need not necessarily be the case. General subjects can be integrated into, or at least strongly related to, vocational content and vice versa. The degree to which general subjects are separated from or integrated into vocational content is therefore an important aspect for describing the pedagogical approach taken. The boundary between general and vocational subjects or skills in VET curricula seems to be largely dependent on the understanding of general education; changes in the curriculum of general education (e.g. the introduction of ICT or media skills) also shape the distinction of what is considered general or vocational in VET curricula.

Another aspect that is instructive for the type of integration of general or vocation content is the starting point chosen: what are the building blocks or reference points used to develop VET curricula? Are these traditional school subjects which themselves often build on or use reference disciplines, or are these work tasks or even business processes? It is easier to achieve a stronger integration between learning at school and learning at work through a curriculum based on work tasks or business processes than through a curriculum structured

by subjects or disciplines([13]); working life is usually not structured that way, even for academics working in specific disciplines. Business process orientation has become a design principle for training regulations and vocational curricula in some countries (Fischer and Bauer, 2007; Gessler and Howe, 2015).

2.2.2.2. *The significance of learning environments and interplay of different learning sites*

VET is generally characterised for its integration of different learning sites, whether learning takes place mainly on the job (workplace learning in real work contexts), in classrooms or in school-based workshops, laboratories or comparable environments, both real and simulated. It may be expected that the type of learning site is a good (albeit not 'bullet-proof') indicator of the type of knowledge acquired. For example, while certain business process knowledge may be best acquired on the job, mathematical reasoning can be trained well in classroom or group settings.

It is of particular interest to observe how these various learning environments and sites are integrated, and how their interplay has changed over time. The analytical framework for this study refers to a possible distinction between, on the one hand, strongly integrated or well-adjusted learning sites, and, on the other hand, those that are weakly integrated or not at all coordinated.

With advances in technology-based learning and simulation technology, this interplay has become more complex in recent decades, as it is no longer only about the traditional combination of classroom-based and workplace-based learning when digital and simulated learning environments increasingly come into play.

2.2.2.3. *Structuring vocational knowledge and related challenges*

One of the key research questions for this work refers to how the balance between occupation-specific skills, general subjects, and transversal skills has evolved over time.

In order to be able to analyse changes at the level of VET content it is important first to discuss the key conceptions of how we understand the concept of occupation-specific knowledge, skills and competence, how it may be distinguished from general and transversal knowledge, skills and competence, and what philosophical and epistemological traits may underpin this distinction. The term 'knowledge' is typically understood as the 'body of facts, principles, theories and methods acquired by a person through learning' (Cedefop, 2014), while the ability to translate knowledge into agency is covered by the concepts of skills and competence (Wittig, 2022, forthcoming).

([13]) There is a difference between (scientific) disciplines and (school) subjects (Deng, 2013).

In the initial phase of the project, much effort was put into developing a knowledge classification which meets strict epistemological requirements but is also suitable for comparing different knowledge maps found in national curricula (see above). Various conceptions of human knowledge and practices (in the widest sense) from diverse fields such as the philosophy of education, cognitive psychology, sociology of knowledge and theory of expertise, and also labour economics, comparative industrial relations and human capital theory, were scrutinised and a new classification consisting of six categories developed (Box 1).

Box 1. **The debate on categorising knowledge in the vocational curriculum**

The project attempted to develop a generic classification of knowledge, skills and competences to be used for the analysis. This framework reverts to Ryle's dichotomy of 'knowing that' and 'knowing how'. According to this distinction, the knowledge exhibited by the ability to perform a given action (knowing how) is distinct from the propositional knowledge that consists of the awareness of facts (knowing that) and cannot be reduced to the latter (Wittig, 2022, forthcoming).

Categories of vocational knowledge

Concept/dimension	Variants	Examples
Theoretical knowledge (knowing that)	Specialised and structured according to 'pure' disciplines	Physics, chemistry
	Specialised and structured according to 'applied' disciplines	Engineering, architecture
	Non-specialised	'Everyday' knowledge
Practical knowledge (knowing how)	Specialised and structured by context-independent purposes	Scientific literacy
	Specialised and structured by contextual purposes	Occupation-specific or firm-specific skills
	Non-specialised	General and basic key competences, e.g. literacy or numeracy, or job-related key competences, e.g. leadership

Source: Wittig (2022, forthcoming).

The developed classification distinguishes the two dimensions of theoretical knowledge (knowing that, KT) and practical knowledge (knowing how, KH), the latter being intended to cover the term 'skills' as well. Each dimension can be divided into 'specialised' and 'non-specialised' variants, depending on whether or not the knowledge in question is systematically structured ([14]). Specialised theoretical

([14]) Theoretical knowledge (as opposed to practice or experience) can be differentiated according to the degree to which it is systematised. Based on Hordern (2016), who discusses two sub-types, which are labelled 'specialised' and 'non-specialised' vocational knowledge. Specialised knowledge refers to subjects or disciplines, i.e. structured sets of propositions that relate to a certain class of objects and are accepted

knowledge (knowing that) can be further differentiated as to whether it refers to pure science disciplines (in the sense of basic or fundamental science) or applied science ([15]). The variant of non-specialised or not systematically structured knowledge represents an entirely different category within the dimension of theoretical knowledge, for instance exemplified by the knowledge that taxi drivers have of the local road system (also dubbed 'everyday' knowledge). The abilities that are associated with the non-specialised variant of 'knowing how' are considered to embody key competence as well.

The proposed classification led to a lively debate in a virtual project workshop carried out with relevant experts in October 2021 and exchanges following the workshop. For instance, it was found problematic to start with a separation between 'knowing that' and 'knowing how', with criticism that other forms such as 'knowing why' and 'knowledge by acquaintance' are not mentioned. The distinction between specialised/non-specialised and systematic/non-systematised was considered more important by some experts. Others suggested to take the revised Bloom taxonomy (Anderson et al., 2001) as a starting point and to combine it with Polanyi's distinction of explicit and implicit knowledge (Polanyi, 1958). Others criticised the conceptual top-down approach and called for an empirical bottom-up approach by looking at how knowledge is re-contextualised at work and expertise is developed.

The interest in this topic underlines the importance of continuing the debate even though the fruits of this work can only be harvested in subsequent research.

Source: Cedefop.

Early in the first stages of the case study fieldwork (Section 2.3), it became clear that this categorisation could not be used in its intended form. Finding out which of the 'knowledge' categories have increased and which have decreased in importance between 1995 to 2020 by comparing qualifications and curricula for the two selected occupations of health workers (care assistants) and electrical and electronics workers across countries proved not to be feasible within the scope of the case studies. It was necessary to settle for a more pragmatic approach towards analysing the changing balance between general and vocational subjects and the changes in learning sites which builds on common distinctions made in written curricula. We therefore suggested applying in our empirical research the following simplified structure which could be applied to most countries analysed as an 'ad-hoc' categorisation for the empirical research:

(a) learning general subjects in classrooms ('general knowledge');

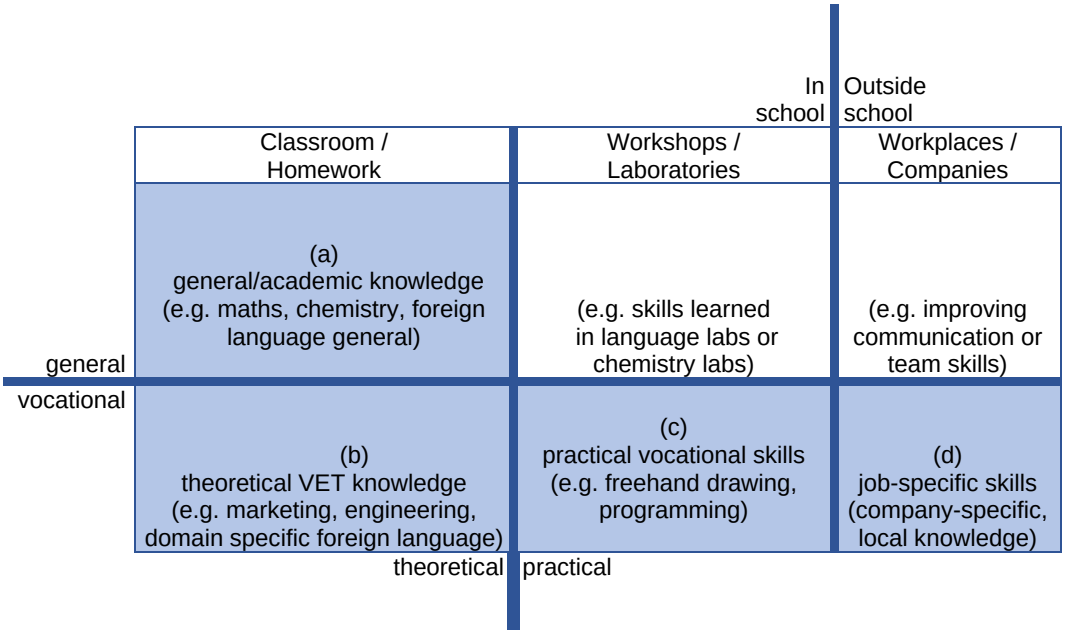
as true if they meet the epistemic standards that apply within the discipline in question (Wittig, 2022, forthcoming).

([15]) Science is understood as 'pure' to the extent that its aims are internal to scientific practice (truth, demonstration). Applied science, in contrast, refers to science applied to external aims, typically in commercial or governmental projects. While some disciplines are generally considered 'purer' than others (e.g. mathematics, physics or chemistry, as opposed to engineering, medical science or economics), the distinction can also be made within the discipline, e.g. applied mathematics as opposed to pure mathematics (Wittig, 2022, forthcoming).

(b) learning specific/vocational subjects in classrooms ('theoretical vocational skills/knowledge');
(c) practical learning in workshops at schools ('practical vocational skills learned in school');
(d) practical learning at workplaces ('practical vocational skills learned at the workplace').

This oversimplified categorisation of knowledge and skill acquisition can be derived by bringing together the key distinctions introduced earlier (compare Figure 1).

Figure 1. **Common distinctions made in VET curricula in Europe**



Source: Cedefop.

Firstly, the categorisation builds on the distinction between learning that takes place in or outside school, and which can serve as proxy to capture 'work-based learning'. This is a distinction which is central to VET (less so to general education) and which becomes increasingly complicated with the growth of digital learning environments (compare, for instance, virtual internships). Second, it distinguishes between learning in the classroom (instruction based) versus learning in workshops and labs (based on learning by doing). This, again, is more relevant for VET than general education when looking at upper secondary education, although there are certainly also language or chemistry labs. This distinction correlates with, and also seems to reinforce a common understanding of, theory and practice, which is more based on didactics than on epistemology. The emphasis in curricula is more on how and where things are learned, and there is less concern about

whether the knowledge acquired is explicit or implicit, declarative or procedural. The categorisation also takes up the distinction between general and vocational, as discussed above.

This categorisation is not a theoretical typology of forms of knowledge. On the contrary, it is a practical response to a typical research constraint: how experts may classify content in vocational curricula in a way that does not require methods, such as rater or coder training, which are far more resource-intensive.

Accepting this simplified approach still leaves us with the question: where are transversal skills located in the above categorisation? We address this question in the next section.

2.2.2.4. *Transversal skills and the curriculum*

The term 'transversal skills' is often used interchangeably with 'soft skills' 'transferable skills', 'key skills' or 'core skills', but also with 'key competences' or '21st century skills'. It is increasingly being used especially at EU policy level, often in connection with key skills related to employability such as learning to learn, teamwork, problem-solving. Different definitions and approaches tend to emphasise different aspects and lead to a variety of different categories and structures' (Luomi-Messerer et al., 2019a).

Transversal skills are usually understood as relevant learning outcomes for a broad range of occupations and sectors and/or transferable into new education environments. UNESCO (2014) defines transversal skills as 'those typically considered as not specifically related to a particular job, task, academic discipline or area of knowledge but as skills that can be used in a wide variety of situations and work settings'. As part of the work on ESCO, the European skills/competences, qualifications and occupations classifications, conceptual work has recently been undertaken to unpack the concept of transversal skills and competences towards developing a structured and consistent terminology that can be used as an unambiguous point of reference in the ESCO classification. The proposed definition of transversal skills is as follows: 'Transversal skills and competences (TSCs) are learned and proven abilities which are commonly seen as necessary or valuable for effective action in virtually any kind of work, learning or life activity. They are 'transversal' because they are not exclusively related to any particular context (job, occupation, academic discipline, occupational sector, group of occupational sectors, etc.)' ([16])([17]) (Box 2).

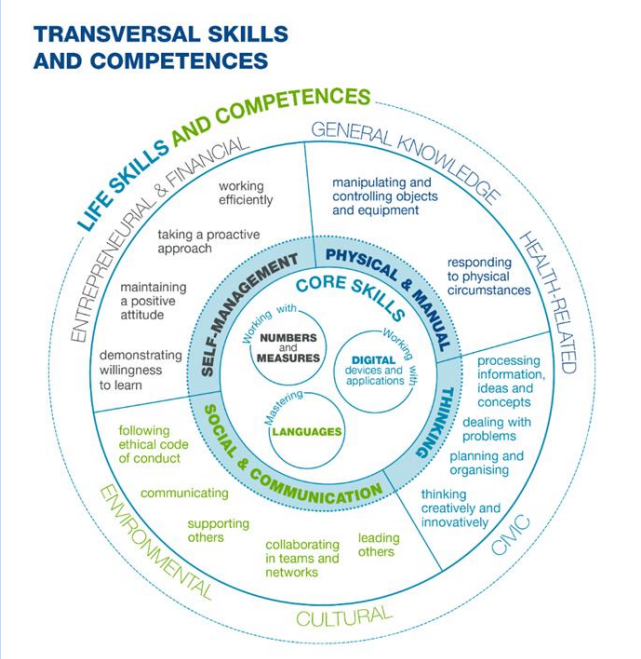
([16]) Proposed definition as presented by the ESCO/EQF expert group and in the ESCO portal.

([17]) Cf. EQF Advisory Group (2019): 'While there is a broad agreement on the general importance of transversal skills and competences, it is not always clear what to include in this category. A multitude of competing headlines illustrate this lack of agreement; terms like 'transferable skills', 'soft skills', 'key competences', 'cross-sectoral skills' and

Box 2. **Suggested framework for the mapping of transversal skills and competences in ESCO**

Within the context of ESCO, an expert group has been working on refining, extending and structuring the existing ESCO terminology relevant to transversal skills and competences. Deliverables of this work include a proposed definition of the term 'transversal skills and competences' and a proposed structuring of transversal skills and competences through the identification of main terminological categories and clusters. Note that the restructuring of the transversal skills is, at the time of writing this report, still at draft stage, and has not been implemented in the live ESCO classification.

The figure below illustrates the transversal skills and competences model proposed by the expert group. The model distinguishes three different levels of granularity, from a set of six broad categories of transversal skills and competence (first level), via more detailed clusters (second level) to individual concepts of transversal skills and competence (third level). The first level is depicted in the figure below. The circles illustrate the move from the internal to the external, from the core skills and competences (e.g. mastering languages), defining the individual (e.g. physical and manual skills and competences) to the life skills and competences (e.g. civic or cultural skills and competence) embedded in a broader social context.



Source: European Commission and Cedefop (2021).

'skills for the future'; all refer to a broad spectrum of skills and competence relevant across occupations and sectors and deemed to be of key importance to citizens and societies alike. Given that these different terminological approaches have been developed for different purposes they tend to differ in emphasis, highlighting certain aspects more than others. [..] While useful in their particular contexts and purposes, these examples demonstrate the lack of an agreed, intuitive and comprehensive way of listing and structuring transversal skills and competence terms. This lack of agreed terminology becomes even more noticeable when including national, regional and sectoral initiatives.'

This lack of terminological and conceptual clarity also has implications for our analysis: it is not clear where TSCs can be located in curricula and qualifications. Sometimes transversal skills are considered as part of general knowledge, sometimes they are considered as an integral part of any knowledge specified in the written curriculum. For instance, numeracy and literacy (or in the ESCO terminology: 'working with numbers and measures' and 'mastering languages') are commonly associated with general subjects such as maths or languages. In contrast, 'entrepreneurship competences', which form part both of the EU's Key competences for lifelong learning as well as the ESCO framework of TSC, are not that easily identified, either in general or vocational curricula. And yet, according to both definitions, these skills and competences are essential both for general and vocational education. To illustrate the challenge further, in the German vocational framework curricula there is a set of 'generic' aims of the respective curriculum for the individual occupation (Box 15). The curriculum on bank clerks, for example, specifies: 'This includes the promotion of the competences of young people [...] to act adequately in professional and technical language situations, and [...] to (facilitate) professional mobility in Europe and a globalised world' ([18]). Although the attribute 'professional' occurs, it refers to a transversal competence that can be transferred to effective action in virtually any kind of work, learning or life activity.

The set of transversal skills and competences set out by the European Union, OECD or UNESCO can be best described as 'recommended curriculum'. They are formulated at a high level of generality, presented as policy recommendations and lists of goals with little information provided on how they can actually be implemented. In contrast, the official curriculum documents, qualification standards or training guidelines we dealt with are much more specific and comprehensive, typically listing specific tasks to be mastered or learning outcomes to be achieved. Considering the 'recommended curriculum' as a particular type of the written curriculum helps to understand why transversal skills and competences are not easy to identify in official curriculum documents. Also, there is little or no empirical data on the actual uptake of transversal skills and competences in VET (the enacted vocational curriculum).

Nevertheless, there is no doubt that key competences ([19]) are playing an increasingly important role in national policy documents and are increasingly appearing in curricula and qualifications, as a recent Cedefop study showed (Cedefop, 2020c). The study found that literacy and multilingual competence in IVET are commonly included in respective stand-alone subjects or modules while

([18]) Kultusministerkonferenz (2019). *Rahmenlehrplan für den Ausbildungsberuf Bankkaufmann und Bankkauffrau* [Framework curriculum for the training occupation Bank clerk]. Own translations.

([19]) We use the term 'key competences' when a link to the EU's key competences for lifelong learning exists, and 'transversal skills and competences' as a generic term.

digital competence is integrated across various units. It also found important differences by sector, whether skills are considered transversal or specific. For instance, multilingual competence is more often seen as an occupation-specific competence in the accommodation and food service sector while digital competences are often considered occupation-specific in the manufacturing sector (Cedefop, 2020c). All three key competences investigated turned out to be viewed in a mixed way: either as 'pure' key competences, occupation-specific or a blend of both. These findings reveal that the issue of 'transversality' plays out quite differently in VET and different levels of reusability of skills need to be thought of as being closely intertwined with modes of delivery in VET. For instance, ESCO distinguishes between transversal, cross-sectoral, sector-specific and occupation-specific knowledge, skills and competences ([20]). This is an important difference compared to general education, where there is usually one debate about what knowledge should be considered canonical; in VET there are numerous debates, across VET occupations and within each occupation.

2.3. Methodological approach and scope

The study used a variety of different methods to collect evidence for the analysis of changes in the content of VET. As a first step, extensive desk research and literature analysis were undertaken to develop the analytical framework for the overall study on the Future of VET, of which this report is just one component. This work built on the conceptual work undertaken in the Cedefop study on the changing nature and role of VET (Cedefop, 2017a, 2020d), by re-examining and further elaborating the model, and incorporating insights from recent research on the philosophy of VET, and the sociology of knowledge and the study of expertise.

Data collection comprised four different strands, with some of the methods going beyond the scope of this report, with a view to collecting data also for the other themes in the Future of VET study. The geographic scope of the study comprised 30 countries, including the EU-27 plus Iceland, Norway and the United Kingdom. Collection of data included ([21]):

([20]) ESCO Service Platform – Data model p. 7.

([21]) Note on limitations to data access: documents related to the written curriculum are mostly public regulatory documents issued at national level that specify the learning outcomes in VET qualifications and programmes. In most cases, they are publicly available as online resources. One exceptional case would be UK-England, where qualification specifications are generally owned by awarding organisations. In the case of Luxembourg, access to VET curricula is geographically restricted. The issue of availability of documents was also addressed by a recent study (Luomi-Messerer, Karin et al., 2019a;2019b) concluded that public accessibility to these documents increasingly becomes an issue below the national level, where VET institutions, local or regional authorities may be in charge of drafting the respective VET curricula.

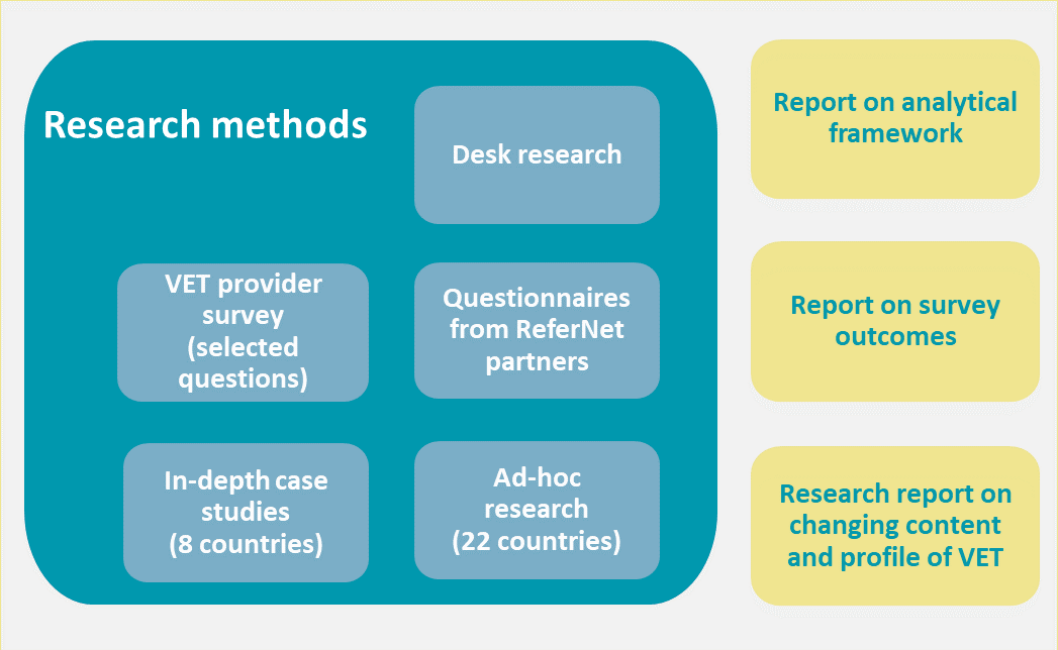
(a) comprehensive data provided by Cedefop's ReferNet network (based on a questionnaire specifically drafted for the purpose of supporting this study);
(b) eight in-depth case studies ([22]);
(c) complementary ad hoc research for the remaining 22 countries;
(d) a European VET provider survey, addressing managers, heads or directors of VET provider institutions as well as teachers with at least 10 years of experience (Box 3).

To contextualise the findings further, and be able to go into further detail in the analysis, the eight case studies focused on developments in VET curricula for the two following occupations:

(a) health workers (including care assistants, auxiliary nurses, typically found in ISCO 532: personal care workers in health services)
(b) electrical and electronics workers (including electricians, mechanics and fitters typically found in ISCO 7–1: electrical equipment installers and repairers).

Figure 2 provides an overview of the research methods used, and Box 3 briefly presents the key characteristics of the VET provider survey.

Figure 2. **Overview of research methods**



Source: Cedefop.

([22]) The following countries were covered through in-depth case studies: Czechia, Germany, Finland, Italy, Lithuania, the Netherlands, Norway, UK-England.

Box 3. **Future of VET survey of vocational education and training providers**

The purpose of the survey was to obtain information about how the content and means of delivering IVET has changed over the past 10 years. It was carried out between June and October 2021 and addressed VET providers in Europe at upper secondary level typically providing IVET at EQF levels 3 and 4. Managers and heads of VET institutions, as well as experienced teachers, were the key target group.

Although the survey is not representative of the population of providers, we tried to obtain responses from VET providers who are in some way regarded as typical because they represent a relatively common type of IVET provider in the respective country. The survey was distributed both through international networks and organisations (e.g. Cedefop's ReferNet) as well as via national experts in 10 focus countries. The questionnaire has been translated into the national language of the focus countries.

The current analysis builds on 956 responses from 29 countries. However, this report mainly presents results for 10 countries for which the sample is sufficiently large to come to reasonably robust conclusions (n = 881): Spain, France, Croatia, Italy, the Netherlands, Austria, Poland, Romania, Slovenia and Finland

More details on the survey are provided in a separate report.

Source: Cedefop.

2.4. Observations on the degree of change of VET

Countries in Europe differ strongly in the degree of change their VET systems have experienced in the last two or three decades (compare also Cedefop 2020). Former communist countries in central and eastern Europe experienced the most profound changes as their whole economic system has been transformed and their VET systems with them. But, even without deep transformation such as in eastern Europe, significant changes to countries' VET systems (may) have taken place. This section provides a brief overview of observations on the degree of change in VET systems observed, both in terms of systems or governance and in terms of qualifications, programmes or curricula. Central in this regard are changes in the curricular autonomy of VET institutions, reflecting on how their influence on the content of VET may have changed over time (Cedefop, 2022, forthcoming-a).

Based on our analytical model, most of these aspects go beyond the epistemological and pedagogical-didactical focus of this strand of the study. Yet, changes in the epistemological and pedagogical-didactical perspectives cannot be analysed in total isolation from the others. The objective of introducing these aspects here is to help us put observed changes in the structure and content of VET into perspective, reflecting them against the respective starting points of the individual countries.

The previous study (Cedefop, 2018a) concluded that 'all countries experienced almost continuous incremental changes to the VET systems,

interspersed with major reforms and the occasional need to respond to external shocks typically in the form of rapidly rising unemployment as a consequence of economic downturns.' The early 1990s were most transformative for VET systems of the former Soviet bloc countries. Significant shifts in policy were observed for other countries, too, often related to integrating VET within the wider education system, and to efforts to improve the alignment between VET provision and demand. Significant reforms during this time can, for example, be mentioned for Norway ('Reform 94') and the introduction of the Vocational Training Act in 1996 in the Netherlands.

Reform 94 in Norway reformed both the structure and content of upper secondary education, with the overall aim to facilitate transition from upper secondary education to the labour market or to higher education. As part of this reform, apprenticeship training was integrated into the institutional framework of upper secondary education. The '2+2' model (2 years of school-based education followed by 2 years of apprenticeship training in a company) became the standard model for all VET programmes, and is still the main model of IVET provision to date.

In the Netherlands, the introduction of the 1996 Vocational Education Act (Wet educatie en beroepsonderwijs, WEB) marked a watershed in the development of the Dutch VET system. Since then, publicly funded secondary VET has mainly been delivered by the regional training centres (ROCs); this resulted in a significant reduction in the overall number of VET providers, at the same time providing them with a high level of autonomy in organising their VET programmes. The WEB Act of 1996 also brought together vocational education courses in a coherent qualifications structure, with levels of education and associated learning pathways.

Technically, the introduction of these two reforms is situated on the edge of the period of investigation of our study. That is why the overall picture for Norway presented below is that of a relatively stable VET system (see Chapter 3), whereas for the Netherlands a 'medium' level of change is observed (although some of the implications of the 1996 act would rather point to profound change).

2.4.1. Assessing the degree of change

In a survey conducted among Cedefop's ReferNet, national experts were asked to characterise the changes which have taken place in their national VET systems at upper secondary level between 1995 and 2020 at three levels: the system and governance level (e.g. establishing a new vocational pathways); the level of qualifications, programmes and curricula (e.g. curriculum reforms, major changes in the number of programmes or qualifications); and the level of institutions (e.g. merging of schools, more/less school autonomy). Based on the experts' assessment and the evidence provided, the following table has been produced

which provides an initial overview of the degree of change during the period of investigation and across countries studied.

Table 2. **Preliminary assessment of the overall level of change across countries (1995–2020)**

	Changes in the overall systems/governance	Changes in qualifications/programmes/ curricula	Changes at the level of institutions
AT	Stable	Modest	Modest
BG	Modest*	Modest*	Modest
CY	Medium	Medium	Modest
CZ	Medium	Profound	Modest
DK	Modest	Profound	Medium
DE	Modest	Modest	Modest
EE	Profound	Modest	Modest
EL	Profound	Medium	Medium/profound
FI	Medium	Medium	Medium
FR	Modest	Medium*	No information
HR	Modest	Medium	Modest
HU	Medium	Profound	Modest
IE	Medium	No information	No information
IS	Modest	No information	Modest
IT	Medium	Medium	Medium
LT	Medium	Medium	Profound
LV	Profound	Profound	Profound
MT	Profound	Medium	Profound
NL	Medium	Medium	Medium/profound
NO	Modest	Modest	Modest
PL	Profound	Medium	Medium
PT	Medium	Modest*	Medium*
SE	Medium	Modest*	Medium
SI	Medium	Medium	Medium
SK	Medium	Medium	Medium
UK-EN	Medium/profound	Medium/profound	Medium/profound

NB: Categories used: Modest changes / Medium level of change / Profound changes.
(*): changes assumed – no clear evidence provided.

Source: Based on Cedefop (2020a) and country case studies.

We speak of ‘profound change’ when at least one major system reform (e.g. a new law on VET) or a major curriculum reform has taken place; of ‘medium change’ when, for instance, various smaller reforms or an overhaul of all or the majority of qualifications or curricula have taken place; and of ‘modest change’ when some incremental changes to existing curricula were made and/or only a few new qualifications have been added to the existing ones. In some cases the assessment is based on our own assumptions and not the country expert’s; in a few cases, no information was provided. These assessments are contestable but they offer a starting point for contextualising and discussing the issues we are interested in. Below we give examples of the type evidence provided.

One example illustrative of several profound system changes during the past 25 years is UK-England, where we can observe a ‘constant remake, remodel policy approach to VET’ (Hogarth, 2021). While there are large sections of the VET system which are seen to work well, such as various Level 3 qualifications linked to skills needed in engineering and manufacturing, it is the policy goal of extending VET to new occupations and sectors which has proved to be most challenging. Several attempts have been made during recent decades to establish school-based vocational education, for instance through the (subsequently phased out) general national vocational qualifications (GNVQs) (compare also Box 4). But the idea of creating a strong vocational pathway through upper secondary education other than through apprenticeships – and which reflected a strong employer input into their content – remained. More recently, at the end of 2020, a new type of qualifications, technical level (usually referred to as T-levels) have been introduced, as one more attempt to establish a vocational pathway at upper secondary level that has parity of esteem with general education (or, more precisely in this case, with A-levels) ([23]).

At the opposite end of the spectrum is the German VET system, which has been subject to continuous adaptation and incremental change, without challenging its fundamental features and principles, such as the ‘vocational principle’ (*Berufsprinzip*), the concept of ‘professional competence’ (*Handlungskompetenz*) and the ‘learning fields’ (*Lernfelder*) approach. In Norway, the period between 1995 and 2020 is characterised as one of relative stability in VET system continuity, with the main elements and principles introduced through a major reform (Reform 94 in 1994) remaining more or less intact.

([23]) T-levels are equivalent to three A-levels (the most common general qualification at upper secondary level). There are 2-year courses which have been developed in collaboration with employers to ensure that they meet the needs of the industry. In addition to a technical qualification and a minimum standard in maths and English, they will include an industrial placement (minimum of 315 hours or approx. 45 days), and initial indications suggest that there is a substantial general element.

In some countries, significant reforms undertaken during this time can be considered to reflect struggles of VET to find its right place, as in UK-England or Italy. In the case of the latter, the large number of reforms undertaken in the 1995-20 period may be seen as an indicator of the difficulty for regional IVET to find its right place within the upper secondary education system. Also, in the case of Poland, VET policy took several twists and turns before arriving at its current configuration. During the past 10 years, three notable reforms have taken place that specifically aimed to increase the attractiveness of VET and to adjust it more to the needs of the labour market. These included a learning-outcomes-based curriculum, a new approach to external assessment, new procedures for validating non-formal and informal learning, and work-based VET.

Box 4. **The introduction and phasing out of general national vocational qualifications (GNVQs) in UK-England**

In 1993, general national vocational qualifications were introduced. GNVQs were developed in response to industry concerns about the quality of NVQs ([24]). They were awarded at three levels:

1. Foundation (Level 1);
2. Intermediate (Level 2 equivalent to a lower secondary qualification);
3. Advanced (Level 3 equivalent to an upper secondary qualification e.g. an A-level and grating access to higher education).

These were broad-based vocational qualifications relevant to a number of occupations. Despite being vocational qualifications, the specification of GNVQs suggested that there would be limited work experience. What might have been expected to be delivered through work experience was instead supplied through undertaking projects and assignments. The general element of education consisted of core skills: information technology, application of number, and a foreign language. Problem solving and personal skills were options. This notion of core skills, which could also be understood as an example of how transversal skills and competences are taught separated from occupational skills, was fiercely criticised (Payne, 2000). In comparison with the general education delivered to vocational students in countries such as Germany and France, core skills were: '…. an impoverished form of general education which is neither adequately delivering the minimum basic skills normally associated with an effective general education, such as verbal articulacy, logical skills and mathematical literacy, nor even a foundation of scientific and humanist culture adequate to the demands of active citizenship in modern societies (Green, 1998). The awards were eventually phased out completely in 2007 mainly a consequence of government indifference to them.

Source: Hogarth (2021).

([24]) National vocational qualifications (NVQs) are outcomes-based, practically oriented qualifications that are based on national standards and often assessed in the workplace.

In the Netherlands, changes to the VET system might be described as more of a linear process. The two decades after the introduction of the 1996 VET reform showed a sector in a period of flux, which was growing in maturity, thereby learning from its failures. Institutionally, the VET sector has seen considerable change during this time, though the main changes have taken place under the surface, within the VET institutions that have increasingly grown into maturity ([25]).

Taking a closer look at changes at the level of VET institutions, results from the VET provider survey show that institutions have experienced much change in seeking to respond to a variety of labour market challenges. Vocational schools have, over the past 10 years, experienced changes both with respect to the what they teach and how they teach it (Cedefop, 2022, forthcoming-a). For instance, in all countries surveyed, most VET institutions have experienced increased competition in enrolling learners during the past 10 years. A development towards increasingly performance-based funding over the same period was particularly reported for Finland, France and Italy.

Data from the VET provider survey also show that the majority of respondents expect the COVID-19 pandemic to affect the longer-term development of VET at their institution. For the 10 countries for which data are reliable, in Austria, Finland, Italy and the Netherlands 3 out of 4 respondents shared this expectation. They expect the most sustainable change to be in how they teach and students learn. However, respondents seem to have a rather optimistic attitude towards the future, with a clear majority expressing a view of VET being able to deliver high quality training in the future (10 years ahead). This applies to all but one country: in Finland there is a tie among respondents between optimistic and pessimistic views about the future.

2.4.2. The level of change in curricular autonomy of education institutions

For most countries, we can observe an increase in the extent to which authority and autonomy are granted to regional and local levels across the period of investigation ([26]). However, there are considerable differences both in the extent of change and in countries' starting points. The increased autonomy of VET institutions, along with the flexibility that it is expected to bring about, may mean that they become better placed to respond to changes in the (local) labour market, economy and demand from learners (Cedefop, 2022, forthcoming-a).

In Finland, for example, the VET reform of 2018 gave education providers more authority and increased their responsibilities for the provision of education

([25]) VET schools developed the institutional identity and capacity to play a major role in regional skills development.

([26]) Observed for (non-exhaustive list): BG, CZ, DE, FI, IE, IS, LT, LU, HR, MT, NL, AT, PL, SI, SK.

and training, especially in the organisation of different learning environments (Cedefop, 2020a, FI, pp. 5, 12).

In the Netherlands, the 1996 VET Act provided VET institutions with a high level of autonomy in organising VET programmes and introduced a common national qualification structure for all vocational education courses.

VET schools in Poland are autonomous in developing their teaching programmes, based on the VET core curricula, and in choosing either subject-centred or modular programmes, which can be easily modified depending on labour market needs ([27]). In Slovakia, the autonomy of individual schools to define content has become higher in recent years, as a result of VET reform in 2008. Since then, State education programmes (i.e. national curricula containing education standards) have formed the mandatory basis for the autonomous development of school education programmes by VET schools.

In Lithuania, the Vocational Training Act, with its subsequent amendments (1997, 2007, 2017, 2019) increasingly liberalised VET provision and favoured higher autonomy for VET providers. As a result of the new Law on VET, as of 2019, 42 State-led VET schools have been awarded the status of a public entity, significantly expanding their autonomy compared to the previous situation. As a public entity, for example, they may have private or NGO stakeholders in their management board.

In Slovenia, the so-called 'open curriculum' is an important element in the autonomy of IVET providers. At national level, within framework curricula, the contents and objectives of the lessons are determined for 80% of the curriculum (except for mathematics, Slovene and a foreign language, where 100% are prescribed), while the remaining 20% of the content can be determined by the schools, catalogues of knowledge in cooperation with companies or regional partners.

Germany and Austria are examples of countries where 'small-scale' initiatives towards greater autonomy of VET providers can be observed. In Austria, both in school-based VET and apprenticeship training, there is traditionally some scope for shaping content, as both the school curricula and company training regulations are designed as frameworks, which give schools and companies some flexibility for individual structuring of the content. Compared to other countries, however, this scope is limited. With the Education Reform Act 2017, school autonomy in Austria was newly regulated and extended in some areas (e.g. with regard to curriculum

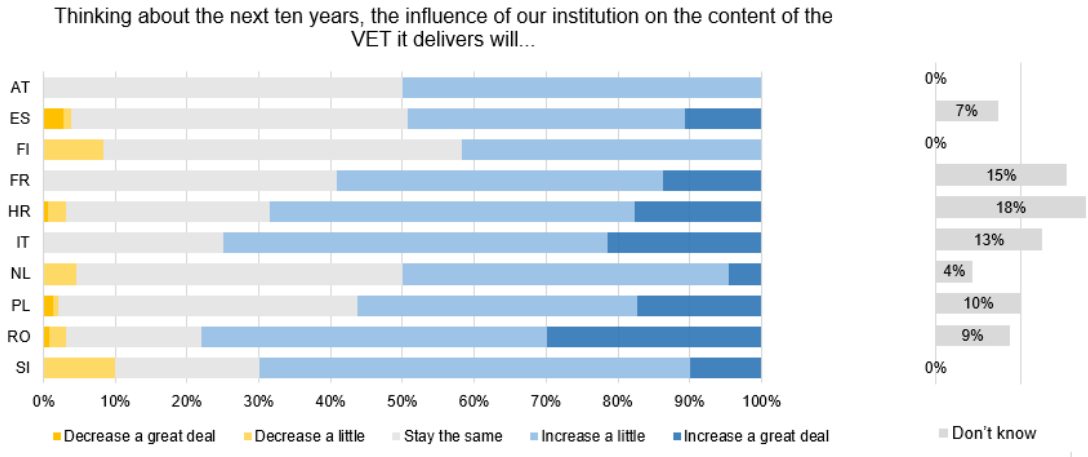
([27]) The Polish VET system has undergone significant reforms, particularly since 2012. The 2012 vocational reform aimed to increase the attractiveness of VET and adjusting it to the needs of the labour market. It included learning-outcomes-based curricula, changes to external assessment (State vocational exam) as well as new procedures for validating non-formal and informal learning, and workplace-based VET (Cedefop, 2020a, PL, p. 17).

contents, flexibilisation of the teaching organisation). School autonomy is a perennial topic of discussion in the country's education policy.

In France and Norway, we can observe increased autonomy at the level of regions over time ([28]).

Results from the VET provider survey also provide some insight into respondents' expectations as to how the influence of their institution on the content of VET it delivers might change in the course of the next 10 years. For most countries, respondents expect an increase in the influence of their institution on the content of VET delivered in the course of the next 10 years. While very few expect a reduction in the influence of VET providers, there is a sizeable share of respondents who expect no big change in this regard (e.g. 50% of respondents in Austria and Finland). There are very few countries where less than 50% of respondents expect an increase in VET providers' influence on content. In the case of the Netherlands and Finland, this concerns two countries in which VET providers already have significant authority over the content of their qualifications. The figure below presents the survey results for 10 selected countries.

Figure 3. **Expected changes in VET institutions' influence on the content of VET**



NB: n = 881.

Source: VET provider survey; data from selected countries.

([28]) IVET in Norway is generally provided by the counties at upper secondary schools, which provide both general and vocational programmes.

CHAPTER 3.

Understanding change in VET organisation and delivery

One of the key research questions that this study sought to address is to what extent it is possible to observe changes in the number of IVET qualifications across Europe, throughout the period of investigation 1995 to 2020, and whether this is related to a broadening or narrowing of occupational focus. This chapter starts with an overview of changing approaches to defining and organising vocational curricula over time, to set the scene. The second section addresses the evolving structure of qualifications and programmes. The third section discusses the changing role of practical learning at the workplace in the delivery of programmes and qualifications, and its positioning *vis-à-vis* other learning sites.

Referring to the analytical model presented in Chapter 2 and concepts of the epistemological and pedagogical-didactical perspective (Table 1), this chapter and Chapter 4 mostly focus on analysing the distinctions between general and vocational skills or subjects, the distinction of learning sites (e.g. classroom or workplace), the mode of learning or instruction (e.g. learning by doing or instruction-centred) and the type of knowledge acquired (e.g. practical or theoretical knowledge).

3.1. Changing approaches to defining and organising vocational curricula

This section provides examples on qualification and curriculum design philosophies, on how the structure and content of qualifications and programmes undergo change in the sense that new elements are added, components are reorganised and their functions are redefined. During the study period of investigation, it is especially the creation of national qualifications frameworks (NQFs), together with learning-outcomes-based and competence-based approaches that have had a significant impact on the design and structure of qualifications and curricula and the respective documents that describe them.

Notable differences can be observed across countries as to how the term ‘qualification’ is used, and which components qualifications may consist of. Many systems structure their qualifications into different modules or units and/or into compulsory and optional components. In some countries, a distinction between full and partial qualifications is applied. Several countries use specifications and specialisations.

The following example from Lithuania illustrates how VET reforms and curriculum change can be mapped against broader developments at national level. The starting point of this process was in the early 1990s, as the country gained independence, with a de-ideologisation of VET curricula. The most recent reform was introduced with the new Law on Vocational Education and Training, which entered into force in 2019. Among other things, it prescribes a modular structure for all VET, and vocational standards must be updated at least once every 5 years.

Table 3. **VET curriculum change and reform in Lithuania 1990-20**

Stages of development: change, factors, critical junctures		
1990-2000: post-communist transformation	2001-08: pre-accession and access to the EU	2009-20: dealing with global economic crisis and its aftermath:
De-ideologisation of the VET curricula, delegation of responsibility for VET curriculum design to the VET providers.	Attempts to match VET curricula with labour market needs: introduction of competence-based VET standards in 1997-2008, provision of autonomy for VET schools in curriculum design.	Systemic VET curriculum reforms in the context of the implementation of the Lithuanian qualifications framework (2010), competence-based occupational standards which define qualifications in the sectors (2013-19), national modular VET curricula.

Source: Tūtlys (2021).

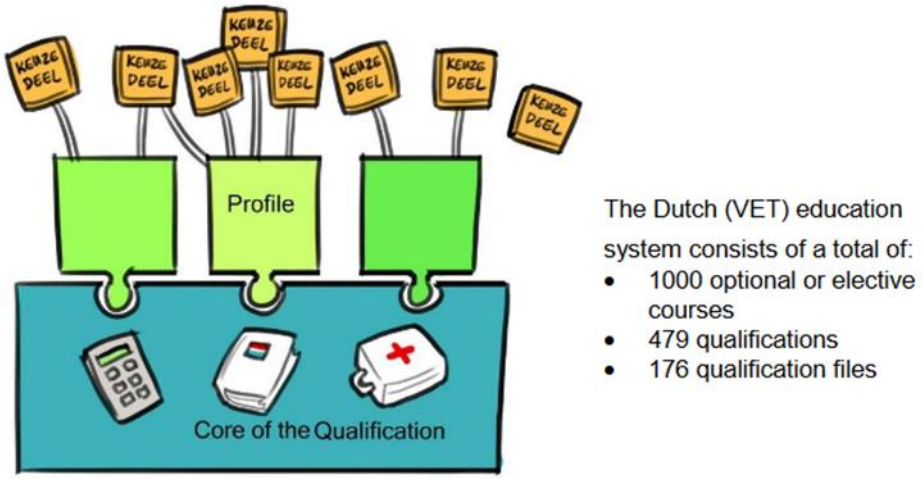
How qualifications and their content are structured is not a pure design choice but reflects the underlying objectives and functions that they should fulfil: to respond to the needs of the labour market and society, thereby balancing the interests of different groups of stakeholders, including VET schools, the labour market, social partners, and, most important, the learners.

The introduction of the Common awards system (CAS) in 2007, for instance, signalled the beginning of a major programme to bring greater coherence to VET awards in Ireland. In the case of the Netherlands, it reportedly took more than two decades, and at least four generations of templates and process designs, before an arrangement on the qualification structure could be found 'that everyone could live with'. The basic dilemma had been aptly formulated by the then Minister for Education in 1997 as follows: 'How to define qualifications (…) for VET in such a way that they are relevant both for lifelong learning and flexibility on firm-internal and external labour markets and, at the same time, maintain their validity for firms and the practical character of VET?' (Cedefop, 2020a; Ministerie van Onderwijs Cultuur en Wetenschap, 1997, NL, p. 8)

The Vocational Education Act (*Wet educatie en beroepsonderwijs, WEB*), implemented in 1996, introduced the 'qualification files' (*kwalificatiedossier*). The qualification file provides an overview of the qualification standards for one or more

VET occupations; it describes the core tasks and work processes (*kerntaken en werkprocessen*) that individuals starting out in their professional field need to be able to master. Following the standard structure of the qualification files, they consist of a basic part (core tasks and work processes) and a 'profile-part', specifying core tasks and work processes specific to the qualifications separately. Each qualification file can include more than one qualification. While sharing some learning outcomes, different qualifications within one file have different learning outcomes in their profile parts, and may differ in the optional parts that are accessible to learners; hence, a qualification file can correspond to several, similar occupations).

Figure 4. **Qualification files (*kwalificatiedossier*) in Dutch VET**



Source: Luomi-Messerer et al. (2019b).

While the WEB Act introduced the foundation for harmonised descriptions of qualifications, it also formed the starting point for major discussions, throughout the decades that followed, on what should be the didactic approach in VET and how the learning outcomes (*eindtermen*) should be formulated. In this quest, different approaches were tested, such as problem-oriented learning and competence-oriented education. Fundamental criticism was raised as to how 'competence' was conceptualised within the qualification files ([29]). In the 2010s the competence-oriented education approach was – in name – abandoned. The VET system still includes elements of it in the description of the learning outcomes in

([29]) Competence was not conceptualised as the unit of knowledge, skills and attitudes, but as something separate from the two other separate pillars: knowledge and skills. In this context, 'competences' were not seen as the unity with skills and knowledge, but remained rather vague. This vague conceptualisation of competence was difficult to operationalise in VET training and it became even more challenging to assess 'competences' in examinations.

qualification files, while better emphasising the unity of knowledge, skills and competences, also in terms of how these as a whole are assessed in examinations.

Germany introduced the concept of learning fields (*Lernfelder*) in 1996 to structure the content of school-based dual VET (Box 5 and Box 15).

Box 5. **The German learning fields approach (Lernfelder)**

A 'learning field' (*Lernfeld*) is a didactic-curricular organisational unit according to which syllabi for the school-based element of dual VET have been structured in Germany since 1996. Learning fields are derived from vocational fields of activity, which should eliminate the traditional separation of subjects. Today there are between 10 and 18 learning fields include in the newly structured training occupations. The learning fields are based on real business situations and combine several fields of activity. This is also intended to strengthen the students' ability to act (*Handlungskompetenz*) and their ability to engage in lifelong learning. The omission of the typical subjects and their replacement by learning fields also forces interdisciplinary teaching and more coordination between teachers.

Given that the learning fields are based on work processes and emphasise the concept of work process knowledge, their introduction may be interpreted as a re-affirmation of the essentially vocational nature of IVET curricula.

Source: Wittig (2021); Cedefop (2022, forthcoming-b).

3.1.1. The shift to learning outcomes and competence-based approaches

The shift to learning-outcomes-based approaches has become an important principle of curriculum design for many VET systems during the past two decades, shifting the focus towards what learners are expected to know, be able to do and understand at the end of a learning process (as opposed to more input-driven descriptions). Learning outcomes can be considered a common denominator for how VET content is described across Europe. Nevertheless, large variations can be observed in terms of the quality and granularity of learning outcomes descriptions, as well as in terms of the underlying logic based on which they are developed.

EU VET policy developments such as the EQF or ECVET, the European credit system for vocational education and training, played an important role in further promoting these approaches and in supporting their implementation at national level ([30]).

In several countries, the shift to learning outcomes is related to the implementation of competence-based approaches in education. Across the period of investigation of this study, we can, for example, observe the introduction of competence-based approaches for Austria, Finland, Germany, Hungary,

([30]) The 2009 Council Recommendation on ECVET was repealed in 2020 by the Council Recommendation on vocational education and training for sustainable competitiveness, social fairness and resilience.

Lithuania, Luxembourg, Malta, the Netherlands, Norway and Slovenia. Norway has recently started the process of transitioning from content-based to competence-based curricula. A new comprehensive curriculum reform, LK20, is currently being implemented (the new curricula for the first-year vocational programmes were launched in the autumn of 2020).

School-based VET in Austria serves as a good example for a 'mixed' approach: while curricula are essentially written to reflect the competence-based approach, more input-focused elements remain in parallel.

Box 6. **Illustration of the shift to a competence-based approach in curricula for school-based VET in Austria**

In Austrian school-based VET, while the descriptions of learning outcomes in framework curricula are still traditionally structured into disciplines or subjects, the competence-based approach is clearly visible. Curricula display evidence of increased efforts towards a better integration of content across the different subjects. Depending of the type of VET school, this may take the form of curricula structured according to clusters or bundles of subjects.

In the curriculum of the secondary college for business administration, the compulsory subjects are divided into clusters in which subjects that complement each other in terms of content and subject matter are grouped together. The learning outcomes are formulated for each cluster, promoting an interdisciplinary approach. Curricula of management and service industries provide another example, as they include a 'mathematics, natural sciences and nutrition' cluster, which consists of the following subjects: applied mathematics, natural sciences (biology, chemistry, physics) as well as nutrition and food technology.

Source: BMBF (2017).

3.1.2. Modularised and unit-based approaches

Many VET systems have introduced modules for their programmes or structure their VET qualifications into units of learning outcomes in order to support flexible learning pathways. Cedefop (2020d) identified the increasing use of modularisation of programmes at upper secondary level as a trend in IVET and CVET, opening up the possibility of increasing the flexibility of VET and providing for more individualised learning pathways. Data from a 2019 study on EU VET policy instruments ECVET and EQAVET confirmed this trend by identifying that 21 EU Member States (of the then 28) had modular or unit-based structures in place in their IVET systems by 2018 (compared to 15 in 2009). More recent adopters of modular or unit-based approaches include Belgium (fr), Bulgaria, Latvia, Lithuania, and Malta. Some of the countries that do not systematically use modules or unit-based approaches in IVET tend to have strong work-based apprenticeship strands (such as Germany, Denmark and Austria), although some of these have modules in place in at least some qualifications (European Commission, 2019).

3.2. The evolving structure of qualifications and programmes

Previous comparative studies carried out in Europe already observed a reduction in the total number of qualifications available, along with a broadening of course content (in terms of their occupational scope) and increased flexibility for courses to meet individual or local requirements ([31]). Findings from this research confirm that both analysis and comparison of the content of VET become increasingly difficult where optional elements and electives play an increasing role.

The example of the Finnish VET reform of 2017-18, which will reappear in the later sections of this chapter, is instructive in this regard. This reform not only unified the legislative framework for youth and adult VET, but also had a profound impact on the structure of qualifications. It has led to broader profiles and a reduced number of VET qualifications. The qualification structure was adapted to enable individual progress and more flexible study times, based on the accreditation of prior learning and individual starting points for studies.

Research methodological challenges due to the use of 'optional' parts of qualifications were also encountered in the Cedefop study on comparing VET qualifications, as Box 7describes.

Box 7. **Cedefop study on comparing VET qualifications**

The Cedefop study on comparing VET qualifications analysed and compared profiles and contents of VET qualifications (intended learning outcomes) from 10 countries, to identify similarities and differences in such terms as their scope and types of learning outcomes included. In cases where one or more of these optional units or modules (sometimes referred to as 'electives') have to be chosen by learners, the result is that there is not just one profile of a qualification, but different profiles depending on the individually chosen combination of these units. Therefore, there will be differences between VET graduates who hold the same certificate for the acquisition of a qualification; in some cases these differences can be quite significant (cf. Luomi-Messerer et al., 2019a; Luomi-Messerer et al., 2019b).

The use of optional components of qualifications also proved challenging in the part of the project where survey methodology was developed and tested to capture systematically employers' experiences and appreciations of the content and profile of qualifications – based on realised and experienced learning outcomes ('employer reflection survey'): The use of optional parts in qualifications means that the learning outcomes employers need to reflect on may be different for each individual VET graduate. This leads to methodological challenges in the design of the survey instrument, as it is not possible to capture employers' reflections based only on a fixed set of learning outcomes (Cedefop, 2021b).

Source: (Cedefop, 2021b); Luomi-Messerer et al. (2019a); Luomi-Messerer et al. (2019b).

([31]) This was, for example observed in the Cedefop study on the changing nature and role of VET for countries such as Finland and the Netherlands (Cedefop, 2018b).

3.2.1. Changing numbers of qualifications and what they might (not) tell us

For some countries, we can observe that the documented reduction in the number of VET qualifications over time is the outcome of a deliberate strategic process at VET system level. In other cases, such developments seem to appear 'less planned' and are simply reactions to changes on the demand side (e.g. skills obsolescence).

For many countries or systems, information on the number of qualifications alone has little explanatory power. Yet, we see some examples of significant variations in the number of qualifications over time, where these variations have some sort of signalling effect for the extent of change that a system is undergoing. One example is Czechia, which saw a huge expansion of vocational fields in the first half of the 1990s (from 543 to 838), followed by counter measures introduced through a reform in 2004 that ultimately reduced the number of fields considerably, to 279 vocational fields in 2019. The reduction was mainly achieved by merging fields (Table 20). Hence, a temporary specialisation of programmes has ultimately given way to a significant broadening, if one compares the situation in the early 1990s with today ([32]). In addition to this, especially in vocational programmes with *maturita*, the general educational component increased from less than 40% in the first half of the 1990s to more than 50% after the curricular reform in 2004, showing the full extent of academic drift which has taken place in Czechia ([33]).

Table 4. **Observed changes in the numbers of VET qualifications and changing scope of profiles over time**

<table>
<tr><td rowspan="2">Stable development
DE, FR, RO, SI, LT</td><td>Reduction in number of qualifications/programmes
DK, HU, IE</td><td>Reduction in number of qualifications/programmes accompanied by broadening profiles
AT**, CZ, FI, HR, NL, NO, SK</td></tr>
<tr><td>Increase in number of qualifications/programmes
CY, ES, IT*, PL, UK-EN</td><td>Increase in number of qualifications/programmes accompanied by narrowing profiles
CY</td></tr>
</table>

NB: (*) refers to regional VET (IeFP programmes); (**) development not clear-cut; NO: reduction after initial increase.

Source: Cedefop.

In the following countries we can observe a fall in the number of qualifications, accompanied by a broadening of profiles/increased options within and increased level of autonomy: Austria (but not clear-cut), Czechia, Germany (although more implicit than in others, allocation between stable and reduction pending), Finland,

([32]) Note that the simple existence of a field of education does not mean that it is actually delivered in at least one secondary school; the number of actively taught fields is slightly lower than reported above. See Annex B.

([33]) See Section 4.2.4 for further details.

Croatia, Netherlands, Norway and Slovakia. By the way, these are all countries with relatively high shares of enrolment in vocational education at upper secondary level.

The examples from Finland, the Netherlands and Norway below show how a fall in the number of qualifications or programmes can be seen as a response to a deliberate effort to reduce numbers.

The latest Finnish VET reform in 2017-18 had as one of its central goals to reduce the number of qualifications and to clarify the qualification structure with the overall aim to cut administrative costs related to maintaining the system. This has led to a reduction in the total number of qualifications from 351 (including initial further and specialist level) to 164 qualifications in total (with another slight fall still to follow).

Table 5. **Changes in the qualification structure and number of qualifications in Finnish VET**

Late 1990s	2000s	2010s prior to new legislation 2017	Years 2018-20	2021-
77 upper secondary qualifications 80 post-secondary VET qualifications	52 qualifications with over 110 specifications ([34])	52 qualifications with reformed specifications and 122 specifications: altogether 351 vocational qualifications on various levels (further [FE] and specialist vocational qualifications, [SPV])	164 vocational qualifications	44 vocational upper secondary qualifications; 64 further vocational qualifications and 55 specialist vocational qualifications

Source: Virolainen (2021).

In the Netherlands, the observed reduction in the number of qualifications, along with qualifications becoming broader and more generic ([35]) is the result of a deliberate effort, launched during 2010-15, to rationalise the VET offer and to bring qualifications that are similar together, offering VET learners a broader basis. This reduction – which refers to both the number of qualification files and the number of qualifications – is more substantial in some smaller sectors than in larger sectors. In recent years, efforts have been made to make qualifications more tailored to

([34]) The different vocational qualifications included one or more specifications leading to different study programmes.

([35]) While the students start broad and generic, they can choose specialisations. Ultimately, the broadening profiles did not make the qualifications less specific in the end.

specific regional and emerging needs, such as by allowing learners to select elective modules (*keuzedelen*) ([36]).

For more than two decades, a similar pattern of broadening profiles and falling programme numbers could be observed for Norway. Two lines of argument were brought forward for the broadening of programmes: first, provide greater opportunities for students to choose their desired education, regardless of place of residence, social background and age; and second, to reduce the mismatch between supply and demand for apprentices (Box 8). Recently, however, there are signs of a slight reverse trend towards more specialisation and increase in the number of programmes (Table 19 in the Annex).

Box 8. **Evolution of the qualification structure in Norway**

With Reform 94, apprenticeship training was integrated into the institutional framework of upper secondary education: the 2+2 model became and still is the main model in the Norwegian VET system (2 years of school-based education followed by 2 years of apprenticeship training in a company). This reform entailed a significant rationalisation and merging of courses, from more than 100 to 13, in the first year of vocational programmes. In the second year, the structure remained quite specialised, with around 100 vocational courses leading to 224 different occupational trades. A high mismatch between supply and demand of apprenticeships (around 30% of applicants could not find a place) was blamed on the programmes being too narrow and specialisations in the second year too high.

In 2006, a comprehensive new reform was implemented, the Knowledge promotion reform (KL06), continuing the trend from R94 towards broader vocational programmes: nine vocational programmes in the first year, approximately 50 programmes in the second year. To compensate for broader courses, the in-depth study project (later called vocational specialisation) was introduced as a new subject in the first and second year.

Throughout the years, the striving for more general vocational education resulted in greater distancing from the vocational occupations. The reaction from both employers and expert committees (consisting mainly of educationalists) was a demand for, yet again, more vocational specialisation. As a result, in the autumn of 2020, the number of vocational programmes was slightly increased again (from 8 to 10).

Source: Mogstad Aspøy and Hagen Tønder (2021).

Developments in German VET have been a bit more subtle in this regard. The total number of recognised training occupations (dual system) has not changed significantly during the period of investigation. Figures indicate a moderate decline from 348 in 2010 to 324 training occupations in 2019 (and similar figures reported for the years prior to 2010); this, however, does not seem to stem from a specific political intention to reduce the number of qualifications. Yet, it is possible to

([36]) See Table 18 in the annex for a detailed breakdown on changes in qualifications and qualification files across time.

observe that occupational profiles and curricula within one and the same occupational sector increasingly include contents they have common with each other. This means that, even though occupations remain formally separate, they become broader and more generic in the sense that they share some essential contents, effectively constituting a 'core occupation' of sorts.

Box 9. **Towards a model of 'core occupations' in German VET: electrical engineering**

In the 1987 reform of the Vocational Training Act, four different occupation profiles were defined for the field of electrical engineering: electrical systems fitter; energy electronics technician; industrial electronics technician; and electronics technician for communication systems. A key feature of this reform was also the abolition of the two-cycle training model, according to which apprentices acquired a fundamental IVET qualification which was then complemented by a second, more specialised one.

A revision of the training curricula in 2003 was aimed at creating holistic and flexible occupations that would enable graduates to work in a variety of enterprises. It led to a total of six occupational profiles defined in the training ordinance. The new curricula were structured according to an integrated learning model, according to which so-called fundamental or core qualifications and specialised qualifications her were to be imparted side by side. The core contents were the same for all six curricula:

Rauner (2004) observed that the 2003 curricula also shared significant parts of the more specialised contents, making them about two thirds identical. This overlap can be interpreted as a step towards a 'de facto' concentration and reduction of the number of occupational profiles, even if the number of formally distinct training programmes does not change. A possible objection to this interpretation, however, is that it is only the specialised qualifications (as opposed to the core qualifications) that count when it comes to the definition of occupations.

Source: Wittig (2021); Rauner (2004). See Cedefop (2022, forthcoming-a) for a more detailed presentation of this case.

It is also possible to observe examples where the number of qualifications or programmes has risen in recent years. These examples are relatively few, though, and appear as isolated examples rather than evidence of some sort of countertrend ([37]). Cyprus and UK-England, two countries which have been characterised as liberal skill formation systems, can be cited as examples.

In UK-England, there remain a large number of vocational qualifications on offer. Despite periodic reforms which have sought to cull them, the number remains large ('they always seem to grow back again'). The qualification system in England has developed at arm's length from government. Organisations responsible for delivering qualifications have been independent from government and an important strand of policy has been to encourage competition between awarding bodies,

([37]) E.g. CY, ES, IT (regional VET), PL, UK-EN.

which has resulted in a large number of qualifications including vocational ones (Table 16 in the annex) ([38]).

In Cyprus, several new fields of study and specialisations have been introduced in the past few years, as part of an initiative to increase the attractiveness of VET.

3.2.2. Increased flexibility and individualisation

At EU policy level, in particular, significant efforts have been undertaken throughout the past 15 years or so to promote flexible and individualised learning pathways. Most recently, the 2020 Council Recommendation on vocational education and training (VET) for sustainable competitiveness, social fairness and resilience ('VET recommendation') explicitly calls for 'vocational education and training programmes [to be] learner centred, offer access to face-to-face and digital or blended learning, flexible and modular pathways based on the recognition of the outcomes' (Council of the European Union, 2020).

In this context, we understand flexibility and individualisation as providing learners with a certain degree of choice in terms of the structure of a VET programme or qualification: make it less prescriptive and tailored to the needs of the learner.

Modularisation and unitisation of VET programmes and qualifications can thus be considered as opportunities for providing learners with a certain degree of choice and individualisation in designing their VET pathway. Flexibility may also refer to allowing an individual duration of programmes, i.e. providing learners with the possibility to vary the duration/workload in line with their abilities and needs. Increased choice may also be provided by offering electives (elective units/modules or subjects) or specialisations. Our findings show that the degree of choice for learners has increased over time, as the examples of Finland and the Netherlands illustrate prominently ([39]).

The Finnish VET reform of 2017-18 (which led to an overall reduction in the number of qualifications) underlined the goal of enabling individual progress and more flexible study times, based on the accreditation of prior learning and individual starting points for studies.

In the Netherlands, increased flexibility and individualisation stems from the availability of elective modules as well as providing VET schools with the opportunity to offer cross-over qualifications (Box 10).

([38]) Which is considered as choice that meets the complex skill needs of the labour market, and for others it creates an overly complicated system which employers and would-be learners struggle to navigate.

([39]) Also observed for Norway.

Box 10. **Increasing flexibility through elective modules and cross-over qualifications in Dutch VET**

In recent years, further efforts have been made to make qualifications more tailored and responsive to specific regional and emerging needs. This is aided by allowing students to select elective modules (*keuzedelen*), which are small unitised qualification files that are not prescribed by the qualification but can be selected freely by the learner. These optional parts allow students to broaden or deepen skills to strengthen students' sectoral labour market positions within a region, and/or enable students to enter higher vocational education. Within the optional parts there is a clear link with 21st century skills such as innovative thinking, learning a language (besides compulsory languages: Dutch for all, and English for level 4 students), and entrepreneurship. In 2021, there were more than 1 000 elective modules available.

VET institutions are allowed to develop and deliver cross-over qualifications as part of a pilot experiment running between 2017 and 2025. VET schools may respond to labour market developments by offering cross-over qualifications, to strengthen the cooperation between regional education programmes and business life. These cross-over qualifications combine existing qualifications from two or more different sectors together. Currently, there are 135 cross-over qualifications.

Source: Case study Netherlands.

The youth education experiments in Finland, implemented between 1992 and 2001, are an interesting example in this context. They were introduced to increase equality between VET and general upper secondary studies, and to enable eligibility for higher education in order to increase participation in VET from the 1990s. What is really interesting about these experimentations is that they allowed learners a significant degree of choice between vocational and general education contents, all without changing the qualification structures.

Youth education experiments in Finland (1992-2001)

In the youth education experiments (1992-2001), the aim was to increase equality and freedom of choice between different upper secondary education routes. Accordingly, students were allowed to choose studies across institutional boundaries between general upper secondary and vocational upper secondary education institutions. This enabled vocational students to achieve eligibility for higher education by choosing general upper secondary studies. For general upper secondary students, it enabled the completion of an initial VET qualification beside the general upper secondary studies. The youth education experiment did not change qualification structures. It preserved the vocational and general upper secondary curriculum, allowing individuals to make choices within existing frameworks of up to 30-40%.

The experimental framework was phased out and the last student intake took place in 2001. However, the provision of double qualifications that started through the youth education experiments has continued.

Source: Case study Finland.

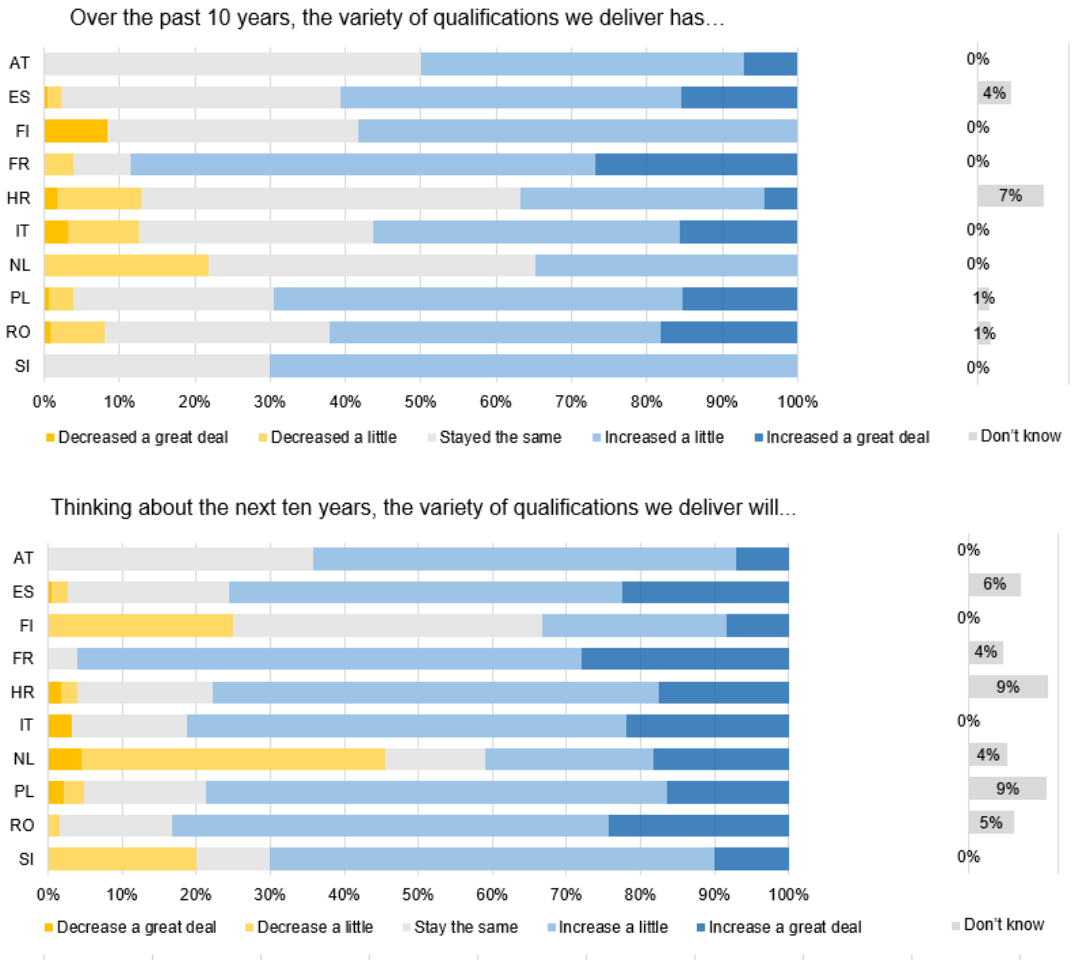
3.2.3. Insights from the VET provider survey

While the VET provider survey did not specifically ask about changes in the number of qualifications, it enquired about respondents' perceptions of past and future changes in the variety of VET qualifications they deliver. Changes in the diversity of qualifications delivered at provider level should not be mixed up with changes in the number of qualifications at national level, although both developments may be related. A reduction in the number of national qualifications, also reduces the possible options at provider level.

For most of the countries in the survey sample, the majority of respondents stated that the variety of VET qualifications delivered at their institution has increased over the past 10 years. Only in Croatia and the Netherlands did less than 50% of respondents note an increase in the variety of qualifications delivered. In the Netherlands, the reduction in the variety of qualifications was explained by various factors, e.g. the merging of qualification files, specific training offers stopped or transferred to another institution, and increased competition.

When respondents were asked about their expectations as to how this variety will change in the next 10 years, for all but two countries the respondents expected a clear strengthening of this trend towards increased variety of qualifications. The two countries that stand out are Finland and the Netherlands. For the latter, more than 40% of respondents expect the variety of qualifications delivered over the next 10 years to decrease. One possible interpretation (which could not be verified) is that this reflects respondents' expectations that the observed trend of reduction in the number of qualifications at the national level, along with qualifications becoming broader and more generic, could be continued in the near future. As VET schools and colleges in Finland and the Netherlands are very large institutions, usually offering a large variety of programmes, another interpretation could be that they deliberately concentrate their offer on fewer programmes.

Figure 5. **Past and future changes in the variety of qualifications delivered**

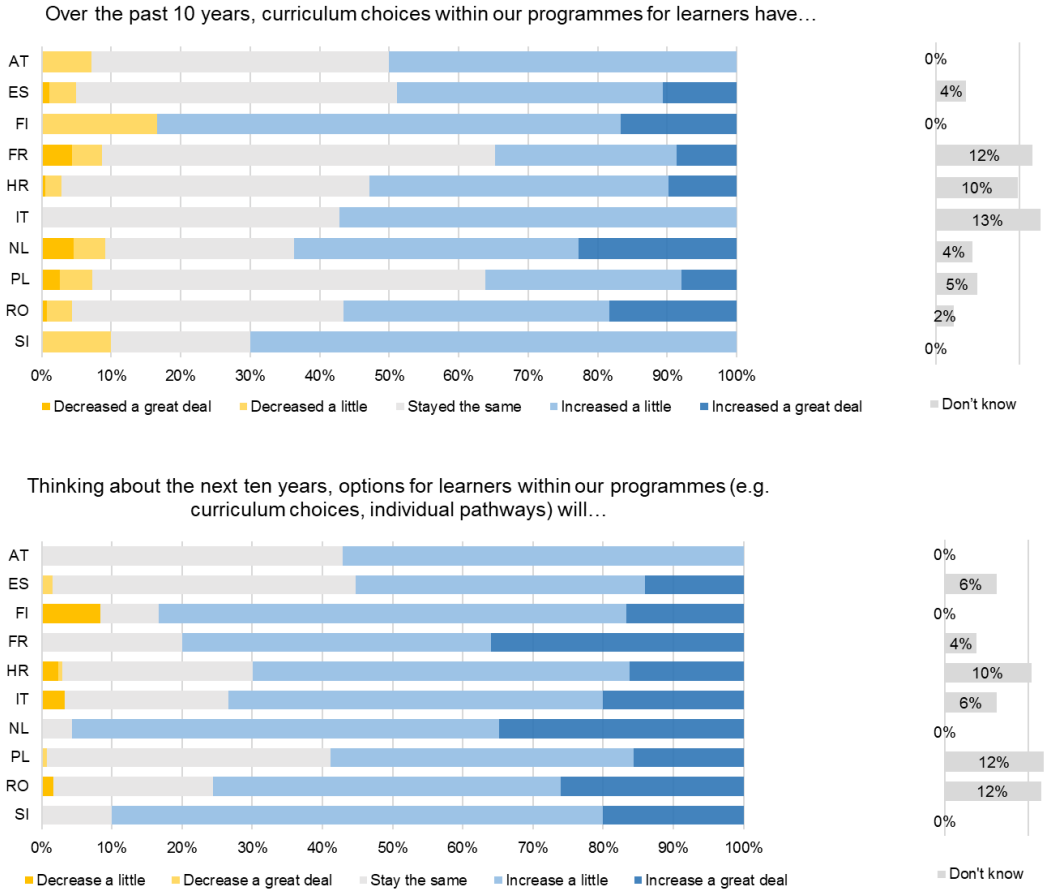


NB: n = 881.

Source: VET provider survey; data from selected countries.

Survey results also confirm the trend towards increasing flexibility and individualisation in terms of curriculum choices across the countries surveyed,; this is most pronounced for the examples of Finland and Netherlands presented, and for Slovenia. Respondents' expectations for the future suggest that the aspect of providing learners with more options allowing individual pathways will be further strengthened over the next 10 years across all countries surveyed; again this is most pronounced for Netherlands, Finland, and Slovenia, where more than 80% of respondents expect such development at their VET institution, as the figure below illustrates.

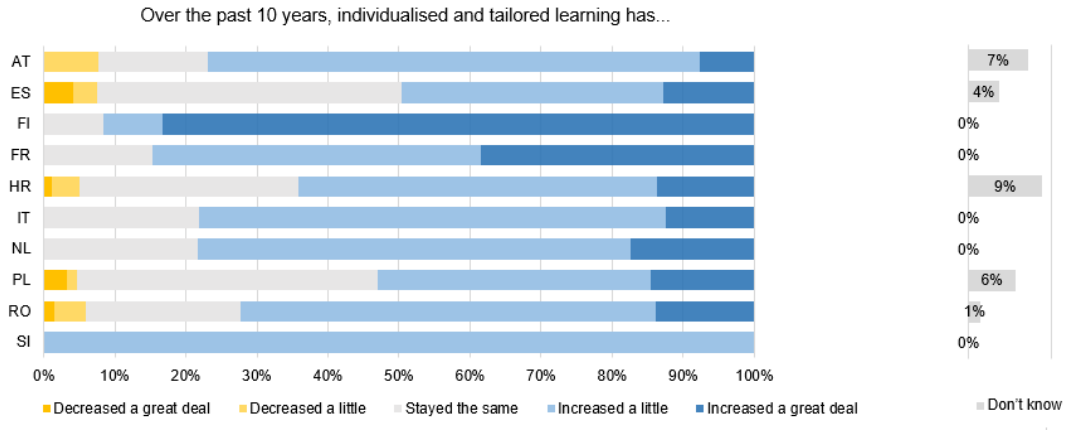
Figure 6. **Past and future changes in curriculum choices for learners**



NB: n = 881.
Source: VET provider survey; data from selected countries.

Finally, the survey explicitly asked about whether individualised and tailored learning has increased over the past 10 years. While all focus countries clearly witnessed an increase, this was most pronounced in Finland and Slovenia where more than 80% of the respondents stated that 'individualised and tailored learning increased a great deal', which is in line with our qualitative assessment.

Figure 7. **Past changes regarding individualised and tailored learning**



NB: n = 881.
Source: VET provider survey; data from selected countries.

3.3. The increased practical learning trend in context

In this section we are interested in how learning is organised across different learning sites: in classrooms, workshops or laboratories, and at workplaces. It is of particular interest to observe how these various learning environments and sites are integrated (strongly integrated versus weakly integrated), and how their interplay has changed over time. The theme of workplace learning has received heightened attention at EU policy level in the past couple of years. The 2020 VET Recommendation goes beyond merely calling for increased shares of workplace learning. It specifically emphasises the aspect of 'learning conducive workplaces' as well as an appropriate mix of learning environments: 'Vocational education and training programmes are delivered through an appropriate mix of open, digital and participative learning environments, including learning conducive workplaces and are supported by state-of-the-art and accessible infrastructure, equipment and technology, and versatile pedagogies and tools, for example ICT based simulators, virtual and augmented reality which increase the accessibility and efficiency of training provision, including for small enterprises' (Council of the European Union, 2020).

In this section, we revert to the simplified framework presented in Figure 1 to analyse the share of practical training opposite to theoretical learning in classrooms. The categorisation, which distinguishes between learning inside and outside schools, and between theoretical and practical learning has proven useful to comparison over time and across systems.

Some of the examples presented also highlight a limitation of our simplified categorisation of practical learning as either taking place in school workshops/laboratories, or as in-company workplace training. The increased

integration of learning environments observed in some systems is one example; another is supra-company training centres or entities.

3.3.1. Observations on the delimitation of practical learning

With our current research framework, it is the aspect of practical learning in workshops that is most difficult to analyse in the 'written curriculum'. Practical learning, as defined in Chapter 2, may take place either at a workplace, or take the form of practical learning in workshops at schools.

Yet, in many cases, available reference documents such as framework curricula do not specify the share of learning to be undertaken in workshops, laboratories or practice firms. In some cases, a defined share of practical learning (sometimes interchangeably used with the term work-based learning) to be undertaken by a learner to achieve a VET qualification is provided, but without further specifying learning sites and environments. For some cases, it would be required to go down to the level of individual curricula in order to address this question in more depth.

Nevertheless, in some cases it was possible to observe increased flexibility towards more varied combinations of learning environments, tailored to local or individual needs, such as in Finland and Poland.

The new Finnish VET legislation in 2017 brought about a shift from organising work-based learning through 'on-the-job training' to so-called 'training agreements' (*koulutussopimus*, no salary) and apprenticeships (*oppisopimus*, work contract and trainee salary) depending on the learning environments available for learners. It also introduced the possibility to combine training agreements and apprenticeships within a qualification. The forms of training organised in connection with practical work tasks are determined for each student individually in their personal competence development plan. Ultimately, the relative shares of workplace learning and acquisition of competence in other learning environments are determined individually ([40]) (Cedefop, 2020a, FI, p. 5). Table 6 illustrates this increased flexibility in the combination of different learning environments. However, the increased flexibility leaves no doubt that the overall extent of workplace learning has significantly increased between 1995 and 2000.

([40]) In addition to workplaces, practical teaching is organised in educational institutions' diverse learning environments simulating the world of work, e.g. teaching forests and farms or teaching restaurants.

Table 6. **Organisation of learning environments in Finnish VET between the 1990s and 2020s**

Characteristics of initial VET qualifications	Time period		
	1990s	2000s	2010-20
Learning environments	School and workshop (apprenticeship as a separate route)	School, workshop and workplace learning	School, workshop and workplace learning, digital (distant) learning
Work-based learning	Practical training (*harjoittelu*) is part of vocational studies. Length varies between qualifications: Electricians: minimum 4 study weeks; Practical nurses: practical related studies in authentic work situations minimum of 25 study weeks	On the job learning: 20 study weeks in the minimum (*työssäoppiminen*)	Training agreement or apprenticeship (*kolutussopimus* or *oppisopimus*) In principle up to 145 competence points depending on students' personal study plan and chosen work environment

Source: Virolainen (2021).

In Poland, legislation distinguishes between theoretical training (classroom learning) and practical training ([41]). While regulations set a minimum share for practical training that corresponds to 50% or 60% (depending on the type of programme) of the total number of hours in the programme, the decision on the balance between theoretical and practical training in school workshops and in companies is taken at the level of VET schools, and will depend on the specific sectors and local conditions (Cedefop, 2020a, PL, pp. 12).

Curricula in Austria also distinguish VET theory and VET practice. The concrete shares of practical learning are set in the framework curricula for each qualification, which also gives schools some autonomy to set their own focal points. The key legislative document, the School Organisation Act (*Schulorganisationsgesetz SchOG*) does not set the ratio between classroom learning and practical learning at the workplace. The framework curricula for VET schools

([41]) Practical training is described in two forms. *Zajęcia praktyczne* (practical classes): can take place in school workshops/laboratories, continuing education centres, vocational training centres or with an employer. Practical training with an employer can be organised in different ways, partially or fully at an employers' premises, including dual training and apprenticeship (juvenile employment). *Praktyki zawodowe* (on the job training, traineeship at an employer's premises): distinctive form of practical training and mandatory for vocational upper secondary, post-secondary and second stage sectoral programmes. It is organised to apply and deepen learners' knowledge and skills and must last from 4 to 12 weeks depending on the type of occupation.

overall follow a similar structure, although differences can be identified between the different areas, e.g. engineering, business administration, agriculture and forestry, tourism, arts and design (BMBF, 2017).

Table 7 compares the shares of different subject areas across a number of different VET curricula (in their current version) ([42]).

Table 7. **Comparison of curriculum structures in Austrian VET for different occupational areas**

	Metal / Mechanical Engineering			Office work / Business administration			Gastronomy / Tourism		
Categories of curriculum structure	Apprenticeship	Schools for intermediate VET	Colleges for higher VET	Apprenticeship	Schools for intermediate VET	Colleges for higher VET	Apprenticeship	School for intermediate VET	Colleges for higher VET
General subjects	4%	33%	41%	5%%	44%	50%	6%	35%	37%
Occupation-specific theory	13%	25%	36%	16%	19%	33%	9%	35%	21%
Occupation-specific practical learning	7%	31%	18%	4%	33%	11%	8%	15%	25%
Work placement	76%	11%	4%	75%	4%	5%	77%	15%	17%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Total hours	5 956	4 701	6 931	5 105	3 479	5 956	7 072	4 399	7 545
Duration in years	3.5	3.5	5	3	3	5	4	3	5
Duration in hours per year	1 702	1 343	1 386	1 702	1 160	1 191	1 768	1 466	1 509

NB: Examples for general subjects are German, civic education, geography or history. For specialised VET subjects, business administration, tourism marketing or electrical engineering; practical training refers to workshops, laboratories, project-based learning or cooking in school kitchens; workplace learning to the actual time spent in the company.

Source: Schlögl, P.; Stock, M. and Mayerl, M. (2019a); Schlögl, P.; Stock, M. and Mayerl, M. (2019b); own translation.

([42]) Not all curricula explicitly use the categorisation between occupation-specific theory, occupation-specific practice and workplace (or work-integrated) learning.

For the areas of engineering and business administration, there is a significant difference in the ratio of occupation-specific theory and occupation-specific practical learning between intermediate VET schools (EQF 4) and higher VET colleges (EQF 5). Whereas the former have a clear focus on occupation-specific practice, the latter have a stronger focus on occupation-related theory. This ratio is somewhat reversed for tourism VET schools, where intermediate VET schools have a higher share of occupation-specific theory, and higher VET colleges a larger focus on occupation-specific practice. The shares of workplace learning are low for all school-based VET pathways (4-18% of the curriculum in terms of hours), especially compared to apprenticeship pathways (75 to 77%).

A distinction between theory and practice can also be made in the curricula of Slovak VET qualifications (Table 11 in Section 4.2.2). In this case, however, VET practice is understood to include both practical learning in workshops and practical learning offered in companies: it is not possible to differentiate between the two, as it is up to the schools to determine the balance of different learning sites for practical learning. In the case of apprenticeship training, a school-company agreement allows for up to 50% of the practical learning time to be spent in school workshops (as defined by the 2018 amendment of the Act on VET 61/2015) (Cedefop, 2020a, SK, p. 7).

In generic terms, findings provide evidence of both an increasing use of workplace learning and increasing use of practical learning in workshops across many countries, confirming previous findings (Cedefop, 2020d). However, there are variations across countries and, for some countries, the picture is not clear-cut.

In some countries, we observe that this balance between the learning sites is shifting towards workplace learning: there has been an in increase in workplace learning over time that goes along with an overall reduction in classroom instruction at the same time (e.g. in Italy and Hungary). In Austria, this expansion of workplace learning observed in school-based VET is mostly linked to an extension of work placements, such as the introduction of compulsory work placements in schools for business administration (with the 2014 curriculum). There are, however, noticeable variations across different vocation fields, as the example in Box 11 shows.

A trend towards increased learning at the workplace can be identified (though not exclusively) in mainly classroom-based VET ([43]). As part of the 2006 ‘KL06’ reform in Norway, the trend towards broader vocational programmes was continued. To compensate for the broader programmes, the in-depth study project (later named vocational specialisation) was introduced as a new subject in the first and second year. The main aim was to give VET students an opportunity to gain experience from relevant occupations through practical work in school workshops

([43]) Also, in the Netherlands following the VET Act for the school-based track.

or projects, or through work placements in firms. Before this, the first 2 years in the 2+2 model were entirely school-based ([44]).

Cyprus started to introduce periods of workplace learning in its upper secondary technical schools as of 2016/17. As part of the strategic plan for technical vocational education 2015-20, work placements of 4 weeks duration (for students of the practical direction) and 2 weeks duration (for students of the theoretical direction) were introduced at the end of the first and second year of studies (between the months June and August) (Cedefop, 2020a, CY, p. 3).

Box 11. **Comparison of Austrian VET college curricula**

Findings for school-based VET ([45]) in Austria suggest both an increase in workplace learning and in practical learning in workshops across time, which is not observed across all areas to the same extent. For individual qualifications, the picture is more varied. The following table compares curricula for (5-year) higher VET colleges in the field of business administration and mechanical engineering.

Curricular categories	**Higher VET college for mechanical engineering (EQF 5)**		**Higher VET college for business administration (EQF 5)**	
Year of curriculum	**1993**	**2015**	**1994**	**2014**
General education subjects	37%	41%	53%	50%
Occupation-specific theory	40%	36%	36%	33%
Occupation-specific practical learning	19%	18%	11%	11%
Work placement	4%	4%	0%	5%
	100%	100%	100%	100%
Total number of hours of education and training	7 441	6 931	6 014	5 956
Programme duration in years	5	5	5	5
Number of hours of education and training per year	1 488	1 386	1 203	1 191

Calculations for 2014 and 2015 based on Schlögl, P.; Stock, M. and Mayerl, M. (2019a).

Today, curricula for both the business administration college and the mechanical engineering college generally consist of general education subjects, subjects related to occupation-specific theory, occupation-specific practical learning as well as mandatory work placement (usually completed during school holidays). Occupation-specific practical learning includes training in laboratories and workshops, as well as in practice firms (the latter for the business administration qualification); it takes up a significantly higher share of total hours at technical VET colleges as opposed to the business administration VET college.

Some variations can be observed over time. At colleges for business administration, both the share of subjects related to general education and occupation-specific theory decreased between 1994 and 2014, while the share of workplace learning increased from 0% to 5%. This refers to the introduction of a mandatory work placement in 2014

([44]) Note that upper secer secondary VET in Norway is mostly implemented as a 2+2 model, where the first 2 years are mainly school-based, followed by a 2-year apprenticeship.

([45]) The ReferNet questionnaire states that the expansion of practical learning was not necessarily at the expense of school-based learning in classroom or in workshops, as work placements often have to be completed during holiday periods. However, it might be argued in this case that this has still changed the overall balance towards more workplace training and less classroom learning.

(before that date, work placements in this field were voluntary). The curriculum for mechanical engineering shows a noticeable increase in the share of general education subjects, from 37% (in terms of total hours) in 1993 to a share of 41% in 2015, while the total share of classroom-based training overall remained stable.

Both qualifications have decreased in terms of their overall volume, i.e. the total number of hours of education and training. For the business administration qualification, the overall drop is minor, as a noticeable reduction in classroom-based training was partly offset by the introduction of the compulsory work placement in 2014. For the mechanical engineering qualification, the fall in overall volume is more pronounced and can also be linked to the shift from a 6-day to a 5-day schedule; an 8-week work placement was already mandatory in the curriculum of 1993.

Source: Cedefop.

3.3.2. Decreasing emphasis on workplace learning: apprenticeship training examples

Examples of decreasing emphasis on workplace learning are scarce. One of the few examples would be apprenticeship training in the Netherlands, where reforms (especially the integration of the school-based apprenticeship pathway as part of the 1996 Vocational Education Act) have led to a move away from the labour market and the involvement of companies in organising the apprenticeships with more emphasis on general education and transversal competences ([46]).

In Austria, there is continuing policy discussion (but no concrete developments), advocated for by the employee representatives, on whether the share of general subject learning should be increased at the expense of workplace learning. The economic chambers are promoting a trial training model: the expansion of learning locations by a third supra-company learning location with a strong focus on digital learning opportunities, along the lines of the Swiss model.

3.3.3. Towards increased integration of learning environments

For regional VET in Italy, a progressive increase in the hours dedicated to workplace experiences can be observed, along with a corresponding reduction in hours related to profession-related theoretical contents and practical training in workshops. This has led to a development where workplaces are no longer considered as ‘place to practice abilities developed during class’ (as it had traditionally been) but rather as places where to develop specific skills or competences no longer taught in training institutions.

In Poland, as of the 2018/19 school years, all VET schools providing education in a given occupation have been required to set up formal cooperation with employers from their particular sector (earlier, such agreement of cooperation was not mandatory).

([46]) As opposed to school-based VET, which is now clearly more workplace oriented than before the reform and the merger with the dual learning pathway.

Increased integration of learning sites can also be observed in the context of increased autonomy of VET providers in delivering education and training.

In Finland, the forms of training organised in connection with practical work tasks are determined for each student individually in their personal competence development plan, allowing for a variety of different combinations of learning environments. Since the 2018 VET reform, legislation longer specifies any minimum or maximum amount of workplace learning.

In the Netherlands, in some sectors, specific arrangements are made in terms of learning in school-based and work-based learning environments. For instance, in the healthcare sector, VET schools have long-term relationships with hospitals, with many students each year doing internships and apprenticeships in the hospital. Many VET schools, therefore, introduced more hybrid learning environments, where the school-based part is also delivered within the hospital.

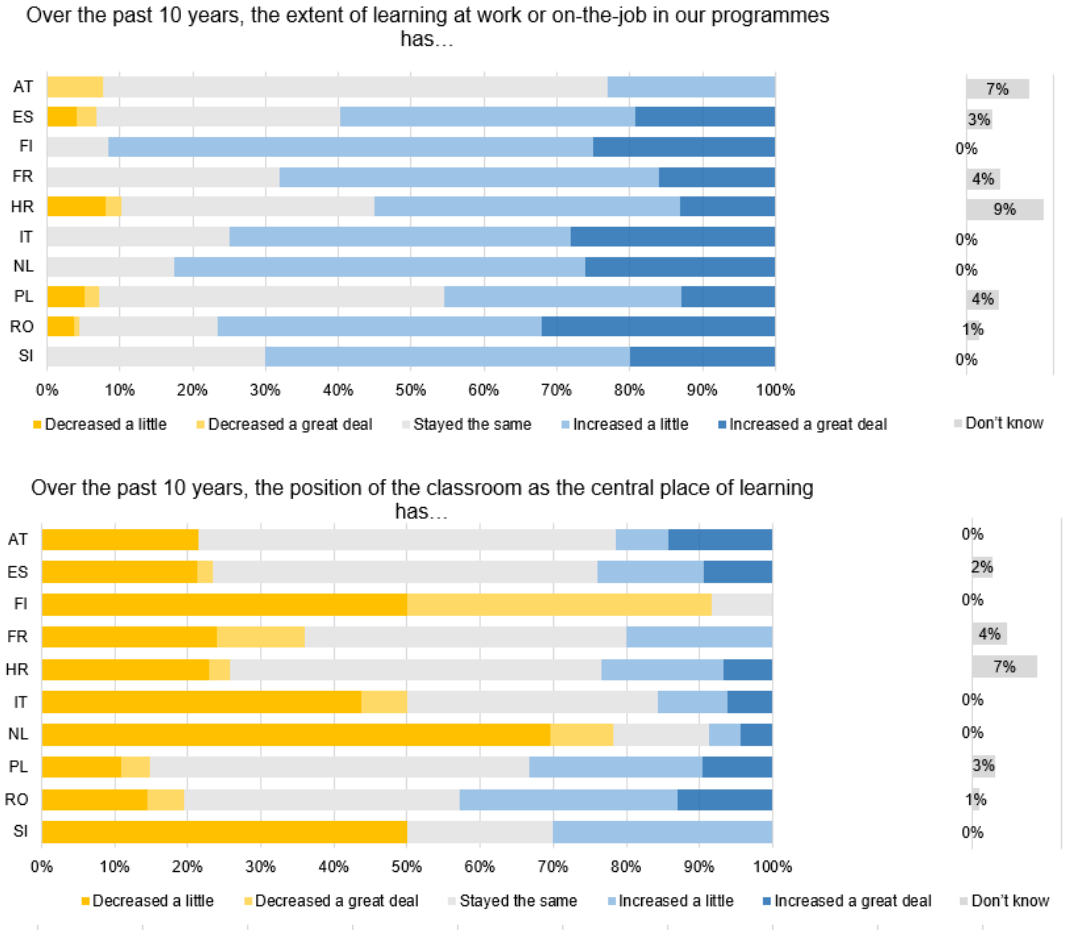
The concept of hybrid learning environments (together with 'hybrid teachers' working towards developing 'agile craftsmanship') is also at the centre of recent plans to transform VET institutions (ROCs) into regional centres for innovation and VET (*regionale centra voor innovatie en beroepsonderwijs*: CIB).

3.3.4. Insights from the VET provider survey

Results from the VET provider survey confirm the trend towards increased workplace learning, which can be observed for most countries. Austria slightly stands out in this regard, with a majority of respondents stating that the extent of learning at work or on-the-job at their institution has stayed the same over the past 10 years (64% of respondents). At the same time, these figures for Austria are in line with the earlier observations that the extent of workplace learning has remained rather stable across the years both for school-based VET and apprenticeship training, except for the fact that internships have been made mandatory for all (remaining) school-based VET tracks.

For some of the countries studied, the trend towards increased workplace learning goes along with a sizeable reduction in the significance of classrooms as the central place of learning. This can be particularly observed for Italy, the Netherlands and Finland, where a majority of respondents indicated that the significance of the classroom as the central place of learning has decreased at their institution. The figure below illustrates the developments for a sample of 10 countries.

Figure 8. **Changes in workplace learning and the position of the classroom as the central place of learning**

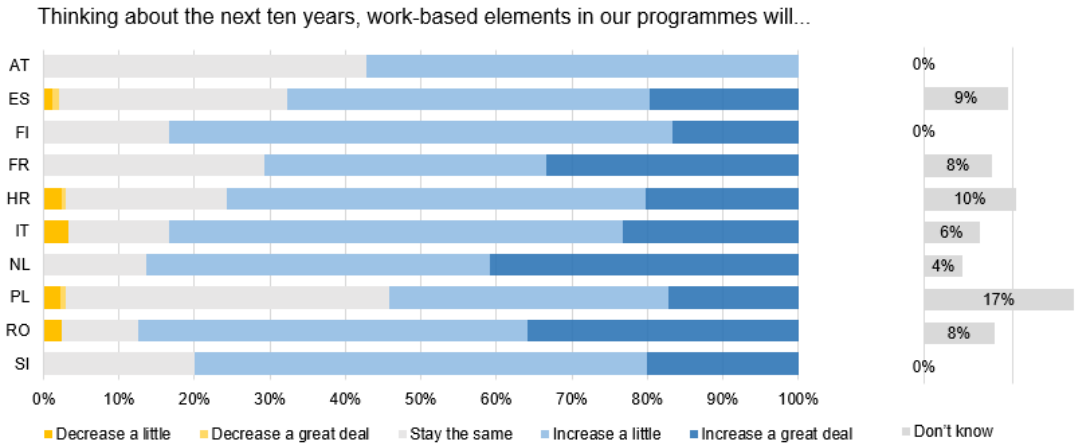


NB: n = 881

Source: VET provider survey; data from selected countries.

One further survey question integrated a forward-looking perspective, asking respondents to think about how the share of work-based elements in their qualifications/programmes will develop over the next 10 years. An overwhelming majority of respondents expected an increase in this regard. Only in Poland did less than 50% of respondents expect an increase in work-based elements in qualifications/programmes offered at their institution, as Figure 9 illustrates.

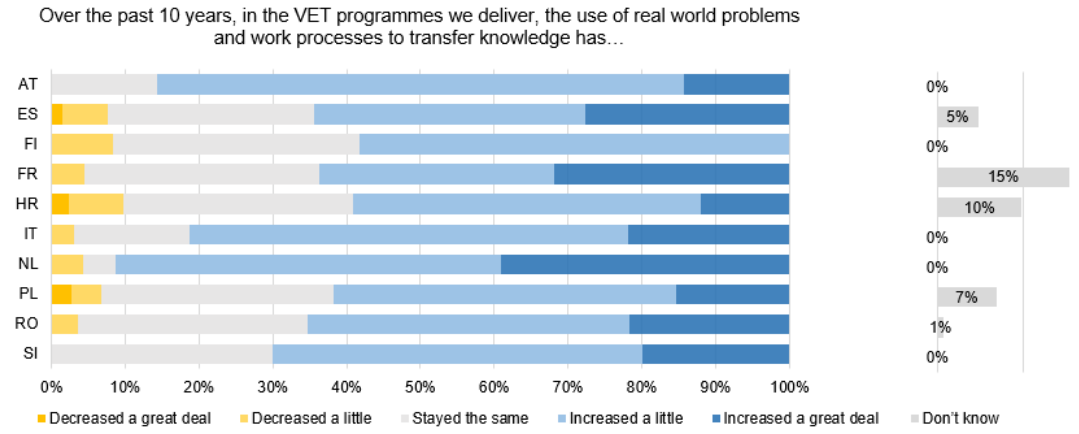
Figure 9. **Expected developments concerning the share of work-based elements**



NB: n = 881.
Source: VET provider survey; data from selected countries.

The following three bar charts provide further insight into changes experienced by VET providers with regard to the content of VET. Increasing use of real-world problems and work processes to transfer knowledge is particularly reported for Austria, Italy and the Netherlands, where more than 8 in 10 respondents pointed to an increase, as Figure 10 illustrates.

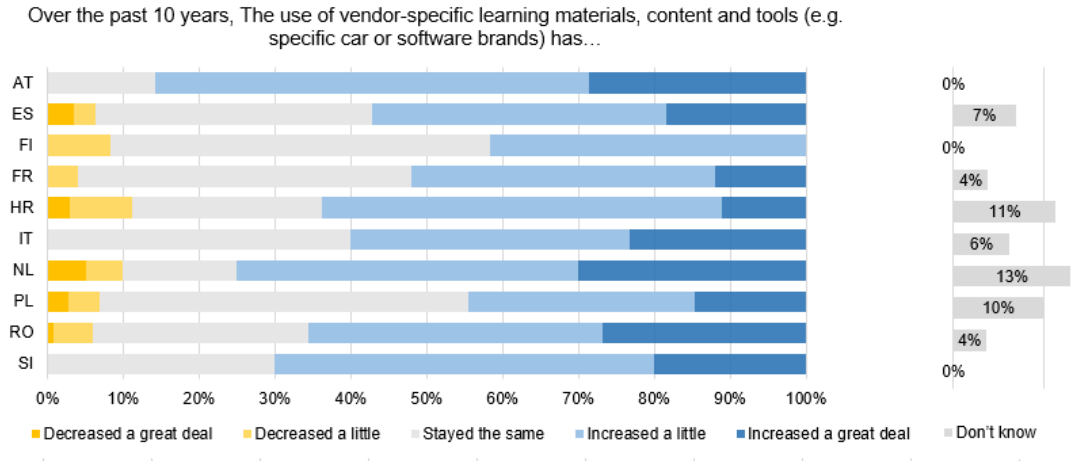
Figure 10. **Changes in the use of real-world problems and work processes to transfer knowledge**



NB: n = 881.
Source: VET provider survey; data from selected countries.

In eight out of the 10 focus countries of the survey sample, more than half of the respondents stated that the use of vendor-specific learning materials, content and tools, such as specific car or software brands, has increased over the past 10 years. Only for VET providers in Poland and Finland does this seem to have less significance.

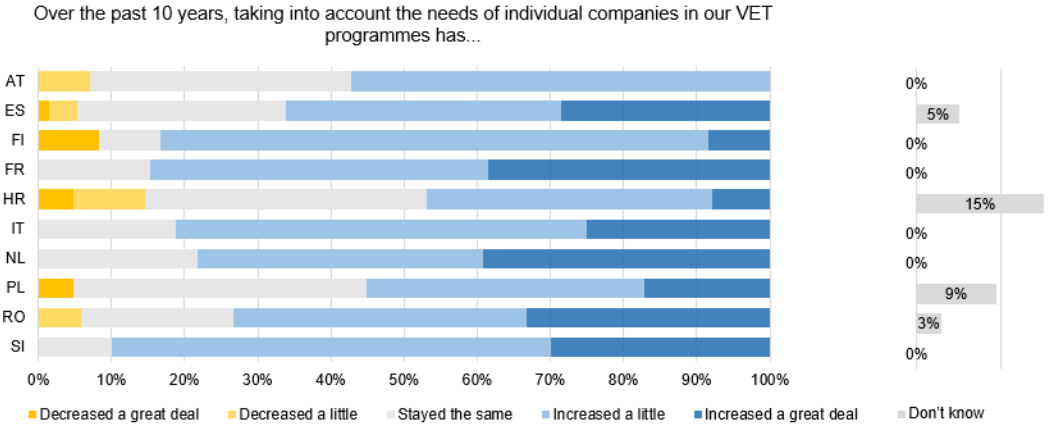
Figure 11. **Changes in the use of vendor-specific learning materials, content and tools**



NB: n = 881.
Source: VET provider survey; data from selected countries.

Increasingly considering the needs of individual companies (not employer organisations/collectives) was also stated quite prominently by the 10 focus countries of the survey sample.

Figure 12. **Changes in the consideration of needs of individual companies**



NB: n = 881.
Source: VET provider survey; data from selected countries.

These three indicators (use of real-world problems, vendor-specific learning and considering needs of companies) could be seen to illustrate that a strengthening of vocational education has taken place, bringing VET closer to the world of work; besides increasing employability, this primarily promotes vocational expertise and specialisation (compare also Chapter 4.2). Together with this strengthening of VET, we find that the importance of general competences has also increased to some extent, as detailed in the next chapter.

CHAPTER 4.

Understanding change in VET content

As set out in the introduction (Chapter 1), a key research question is to assess how the balance between transversal skills, general subjects and occupation-specific skills has changed over time in different countries. This chapter will start by looking at the structure of VET curricula and programmes, considering existing concepts that countries use when defining different types of learning outcomes or content., The focus then moves towards exploring how the balance between general education, occupation-specific and transversal skills has evolved in recent years, identifying trends regarding the direction of change, such as increasing or decreasing emphasis on a skills type.

Almost all VET systems distinguish between general and vocational content of qualifications or programmes, although these distinctions are not always expressed explicitly in the respective documents. General knowledge content may be integrated into, or at least strongly related to vocational content and vice versa. And what is considered ‘vocational’ may also change over time, as some of the examples in this chapter illustrate. The same goes for the distinction between different domains of knowledge, skills and competence. Systems that follow a competence-based model particularly tend towards integrated or ‘holistic’ descriptions, without explicit structuring into domains.

4.1. Structure of qualifications: skills types distinction

There is no single established distinction into skills types shared by VET programmes in European countries. Rather, countries make use of different definitions when structuring knowledge and skills. The only constant in the structuring of knowledge and skills in VET qualification standards in the countries studied is the distinction between ‘general’ (general, transversal, cross-sector or cross-occupational) and vocational (occupation-, sector- or domain-related/specific) content sometimes further divided into theoretical and practical content and between mandatory and elective subjects.

Some countries distinguish in their VET curricula or qualifications between transversal skills, general subject knowledge and occupation-specific skills (though using different labels) or at least claim to be able to map the structure of VET content to these categories. Others use related concepts for structuring content but would struggle to isolate transversal skills in their curricula (compare Table 8). The term ‘transversal skills’ is rarely used, instead key skills, people skills, key competences, common studies, or other terms are used. Further, it is often not

clear if transversal skills are considered to be part of general or vocational content. Transversal skills might be integrated into general subjects or in occupation-related skills and/or only be implicitly covered in curricula and programmes (see examples for Denmark and Portugal in this section).

For Slovenia, guidelines for all types of VET programmes at the upper secondary level determine the minimum shares of general education subjects, professional theoretical contents and practical education (which includes practical training in schools and practical training in the company) ([47]). The distinction between general subjects and occupation-related content, and the subdivisions of the latter into practical and theoretical learning, is also common in school-based VET in Czechia, Austria and Slovakia (see further below).

Table 8. **Concepts for structuring content in curricula according to general, vocational and transversal skills**

	Vocational skills	General skills	Transversal skills
BG	*Specific VET subjects* *General VET subjects (e.g. foreign language for the profession, health and safety working conditions, entrepreneurship)*	*General subjects* (e.g. Bulgarian language and literature, information technologies and foreign language)	Part of both general subjects and general VET subjects
FI	*Vocational studies* (occupation-specific skills)	*Common studies* (communication and interaction; and societal and working life competences)	Part of *common studies*
IE	*Discipline-specific* (includes mandatory and electives)	Subjects (electives) which fit into both GE and transversal skills (e.g. mathematics, information technology, thinking skills)	*People skills* (mandatory): e.g. communication, team-working; *work skills* (mandatory): e.g. work experience, personal and professional development; Subjects (electives) which fit into both GE and transversal skills (e.g. mathematics, information technology, thinking skills)
II	*Professional skills*	*General skills* (including transversal skills)	Part of general content; have various labels e.g. *soft skills/competences, basic cultural skills, key competences*
LU	*Professional subjects (optional subjects)*	*General subjects* (e.g. civic education, languages) *(optional subjects)*	Not defined as such, but included in school and in-company training
NO	*Vocational subjects*	*General subjects* (e.g. Norwegian, natural science, social science, physical education	

([47]) For 3-year upper secondary VET programmes, the 2019 guidelines defined a minimum standard of general education content of 29%.

	Vocational skills	General skills	Transversal skills
SI	*Professional theoretical contents* *Practical education/training*	*General education* (including transversal skills)	

Source: Cedefop (2020a) and country case studies.

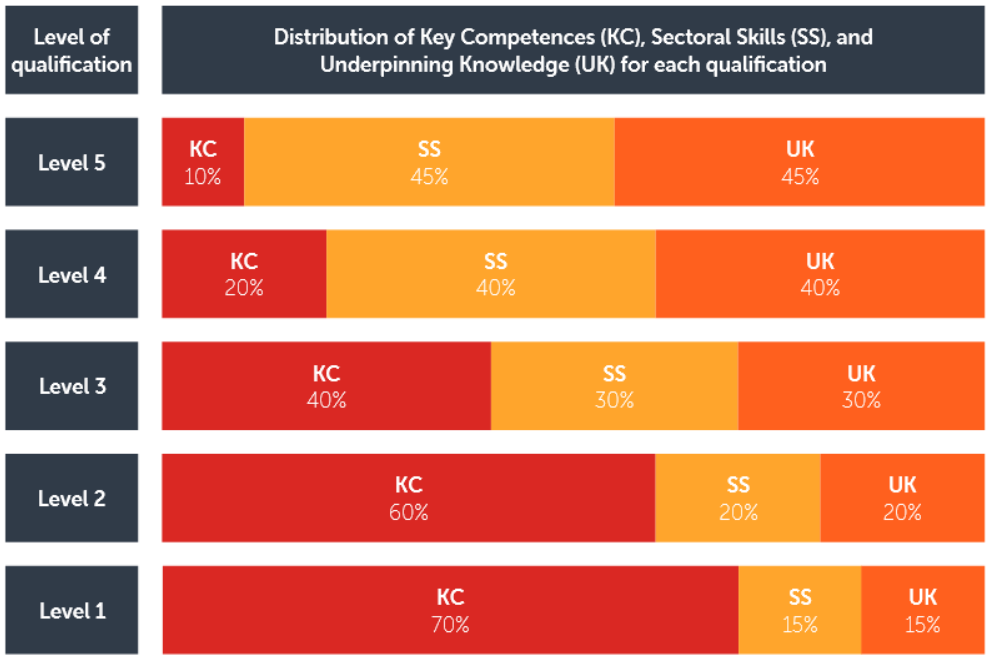
The general education category in Slovenia includes transversal skills, which becomes apparent when taking a closer look at how skills and knowledge are defined for VET programmes: since 1998, so-called guidelines have prescribed minimum standards of general subjects and VET content. The 2001 guidelines for vocational upper secondary programmes described standards for general education as 'key qualifications' ([48]), defining them as '[…] knowledge, skills and abilities that are applicable in different working conditions, in different professions, in different professional fields and in different life situations. They enable an individual's professional mobility and social inclusion' (Pevec Grm and Mali, 2001) ([49]). Besides general knowledge such as communication in Slovene language or communication in a foreign language, the Slovenian 'key qualifications' also include standards for entrepreneurship, information and communication literacy, health and safety at work, environmental education, social skills, learning to learn, career planning and management (Cedefop, 2020a, SI, p.2).

Some countries have national guidelines that define the distribution of knowledge and skills by type. For instance, Malta distinguishes between key competences (transversal skills), sectoral skills and 'underpinning knowledge'. The share of sectoral skills and underpinning knowledge increases with each level of the MQF (Malta qualifications framework) (Figure 13).

([48]) Today the term 'key competences' is used instead.

([49]) Translated for ReferNet questionnaire.

Figure 13. **Distribution of key competences, sectoral skills and underpinning knowledge (for all MQF VET levels) in Malta**



Source: NCFHE (2016), p. 59.

VET programmes in Bulgaria distinguish between general subjects, general VET subjects, specific VET subjects and elective subjects. Transversal skills are embedded in both general subjects and general VET subjects. General subjects include Bulgarian language and literature, maths and science, while general VET subjects include information technologies, foreign language, health and safety working conditions, economics as well as entrepreneurship. Through the distinction into general and specific VET subjects a line is drawn between specialised and transversal skills within occupation-related content.

Since 2007, the VET system in Ireland has applied the so-called Common awards system (CAS), which is a system of further education and training (FET) awards specifications, containing NQF levels 1 to 6 (equivalent to EQF levels 1 to 5). The major awards include groups of components, which are referenced to as discipline-specific (mandatory and electives), people skills and work skills, and electives. Examples for possible components from the people skills group are communication, team-working, personal effectiveness; examples from the work-based group are work experience, work practice, and personal and professional development. One component covers 15 FET credits or 150 hours of learning ([50]).

([50]) The CAS requires all FETAC / QQI awards to have a common structure and characteristics such as title, NFQ level, volume, profile, assessment and grading. Implementation of the Common awards system represents the most significant development in the structure of VET awards from 2007 to the present. It is not possible to further distinguish changes in the proportion of occupation-specific skills, general

Table 9 presents the distribution of credits among these different components for major awards at NQF level 4 to 6 (equivalent EQF levels 3 to 5). At each of the three NQF levels, the discipline-specific vocational component has the highest share of overall credits.

Table 9. **Ireland: Distribution of credits for major awards across types of skills**

Normal credit distribution for major awards			
	Level 4	**Level 5**	**Level 6**
Major	90	120	120
Vocational mandatory and electives specified	40-50	60-75	60-75
People skills Work skills	30	30	30
Elective (this may include mathematics, information technology and thinking skills among others)	remainder	remainder	remainder
Maximum residue	10	30	30
	People skills and Work skills are mandatory	People skills and Work skills are mandatory	People skills and Work skills are mandatory

Source: Cedefop.

In Luxembourg, types of VET programmes include CCP (*certificat de capacité professionnelle*), DAP (*diplôme d'aptitude professionnelle*) and DT (*diplôme de technicien*). Each of these programmes defines general subjects (e.g. civic education, health education, languages ([51])), professional subjects and optional subjects. Additionally, DT programmes include specific general subjects such as mathematics, physics, chemistry or architecture. Transversal skills are not defined as such, though they are included in school and in-company training of VET programmes (Cedefop, 2020a, LU, p. 2; INFPC, 2019).

In Finland, distinction is made as common studies, which include both general knowledge and transversal skills; vocational studies (occupation-specific skills); and optional studies. The 2017-18 VET reform defined three different groups to be included in the common studies of a qualification: communication and interaction competences (CI); competences in mathematics and natural sciences (STEM); and societal and working life competences (SW). Further, common studies consist of mandatory and optional components. The share of transversal skills to be acquired by students depends on the field of study. However, transversal

subject knowledge and transversal skills and competences, as the primary focus has been on increased consistency.

([51]) Not included in CCP tracks.

competences are understood to be central for vocational competence and are thus taught in connection with vocational studies (Cedefop, 2020a, FI, p. 2).

For apprenticeships in UK-England, English, maths and ICT are described as transferable skills (SASE guidance) or functional skills and key skills (occupation specific SASE framework).

In Italy, the term general education does not only include general subjects (such as mathematics, history etc.) but also transversal skills, which are labelled in different ways, such as transversal skills/competences, soft skills/competences, basic cultural skills, key-competences, personal, social, learning, entrepreneurial resources, problem-solving and relational skills, digital skills.

In Austria, the visualisation of transversal skills has been a central theme in previous years, especially with the gradual shift from an input-focused to a competence-based approach in education and training. Transversal skills are anchored at four different levels: the School Organisation Act (*SchOG, Schulorganisationsgesetz*), teaching principles of the Ministry of Education, educational standards, and curricula. Lachmayr and Proinger (2019) examined the extent to which the eight key competences for lifelong learning are integrated into VET training programmes. They identified that three of the eight key competences (literacy, multilingual competence and mathematical competence) can be directly linked to a single teaching subject, whereas the other key competences are less visible within the reference documents. They concluded that curricula include a clear reference to transversal competences, although with varying degrees of comprehensiveness.

The cases of Portugal, Denmark and Sweden provide examples of an implicit emphasis on transversal skills. In Portugal, transversal skills are not specially addressed as such, but are integrated into curricula and emphasised in the following ways:

(a) by applying project-based approaches, which require the engagement and involvement of students in developing training projects (can be defined per subject, component or for the full training);
(b) via adoption of practical training in the technological component (simulation of real work context);
(c) via training and practice (work in real context).

In Denmark, transversal skills are present indirectly in occupation-specific and general education subjects, for instance via teachers applying IT technologies and other modern teaching equipment in class (Cedefop, 2020a, DK, p. 2).

In Sweden, transversal skills are referred to in the overall goal of the curriculum, but they are not explicitly formulated in the syllabuses (which steer teaching and subjects and courses) which makes it difficult to address how they may have changed over time (Cedefop, 2020a, SE, p. 2).

These examples provide insight into the structural elements applied across systems to present and structure VET content in the written curriculum. The lowest common denominator to structure VET content in Europe seems to be the distinction into general and vocational content on the one hand and mandatory and elective content on the other. VET subjects are often further distinguished into practical and theoretical or general and specific. Further, transversal skills are either considered as part of general knowledge or both general and vocational skills. Despite the variety of approaches, overlapping concepts and categorisations can be observed across systems that may serve as a basis for comparison. However, such a comparison would only be possible on a case-by-case basis, between countries which apply the same distinctions. For instance, it would be possible to compare the proportions of theoretical and practical occupation-related knowledge and skills in Slovenia and Austria, but it would not be possible to compare the importance of transversal skills between the two countries based on the written curriculum.

4.2. Balance between skills and change over time

The previous chapter illustrated the wide variety of approaches observed to structure knowledge and skills in VET curricula and qualifications. From the perspective of cross-country comparison and comparison over time, this adds some complexity to the task. The Cedefop (2020b) study, which analysed IVET qualifications at EQF levels 3 and 4 also encountered this issue. In this exploratory study, the balance between different types of learning outcomes was assessed by country experts. Box 12 presents some results of this study:

Box 12. **Insights from the Cedefop study on IVET qualifications linked to levels 3 and 4**

The study explored what kind of IVET qualifications are linked to EQF levels 3 and 4 (via their inclusion in national qualifications frameworks), focusing on countries that completed the referencing to the EQF by mid-June 2016. Included in the analysis was the balance between different types of learning outcomes in these qualifications: occupational and transversal learning outcomes and general knowledge subjects. As it was not possible to detect this balance based on the analysis of reference documents that present learning outcomes of qualifications, country experts assessed the distribution of types of learning outcomes in the qualification descriptions. The following observations were made.

Most of the qualifications analysed have a strong focus on occupational learning outcomes: ‘More precisely, an average of 64% of the learning outcomes included in IVET qualifications at EQF levels 3 and 4 focus on occupational learning outcomes.

General subjects take up around 24% of the qualifications, and specifically labelled transversal learning outcomes account for only 12%' (Cedefop, 2020b) ([52]).

This comparatively low proportion of transversal skills does not necessarily indicate a lack of interest or neglect of them. On the contrary, they often seem to be included in the occupation-specific or general subjects or modules.

Comparing EQF levels 3 and 4 reveals that those linked to EQF level 4 have a higher share of general knowledge and transversal learning outcomes. This is due to the fact that they often provide access to higher education and could also be seen as a reaction to the demands of the labour market.

Source: Cedefop (2020b).

Comparison over time can present a further challenge, as the structure or the categorisation of subjects may have changed (such as when ICT skills originally considered as vocational are now understood as transversal or general skills, as observed in the example of Czechia). The extent of individualisation and autonomy of VET providers in shaping curricula is another aspect that poses a challenge for comparison, as illustrated hereafter.

4.2.1. Balance of skills: individualisation and school autonomy

The VET systems of some countries are characterised by a degree of individualisation in terms of setting the content of VET programmes or qualifications, as well as defining shares between different types of skills and competences. The overall balance is not only determined at the programme level, but also at the level of schools or even the individual student. Due to these elements of individualisation or autonomy of VET systems, it is not possible to estimate the exact share of skills types or to make an assessment of how the balance between type of skills has changed over time.

For example, in Iceland the Upper Secondary Act from 2008 and the National guide for upper secondary schools from 2011 established higher autonomy for schools, giving them more responsibility and flexibility in the development of study programmes. Hence, the exact share of general subject knowledge and occupation-specific skills differs between schools; schools may respond to regional and labour market needs by combining different courses. Further, so-called occupational councils take a central part in the development of VET programmes

([52]) Another Cedefop study that analysed the balance of different types of learning outcomes in 10 VET qualifications from 10 European countries also revealed that in two thirds of the qualifications, the learning outcome descriptions clearly focus on occupation-specific learning outcomes (Auzinger; Broek and Luomi-Messerer, 2017). The higher share of occupational learning outcomes in IVET qualifications compared to transversal ones is also confirmed in the Cedefop study Comparing VET qualifications (Luomi-Messerer et al., 2019a). In this case, the balance was identified by mapping national VET qualifications to relevant ESCO occupational profiles and the ESCO list of transversal concepts. Learn more on the project and its methodologies here.

in Iceland, as they provide guidance on vocational education issues at the upper secondary school level. This role includes the definition of job descriptions and competence requirements, conducting reviews of upper secondary qualifications, as well as keeping record of companies that are suitable for work-place learning (Cedefop, 2020a, IS, p. 2).

The VET system in the Netherlands applies a concept of 'three-fold qualification purpose' in secondary VET programmes. Because of this concept, an assessment of change in terms of different skills types is not applicable, as it does not specify categories of skills and competences, or minimum/maximum shares of skills. Rather, it has the following three fundamental aims: preparing students for a specific occupation or occupational field; providing them with the basis for further education; and preparing them for citizenship (full participation in society). School curricula, which are derived from national qualification files, contain VET content (occupation-specific requirements), so-called generic requirements – classes in English (for VET level), Dutch, arithmetic – as well as requirements for career development and citizenship. However, these national qualification files are not suited to indicating the shares between different skills types: it '[…] is not possible to estimate the shares of occupation-specific skills, general subject knowledge and transversal skills and competences included in national qualifications, as there are no national qualifications integrating, or even covering the three sections of a qualification, in terms of level-specific sets of learning outcomes. Neither is it possible to assess whether and to what extent this balance has changed in recent decades' (Cedefop, 2020a, NL, p. 3).

Whereas generic requirements are defined in level-specific reference levels, this is not the case for career and citizenship requirements. Here the decision about topics and activities is made by schools and teachers. Occupation-specific requirements prescribed in national qualification files need to adhere to the core activities of an occupation and underlying skills and competences, knowledge and standards (Broek, 2021; Cedefop, 2020a, NL, pp. 2).

This three-fold concept and the qualification files do not allow for analysis of how the balance shifted, but an assessment of the overall direction of change over the years can still be made. Looking at apprenticeships, reforms since the 1990s saw a move away from the labour market, and a stronger emphasis on general education and transversal skills. In contrast, school-based VET has become more labour market oriented, with programmes having an increased workplace orientation.

4.2.2. Balance of skills: examples from Finland, Norway and Slovakia

Finnish VET qualifications include three sets of skills and competences: common studies, vocational studies and optional studies. Besides compulsory

competences, students can choose skills and competences in accordance with their individual needs as part of their optional studies (Cedefop, 2020a, FI, p.2). As the example of minimum levels of competences for qualifications in the field of Business and administration shows (Table 10), the extent of optional studies has increased over the years at the expense of common studies (communication, mathematics and natural sciences as well as societal and working life skills); these have roughly halved between the early 1990s and 2017. Vocational studies have also become more prominent, accounting for over 60% of the overall qualification ([53]).

Table 10. **Finland example: minimum level of competences, over years – Business and administration**

Year	Common studies (%)	Vocational studies (%)	Optional studies (%)
1990	38%	55%	7%
1992	44%	48%	8%
2000	17%	67%	16%
2017	19%	62%	19%

Source: Cedefop (2020a).

In Slovakia, reform in 2008 led to a process of decentralisation in the development of curricula. Before this reform, education built on detailed 'input-based' curricula, which required the approval of the education ministry. From 2008 onwards, schools have been developing their own curricula based on national curricula setting educational standards (the so-called State educational programmes, *štátny vzdelávací program*). The decentralisation has increased the schools' autonomy as they can determine part of the content by themselves. This percentage of VET content which may be decided at school level is defined within the national curriculum framework. As Table 11 shows, upper secondary VET programmes have a higher share of content determined by individual schools compared to lower secondary VET education. Whereas lower secondary VET programmes allow schools to determine between 8% to 21% (depending on the specific programme) of the content, the percentage in programmes at upper secondary level range from 30% to up to 42% (Cedefop, 2020a, SK, pp. 2; Vantuch and Jelinkova, 2019).

([53]) In Finland, general studies were first strengthened between the 1990s and 2000s. Afterwards, between 2000 and 2010, the competence-based approach gained relevance and so-called skills demonstrations (later named competence demonstrations) were developed.

Table 11. **Slovakia: shares of theory and practice in VET**

Programme	Entry requirements	ISCED 2011	%				Progression routes
			general	VET theory	VET practice	decided by schools	
2-year lower secondary VET with up to 80% WBL	Incomplete lower secondary (basic) education	253	9	3	80	8	Labour market; upper secondary programmes conditioned by completion of a bridging programme
3-year VET with a minimum of 50.5% WBL	Lower secondary (basic) education certificate	353	22	18	48	12	Labour market; post-secondary follow-up programmes
4-year VET with a minimum of 36.4% WBL		354	35	14	33	18	Labour market; post-secondary programmes leading to a (second) VET qualification, specialisation programmes or higher professional programmes; higher education programmes
School-based 4-year VET			36	23	20	21	
2-year follow up programmes	Upper secondary 3-year VET certification in related study field	454	35	23	12	30	
2-year programmes leading to a (second) VET qualification	Upper secondary (general or VET) education certificate	454	0	33	21	46	Labour market; post-secondary specialisation programmes or higher professional programmes; higher education programmes
2-year programmes leading to a (second) VET qualification with extended practical training		454	0	32	65	3	
3-year Higher professional programmes		554	0	26	33	41	Labour market; higher education programmes
2-year Specialisation programmes	Upper secondary VET certificate in related study field	554	0	34.85	22.73	42.42	

Source: Vantuch,and Jelinkova (2019, p.73).

Norway provides a further example of how the distribution of content in VET programmes has changed over time. With Reform 94, a common curriculum structure was introduced for all vocational programmes, leading to a significant

increase in the scope of general subjects, from 13% to 31% of the total instruction hours in the 2 school-based years. The increased emphasis on general subjects was supported by the social partners at the central level in favour of a broad competence base to meet changing skills needs in the future.

Table 12. **Distribution of teaching hours in vocational programmes in Norway: comparison between Reform 94 and KL06**

	Reform 94		KL06 (Knowledge promotion reform)	
Subjects	Year 1 – hours	Year 2 – hours	Year 1 – hours	Year 2 – hours
General				
Norwegian	56	56	56	56
English	56	56	84	56
Mathematics	84		84	
Natural science	56		56	
Physical education	56	56	56	56
Social sciences		56		84
Total – general subjects	308	224	336	252
Vocational subjects	616	700	477	477
Optional subjects	56	56	168	253

Source: Mogstad Aspøy and Hagen Tønder (2021).

With the KL06 reform, all curricula, from primary education through upper secondary education, were revised to strengthen further basic skills like reading, writing, mathematics and digital competences. As part of this reform, basic skills were integrated into the competence goals.

An evaluation of the reform identified large variations in how basic skills were understood in schools, and to what extent they had become an established, common concern with each school. The curriculum changes did not seem to have any major impact on apprenticeship in training firms; trainers generally felt that the new curricula were not sufficiently vocationally oriented. As a result, a new comprehensive curriculum reform, LK20, is currently being implemented (the new curricula for the first-year vocational programmes were launched in the autumn of 2020). The new reform reflects a shift from content-based to competence-based curricula, together with three interdisciplinary themes to be integrated into all subjects: democracy and citizenship, sustainable development, and public health and life skills.

Although these are just examples, two findings stand out. First (example from Finland), the extent to which students may choose competences for their studies in accordance with their own needs in the form of optional studies has increased

over time (Section 3.2.2). Also, this development is accompanied by a reduction in compulsory common studies. Second (example from Slovakia), the autonomy of individual schools to define content has become higher in recent years (Section 2.4.2), and the higher the education level, the more autonomy is permitted.

This section provided initial examples of how the balance between general knowledge, vocational skills and transversal skills has changed, and discussed some important aspects which need to be taken into consideration when assessing such changes: the level of VET (ISCED 3 or 4), the extent of optional content, and changes at system and institutional levels, such as decentralisation. We now analyse the growing emphasis on general education and transversal skills more systematically.

4.2.3. Trend towards increased emphasis on transversal skills

A stronger emphasis on transversal skills in VET programmes and qualifications over recent years has been reported by many countries. Whereas this increase is evident in most of them ([54]), for two (Bulgaria and Slovakia) this direction of change can only be assumed, as there is no hard evidence available for this assessment.

In Estonia, national VET and adult education development plans from the past 15 years highlight the growing relevance of transversal skills in VET programmes. Teaching VET students such skills follows the aims of better responding to the requirements of labour market and changing economic conditions. Transversal skills include entrepreneurship, social skills and attitudes (including career planning) as well as learning competence (including readiness for lifelong learning) (Cedefop, 2020a, EE, p. 3).

In Cyprus, changes were made to the curricula with the 2016/17 reform. Since then, curricula are oriented towards learning outcomes and are based on learning modules and units (derived from ECVET). Also, they include foreign languages, entrepreneur skills, maths, science/technology, digital skills, learning to learn competences, career management skills, numeracy and literacy (Cedefop, 2020a, CY, p.2).

In Austria, the increased emphasis on transversal skills can be mainly derived from various different policy decrees related to transversal competences (Cedefop, 2020a, AT, p.3) rather than from information in the curricula. The Austrian expert consulted in this study summarised the situation as follows: ‘The development towards learning-outcome orientation plays a major role in changing the importance of subject-related, general education and transversal competences in VET (both school-based and apprenticeship training). Even if this has no direct influence on the composition and distribution of competence areas in the curricula,

([54]) E.g. for Austria, Cyprus, Denmark, Germany, Estonia, Croatia, Hungary, Italy, Latvia, Lithuania, Norway, Romania.

a certain rethinking in the teaching of content can be observed through learning-outcomes orientation, whereby transversal competences become more central. However, […] there is a lack of concrete studies that quantify this development.' (Cedefop, 2020a, AT, p. 4). Curricula of VET colleges for business administration, for instance, include a specific subject cluster on 'social competence and personality development' which focuses specifically on transversal skills. Entrepreneurial competence is represented in a wide variety of ways in the curricula of vocational schools, e.g. in the competence areas of business, accounting or as a separate cluster entrepreneurship, in secondary colleges for business administration (BMBF, 2017; Lachmayr and Proinger, 2019).

Another interesting case of an increase in transversal (as part of general) skills are the 3- and 4-year regional VET programmes (IeFP) in Italy. The significant expansion observed here is a response to an increased emphasis on general and transversal skills at policy level but can also be explained with the extension of the duration of the overall programmes (from 2 years to 3 to 4 years) as the following example shows.

Box 13. **The increase in transversal skills in Italian regional VET programmes**

Transversal skills gained more importance in regional VET curricula (3 to 4-year IeFP courses) in terms of hours in the curricula. In Italy, the term general education is generally also understood to include what is understood as transversal skills and competences, soft skills, basic cultural skills, key competences, personal, social, learning, entrepreneurial resources, and problem solving and relational skills, digital skills.

Since 2003, the share of general/cultural/basic contents (also related to transversal skills) has been significantly increased in regional VET curricula; this is a result of starting the process of formally including regional IVET in the upper secondary national education and training system.

Overall, the curricula show an increase in hours dedicated to basic competences and workplace learning with a corresponding reduction in practical learning and workshops and in technical-professional contents, as illustrated in the table below (Cedefop, 2020a, IT, pp. 2-3; 18).

Table: **Key changes in regional VET between 1995 and 2020**

1995	2003-06	2007-11	2020
Course contents: • 80% on technical-professional skills • 20% on general skills		Course contents (exemplary for electronic equipment installers and repairers in the Lombardy Region): • 35-45% basic competences • 55-65% technical-professional competences • 20-50% training in workplaces	
No curricula but region-based system of qualifications: 2-year courses with the max. 1-year additional specialisation courses; contents based	3-year and 4-year pilot-courses leading to national IVET qualifications and diplomas (but under Regions' responsibility); progressive definition of basic and professional final learning outcomes; course contents defined by training institutions according to Regions' indications	Regional IVET entitled to fulfil compulsory education (10 years of education) and basic and cultural contents were strengthened (in the first 2 years of qualification courses); revision and final definition of both basic and technical learning outcomes but no definition of any curricula (at national, regional and training institution level)	New definition of final learning outcomes (in 2019) for both qualifications and diplomas Cultural basic skills have been increased, especially those related to digitalisation, citizenship and STEM; introduction of a set of 'personal, social, learning and entrepreneurial resources'

Source: Vergani (2021).

The following example from the German electrical engineering sector illustrates an insertion of transversal skills in an otherwise stable environment that is characterised by a stable relationship between general and vocational contents throughout.

Box 14. **Imparting transversal skills in the training model for the German electrical engineering sector**

The principles of curriculum design in German upper secondary IVET have remained stable between 1995 and 2020, with the *Lernfelder* concept (learning fields) continuing to serve as a guiding principle for structuring the syllabi for the school-based part of dual VET programmes. Accordingly, the relationship between general and vocational contents has not changed fundamentally over the past 25 years. What can be observed, though, is a growing emphasis on key competences such as teamwork or working with flat hierarchies, but also language and communication skills; this may be regarded as a shift towards or growing awareness of transversal competences.

In the example of the electrical engineering sector, an integrated training model has been in place since 2003 that structures curricula into so-called fundamental or core qualifications (understood as units of learning outcomes) and specialised qualifications; the two were to be imparted side by side. This training model can be regarded as an effective approach for the imparting transversal skills. The reason is

that all parts of the training curriculum, core qualifications and specialised contents alike, are always related to the work context. Planning skills, for instance, cannot be acquired in isolation from professional activities and their settings. All units refer to areas of professional activity in which the transversal skills are situated.

Source: Wittig (2021).

4.2.3.1. *Current policy debates on transversal skills*

In the Maltese VET system, key competences, sectoral skills and underpinning knowledge are defined for each MQF VET qualification. Definitions of these three types of learning outcomes, as provided by the NCFHE (National Commission for Further and Higher Education) in the latest Referencing report (NCFHE, 2016) suggest that transversal skills are defined together with general skills as key competences. The understanding of key competences is based on the definition by the European Commission, which differentiate between eight types, including skills such as digital competences, learning to learn or interpersonal, intercultural and social competences, and civic competence. 'Sectoral skills' are skills which are relevant for a specific sector and derive from labour market demands. 'Underpinning knowledge' refers to theoretical knowledge; this serves as the basis on which sectoral skills are applied at work. The curriculum department of the Malta College for Arts, Science and Technology (MCAST), which adheres to the NCFHE Reference report, is currently considering both how to make transversal skills more visible and whether more transversal skills should be integrated in courses (Cedefop, 2020a, MT, pp. 2).

The VET system in the Netherlands is another example of an increasing interest in transversal skills. Here, this skills type is labelled '21st century skills', which can be included in various school activities: cross-curricula projects (activities taking place both in school and other locations such as neighbourhoods, workplace), participating in discussions during citizenship lessons, presenting an argument, motivational reflections, or engaging in career guidance. Although they are not formally included in the national qualification files, teaching these skills has become popular in schools in recent years (Cedefop, 2020a, NL, p. 3). They are especially offered as part of the elective modules.

The discussion on transversal skills, and the examples presented in this section, show various developments: several countries report a growing relevance of transversal skills in VET programmes. However, there is no clear trend in how such skills are being imparted across different VET systems. Some of the examples discussed suggest inclusion of transversal skills in general subject knowledge (e.g. Italy), but there were also cases where we saw them being integrated in VET content as well. The Finnish VET system provides an example how transversal skills are integrated in both general education and VET content

(common studies and vocational studies): 'Additionally transversal skills and competences are an essential part of vocational competence, and students also acquire them in connection with their vocational studies. The emphasis of the transversal skills and competences varies in different fields' (Cedefop, 2020a, FI, p. 2).

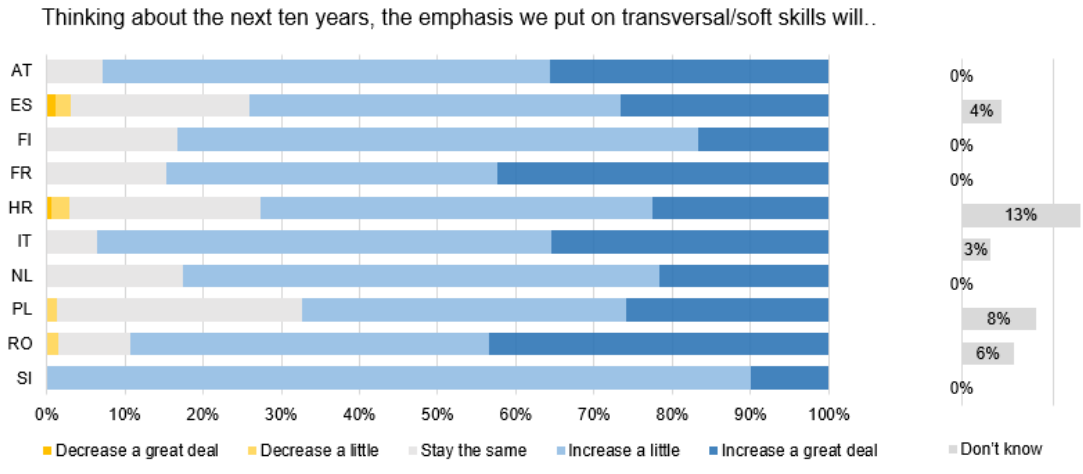
The discussion on transversal skills further indicates that certain types of competence, such as entrepreneurship or digital skills, may be more associated with vocational skills, regardless of whether they are integrated in general education or occupation-specific curricula content.

The different practices in dealing with transversal skills in upper secondary curricula in Europe might indicate that the concept of transversal skills itself is not a useful category for curriculum planning. Yet it challenges traditional curriculum planning in VET, which is essentially based on three categories: the general, the vocational-practical and the vocational-theoretical components. A better definition and structuring of transversal skills, as provided for instance by ESCO (Chapter 2), may provide a way forward in this respect.

4.2.3.2. *Insights from the VET provider survey*

Respondents to the VET provider survey were asked to give an estimation of the future emphasis on transversal/soft skills in their institutions. As Figure 14 below shows, most respondents across the focus countries of the survey believe that transversal/soft skills will increase in the coming years. This assessment is especially clear among respondents from Italy, Austria and Slovenia; in all three cases over 90% indicated an increased emphasis in the future. This result further confirms the trend discussed earlier of an increasing relevance of transversal skills in VET programmes.

Figure 14. **Future emphasis on transversal/soft skills**



NB: n = 881.

Source: VET provider survey; data from selected countries

4.2.4. Relationship between occupation-specific skills and general subject knowledge

The following section addresses trends in the relationship between occupation-specific skills and general subject knowledge in VET programmes and qualifications ([55]). In several countries general education has become more relevant over recent years, either for all VET programmes or for a particular VET track/stream, leading to an increase in general subjects in the balance of skills and knowledge ([56]).

For example, with the latest VET reform in Denmark, general subject knowledge became more prominent and integrated into the teaching of occupation-specific skills. For instance, the basic mathematics and algebra a carpenter requires is taught as part of practical training (in a workshop) instead of teaching students theoretical algebra in a classroom (Cedefop, 2020a, DK, pp. 1).

In Cyprus, upper secondary VET (technical and vocational programmes) is organised in two possible variants: the 'theoretical direction' and the 'practical direction'. In 2001, the content and structure of secondary VET was adapted, introducing a renewed curriculum. After these changes, each of the two directions had a common first year of study for the field of study, which had the purpose of giving VET students solid general education and generic skills related to their study field. This first year was followed by specialisations in the second and third year of the programme. Besides this focus on general education during the first year of study, the reform also emphasised subjects such as environment, modern technology, entrepreneurship and foreign languages (Cedefop, 2020a, CY, p. 2).

In several countries there is a trend towards an increase in occupation-specific skills ([57]). For example, a new VET law introduced modular VET programmes in Lithuania from 2019 onwards. Previously, there were discussions on the skills-mismatch between acquired VET skills and the tasks to be performed in the workplace, and shortcomings in students' practical skills. These newly developed modular programmes contain a significantly higher share of occupation-specific content than before, while at the same time putting less emphasis on general subject knowledge.

([55]) As an overview, Table 21 in Annex C presents some of the examples of shares between vocational and general components in VET programmes.

([56]) Bulgaria, Cyprus, Czechia, Denmark, Estonia and Italy.

([57]) In Austria, Lithuania, Hungary, Malta and Sweden. An increase is assumed (no evidence provided) in the United Kingdom and partly in Croatia (for 3-year VET programmes).

Table 13. **Lithuania: change in balance**

	Occupation-specific skills	General subject knowledge	Transversal skills
Before 2019 law	15%	80%	5%
After 2019 law (introduction of modular programmes)	35%	50%	15%

Source: Cedefop (2020a, LT, p. 2).

Before the introduction of modular programmes, general subject knowledge dominated the content of VET programmes at 80%. Since 2019, this share has been reduced to 50%. Besides an increase in occupation-specific skills, the new law also meant a higher share of transversal skills (15%) (Cedefop, 2020a, LT, p. 2).

In Sweden, reform in 2011 led to a reduction of general subject knowledge and an increase in occupation-specific skills. This was done to shift qualifications from a vocational preparatory diploma to a vocational diploma, which would better prepare VET students for the labour market (Cedefop, 2020a, SE, p. 2). In 2018, the Swedish government made a proposal for including courses (aesthetics and courses which provide eligibility for tertiary education) in VET programmes, which would have led to an increase in the share of general-subject knowledge by 50%. However, this proposal was turned down by the Swedish Parliament (Cedefop, 2020a, SE, p. 6).

Czechia provides a good example of how the balance between occupation-specific skills and general subject knowledge may evolve over time and change in both directions.

Table 14 illustrates a contrasting development for the two major streams of IVET, which are 3-year programmes (ISCED 3C (353)) leading to a vocational certificate, and 4-year vocational programmes (ISCED 3A (354)) with the *maturita* examination. Whereas the share of occupational content increased and the share of general education decreased in the 3-year programmes, the balance in 4-year programmes moved in the other direction, putting a higher emphasis on general education subjects and less on VET content.

In the 3-year programmes, the share of general education decreased to 29%. This development must be understood in the following context: prior to 1989, teaching of most secondary schools took place based on an alternative curriculum where general education had a share of 16.5%. However, there are no official recordings available of the real shares. During the same time, the share of general education in the 4-year programmes stayed at the same level (approximately 40%). In 1998, so-called ‘key competences’ were introduced to VET programmes, including communication, problem solving and ICT skills. A curriculum reform in

2004 was marked by 'academic drift' in 4-year programmes, as the share of general education increased from roughly 40% to 52%. In Czech VET, some subjects (ICT and economics) were moved from occupation-specific content to the general education component (Cedefop, 2020a, CZ, pp. 2; Federičová, 2021).

Table 14. **Czechia: change in balance between general and vocational components for ISCED 353 and ISCED 354 streams, over time (1990-2020)**

			General component		Vocational component		TOTAL	
Form of study	Period	Length of study	Length per week	%	Hours per week	%	Hours per week	Ratio (weekly hours per year)
ISCED 3C (353)	Before 1989	3	38	37%	66	63%	103	35
	1990-97	3	28	28%	72	72%	100	33
	1998-2004	3	29	29%	70	71%	98	33
	After 2004	3	28	30%	71	72%	99	33
ISCED 3A (354)	Before 1989	4	51	39%	80	61%	131	33
	1990-97	4	54	41%	78	59%	132	33
	1998-2004	4	53	39%	82	61%	134	34
	After 2004	4	69	52%	64	48%	132	33

Source: Federičová (2021).

In Austria, the relationship between occupation-specific skills and general subject knowledge has remained relatively stable, although variations can be identified across different areas and curricula. Table 7 (Section 3.3.1) compares the shares of different subject areas across a number of different VET curricula. For apprenticeship training, the share of general subjects varies between 4% and 6% (in terms of hours in the curriculum). For intermediate-level VET schools, this share is between 33% and 44%, and is highest for VET colleges (37%-50%). The share of general subjects even significantly varies across the individual curricula and areas ([58]) (Schlögl, P.; Stock, M. and Mayerl, M., 2019b). It is often difficult to draw an exact line between general education content and VET content, e.g. when the writing of business correspondence is taught as part of foreign language

([58]) Tourism VET colleges: 37%; VET college of mechanical engineering (41%); VET college for business administration: 50%.

subjects. In the curricula of VET colleges for early childhood pedagogy, for instance, the description of general subjects often includes a separate section related to the transfer to the occupational field ([59]) (BMBF, 2017). It is, however, difficult to assess whether this 'vocational contextualisation' of general education in VET has changed over the last decades.

4.2.4.1. *Current policy debates on general subject knowledge*

Past criticism of apprenticeships and NVQs in UK-England was that the general education content was weak. Several attempts have been made through recent years to improve the general education element, though it is not clear whether these attempts have been successful. It has been tried most recently with the newly introduced T-levels The policy debate about the balance between general and vocational education appears to have been largely settled with the emphasis, over time, being increasingly on the specific skills required to be competent in an occupation. However, this will also vary according to the occupation. It is clear that some apprenticeships standards have a substantial general element.

There has been policy discussion on the apprenticeship pathway in Austria, mainly led by employee representatives, calling for further expansion of the general subject content and for more time spent in vocational schools ([60]).

The discussion in this section on the balance between occupation-specific skills and general education shows two trends. First, several countries aim to strengthen the general education component of VET programmes. As the developments of the 4-year VET programmes in Czechia show, this trend can be linked to academic drift in vocational education. In Demark, the emphasis on general education was achieved by better integrating it into vocational activities. Second, while an increase in occupational content is less common than the trend of emphasising general education, this focus is reported in some cases. Possible reasons for this decision may be an initially low level of VET content and shortcomings in practical skills of VET students (Lithuania) or the aim of preparing students better for requirements of the labour market (Sweden).

Although evidence is still weak, the changes observed at the level of curricula may reflect and reinforce the national trends identified for upper secondary education in general in the previous projects. Countries with strong VET systems have mainly experienced academic drift, whereas countries with traditionally weak enrolment in VET witnessed vocational drift.

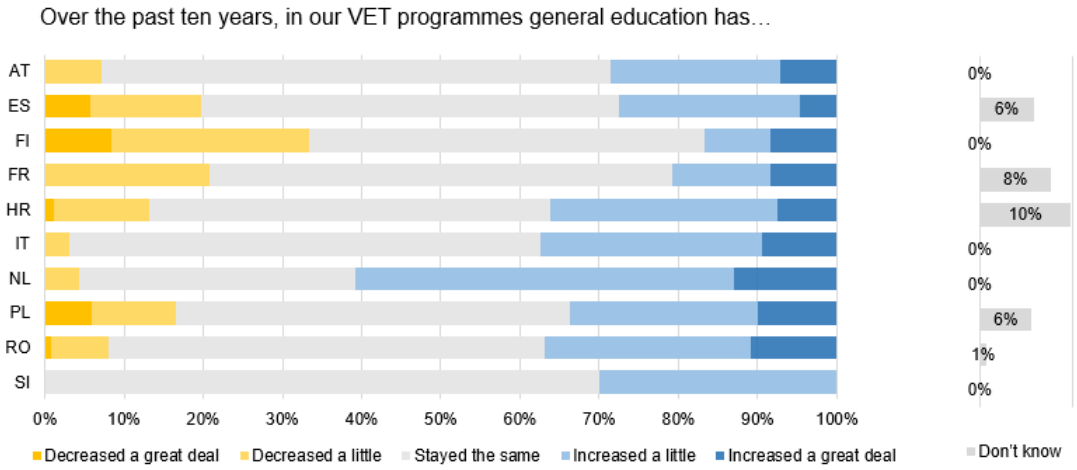
([59]) For example, as part of the subject description for German, this translates as follows: ‘The students can transfer their linguistic and literary knowledge to the pedagogical professional field and apply it creatively.’

([60]) As referred to in Chapter 3, this current debate is more about political discussions than concrete developments. Another strand of discussion revolves around a model of trial training based on the Swiss model.

4.2.4.2. *Insights from the VET provider survey*

Figure 15 presents results from the VET provider survey, focusing on questions on the past emphasis of general education and integrated learning and instructions.

Figure 15. **Past emphasis on general education/ subjects**

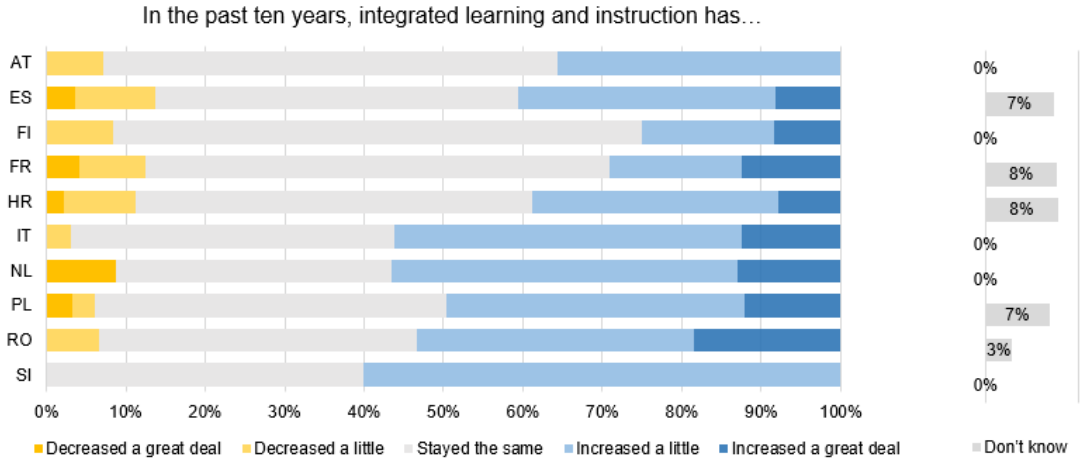


NB: n = 881.
Source: VET provider survey; data from selected countries.

Respondents in almost all countries estimate that the focus on general education in VET programmes has stayed stable over recent years (ranging between 45% and 65%); only respondents from Dutch VET providers have chosen this option slightly less often (35%). The Netherlands further stands out when looking at estimations on an increasing emphasis on general education, as over 60% of respondents see an increase in recent years. In contrast, responses from France and Finland suggest a decrease in general education (over 30% in Finland).

The survey also enquired about the implementation of integrated approaches to learning and instruction of general subjects (such as mathematics and foreign languages) and vocational or practical training at VET institutions during the past 10 years. The results from the survey illustrate that, for the majority of countries, fewer than 50% of respondents reported an increase of integrated approaches to learning and instruction at their institution. This suggests that such approaches are currently being implemented to a limited extent only (Figure 16). The outcome for Austria provides an interesting result in the sense that the increased curricular integration described above does not (yet) seem to have significantly impacted the teaching and learning process, according to respondents' perceptions.

Figure 16. **Past changes in integrated learning and instruction**



NB: n = 881.
Source: VET provider survey; data from selected countries.

The VET provider survey also asked respondents whether changes in content had led to increased focus on specific types of contents or skills. Table 15 presents the types of content most chosen by the 10 focus countries. The table indicates that 'digital/ computer skills' was the most frequently chosen content type across all countries, with an average share of almost 60%, followed by 'depth of vocational expertise and specialisation' (34%) and 'being able to work with others (33%). The estimation of an increasing focus on digital skills was especially high in Finland (75%) and Austria (71%). A stronger emphasis on the 'depth of vocational expertise and specialisation' is most prominent among respondents from Italian VET providers (66%).

Table 15. **Changes in content: increasing focus on specific types of content / skills ([61])**

Type of content/ skill *	Focus countries average value	Focus countries with highest and lowest values	
		Highest	Lowest
Digital / computer skills	57%	FI (75%), AT (71%)	PL (39%), NL (39%)
Depth of vocational expertise and specialisation	34%	IT (66%), FR (42%)	FI (8%), HR (26%)
Being able to work with others	33%	NL (52%), RO (48%)	PL (14%), AT (21%)
Social and communication skills	31%	AT (50%), NL (48%)	HR (20%), RO (23%)
Breadth of vocational expertise	29%	PL (65%), NL (35%)	AT (14%), RO (17%)
Learning to take initiative	21%	FI (50%), NL (35%)	AT (7%), FR (8%)
Environmental / green skills	18%	FI (33%), FR (30%)	ES (11%), PL (11%)
English language	14%	AT (29%), ES (21%)	FI (0%), NL, (9%)
Physical and manual skills, e.g. dexterity	10%	RO (30%), HR (18%)	FI (0%), NL (0%)

NB: (*) options not presented in table (average value for focus countries <10%): literacy skills; numeracy skills; foreign languages (other than English).
n = 881.

Source: VET provider survey; data from selected countries.

4.2.5. Insights into the role of research-based knowledge in IVET

We have not been able to collect sufficient information to explore systematically the question on the role of research-based knowledge in IVET. However, there is scattered evidence that research-based knowledge in IVET is becoming more important. For instance, from the provider survey we know that, in the Netherlands, Slovenia and Finland, a significant share of respondents (over 40%) reported that R&D cooperation with higher education had increased at their institutions, while little or no change was reported for most other countries surveyed. An equally large share of respondents in these countries, as well as in France, also reported that

([61]) Question in VET provider survey: And thinking about changes in the content of VET at your institution, have they led to an increased focus on the following being delivered?

they have increasingly delivered programmes and/or courses jointly with higher education institutions.

In Malta, the Malta College of Arts, Science and Technology is the country's leading vocational education and training institution and provides courses from Introductory Level A up to EQF level 8. This includes apprenticeship at EQF level 3 and 4 as well as professional doctorate programmes. With research activity gaining in importance in the college, MCAST introduced, in 2019, a master degree in vocational education applied research to equip specialists and leaders in vocational education and training with current and future competences needed to prepare learners for the world of employment. This shall contribute to a shift towards innovative practices that link teaching and impact research within the context of vocational, further and higher education.

In the Netherlands, VET schools have the potential to establish their own applied vocational research positions, similar to the universities of applied sciences (*praktoraten*) ([62]). These research positions aim to stimulate innovation and to realise excellence in vocational education and training while working with companies. In the new period (after 2020), according to future-oriented exploration developed by the Ministry of Education, Culture and Science, VET institutions (ROCs) will reform in regional centres for innovation and VET (*regionale centra voor innovatie en beroepsonderwijs*: CIB) (Ministerie van Onderwijs, 2020). These centres combine lower secondary VET, upper secondary VET, and universities of applied sciences, bringing them together with local employers, governments and health care institutions ensuring an integrated responsibility for the economic and the social functions of VET.

([62]) Lear more here.

CHAPTER 5.

Conclusions

The aim of this report was to explore changes in the epistemological and pedagogical-didactical basis underpinning vocational education and training at upper secondary level in Europe. It particularly looked at how knowledge, skills and competence are differentiated in curricula, and how the balance between occupation-specific skills, general subjects and transversal skills has evolved since the mid-1990s.

In the absence of an international taxonomy that could be used to categorise different forms and content of knowledge, and the difficulties of developing one in the context of the project, an empirical approach was adopted which focused on key differentiations commonly made in curricula (and related documents). This has meant that, at least for some countries, it has been possible to determine changes in the balance between occupation-specific skills and general skills, between classroom and work-based learning. However, based on the document analysis and the expert survey carried out, comparisons between countries have been possible only in relative terms. This means that it has been possible, for instance, to make statements about which countries are placing increasing value on general education knowledge and to what extent, but it has not been possible to compare directly the extent of general education knowledge between the countries. This becomes obvious with the example of foreign languages, which are sometimes seen as general, sometimes as occupation-specific even within one country, depending on the occupation. While the VET provider survey provides better comparability between countries than the document analysis, this is only in relative terms (increasing/decreasing trend towards transversal skills).

The study has asked: ‘To what extent can we observe an increased emphasis on general subjects in IVET programmes and qualifications? If so, how have these been integrated and what have they replaced?’. Both the VET provider survey and the survey among ReferNet experts proves that several countries have strengthened the general education component of VET programmes by using different means (either by increasing the extent of teaching general subjects or by better integrating them into the vocational curriculum). An increase in the occupational skills component is reported only in a few cases and usually due to an initially low level of VET content or shortcomings in the practical skills of VET students. Although evidence is still weak, the changes observed at the level of curricula may reflect and reinforce the national trends identified for upper

secondary education in general in previous projects: countries with strong VET systems have mainly experienced academic drift, whereas countries with traditionally weak enrolment in VET have witnessed vocational drift.

The increased emphasis on general skills has not taken place at the expense of workplace learning. On the contrary, the increase in workplace learning in IVET curricula has been ubiquitous, although it becomes increasingly difficult to assess the exact extent, due to increased flexibility allowed at provider/individual level in the combination of different learning environments. A parallel increase in general skills and workplace learning is possible either from stronger integration of general skills into workplace and workplace-related learning, such as occupation-related theoretical instruction, or by increasing the extent of general subjects in school. Evidence shows that the latter can be at the expense of occupation-related theoretical knowledge or practical skills in schools:

(a) we can observe an increase in workplace learning in countries with a weaker 'VET base' (i.e. low enrolment in VET versus general education as in Greece, Spain, Cyprus, Lithuania, Malta);
(b) we can also observe such an increase in some countries characterised by broadening profiles and decreasing numbers of qualifications (both broadening profiles and increase of workplace learning takes place).

A number of countries increasingly integrate workplace learning into the learning process by combining different learning environments flexibly. However, there are still many examples where workplace learning is a relatively detached element in the learning process, a weakly integrated component.

In many cases, available reference documents such as framework curricula do not specify the share of learning to be undertaken in workshops, laboratories or practice firms. In some cases, a defined share of practical learning to be undertaken by a learner to achieve a VET qualification is provided, but without further specifying learning sites and environments.

The study has also asked: 'To what extent can we observe an increased emphasis on transversal skills in IVET programmes and qualifications? If so, how are these integrated and what do they replace?'. Overall, there is a trend of transversal skills being increasingly visible in reference documents for VET qualifications and programmes. However, they are expressed in a variety of different forms and are, for example, either included in general education or in vocational studies, or indirectly covered, such as via teaching approaches/methods (as is the case in Denmark and Poland). The following general observations can be made.

(a) Despite this overall trend, there are many systems where transversal skills are not specifically labelled and the extent or share of such skills is difficult to determine.

(b) At first glance, it might seem that transversal skills are mostly integrated into general knowledge, but the analysis shows that they are included in general and vocational education, depending on the country (part of general VET subjects in Bulgaria; part of work skills in Ireland).
(c) Even in cases where transversal skills are considered part of general education, some of these skills, such as entrepreneurship, career management or digital skills, might be more associated with vocational content. This seems to confirm a conclusion reached in (Cedefop, 2020) that an emphasis in transversal skills could be a sign of either vocational or academic drift, depending on the type of skills.

It can be concluded that the integration of transversal skills poses a challenge to the traditional curriculum design in VET, which is essentially built on three categories: general school subjects, theoretical vocational knowledge and practical vocational skills. Weakly classified curricula, such as the German framework curricula in the dual system, largely avoid any decomposition into general/vocational, practical/theoretical or transversal/occupation-specific skills, knowledge, competences or abilities, although related documents such as school timetables allow some distinction between general and occupation-related content, at least for the learning taking place in school.

The study also asked to what extent can we observe changes in the number of IVET qualifications across Europe and whether this is related to a broadening/narrowing of occupational focus? In some countries, the observed reduction in the number of VET qualifications over time is the outcome of a deliberate strategic process at VET system level (for instance to broaden profiles or simplify bureaucracy); in other cases, such developments seem to appear ‘less planned’ and simply reflect changing demand. However, relying solely on information on the number of qualifications without further analysis can lead to false assumptions; a reduction in the number of VET qualifications is not necessary linked to a deliberate broadening of profiles.

Changes in VET curricula at upper secondary level need to be interpreted in the context of curriculum changes in general. The OECD (2020), for example, lists four types of curriculum innovation that have taken place in recent decades and which are not new in themselves, but are yet to become mainstream:

(a) digital curriculum;
(b) individualised or tailored curriculum;
(c) cross-curricular content and competence-based curriculum;
(d) flexible curriculum.

These are not clear-cut concepts, but umbrella concepts which also partly overlap. For instance, the digital curriculum refers to the way content related to information and communications technology (ICT) is integrated either by

establishing new subjects, or into existing ones using technologies for a specific purpose in schools (e.g. digitalising textbooks). The individualised or tailored curriculum refers, among other issues, to involving students as joint designers of curricula, which in turn is related to curriculum flexibility, conceptualised by the OECD as adaptability and accessibility of the curriculum for schools and teachers to respond to students' needs and capabilities. Despite their complexities, it is interesting to put the changes we observed in VET curricula in the current perspective of these broader developments. Both in the provider survey and the case studies we found clear evidence for each of these categories.

The realisation of the digital curriculum was most clearly expressed in the provider survey where the trend to digital skills stood out. Examples of individualised learning were reported by only a few countries but more than 50% of survey respondents indicated that individualised and tailor-made learning (e.g. through individual learning pathways) has increased a little or a lot in the last 10 years. Cross-curricular content enabling students to connect knowledge in a more holistic way became evident both in terms of integrating transversal skills and placing more emphasis on the integration of different learning environments and different subjects. This is illustrated, for instance, by the German *Lernfelder* approach or the latest Danish VET reform. The shift to learning outcomes and competence-based curricula that has already been confirmed by previous Cedefop studies also became visible in our study. The effects of this shift in the experienced curriculum, for instance in terms of improved transversal skills, are another story (see also below). The flexible curriculum can be seen in our results, both in terms of increased freedom for providers to decide how VET is delivered and in terms of the expected increase in curriculum choices for learners as confirmed by the provider survey. Hence, some of the changes observed in curricula of vocational education and training at upper secondary level in Europe are clearly embedded in trends occurring in all types of curricula; others, such as the increase in workplace learning, are specific to VET.

While we were able to answer the main research questions, there are a number of challenges and limitations to our research.

(a) Assessing the significance of change comparatively on the basis of reports and reference documents was challenging. Some reports claim relative stability over time, possibly missing or even masking significant changes that have taken place in more incremental steps. Others mention profound reforms where it is not entirely clear whether they have actually reached the classroom or implementation level.

(b) In some countries, we were able to assess the direction of change based on policy directions and expert assessment, but not really through the kind of curriculum comparison we had envisaged (for example, Dutch qualification

files cannot be assessed this way as education delivery is entirely within the realm of VET providers).

(c) Both analysing and comparing the content of VET is becoming increasingly difficult when optional elements and electives play an increasingly important role.

(d) Quantitative information on the balance between different types of knowledge and skills was mostly accessible when timetables were available. While quantitative information based on work-load or teaching hours might be the 'easiest' way to analyse change, it is not without caveat. The general transition to learning outcomes and competence-based approaches may impede such comparison in the future.

(e) We have not been able to collect sufficient information to explore seriously the question of the role of research-based knowledge in IVET. However, the limited evidence we have, and the fact that IVET is increasingly offered at higher levels, suggest that research-based knowledge is gaining importance in IVET.

Good research not only answers existing questions, it also raises new questions. The approaches and differentiations developed in the project for the study of curricula (and related documents) illustrate where there is a need for further research. For example, the ambivalent position of transversal skills shows that more in-depth research is needed both on the written and the enacted curriculum. For instance, it is not clear how learning at the workplace (as part of internships or apprenticeships) contributes to the acquisition of transversal skills and how this should be depicted in curricula. Therefore, we would like to propose future research activities that have resulted from the work on this component of the Future of VET project. Some of them directly address the above challenges.

1. Improving the conceptual basis for comparative vocational curriculum research.

The sort of top-down conceptual work which has started to develop a theoretically robust taxonomy of vocational knowledge, skills and competences needs to be continued, but should be complemented with a bottom-up 'empirical' approach which jointly scrutinises a sample of VET curricula by a small research team sharing a common understanding of the issues at stake. This includes examining how, and through which models and concepts, professional practice and learning are represented in specific curricula. For this purpose, a 'bootcamp' approach, where experts come together for a few days to work out a solution, seems to be more promising than delegating the task to dislocated individuals.

2. Improving access to curricula and securing continuity of research by building up a European database for well-selected curricula.

While access to national curricula for national experts is usually easy, problems arise when curricula are used for international comparison. For each project, the documents need again to be searched for, retrieved and classified and questions of comparability considered. Future projects would benefit from an archive of curricula and related documents for well-selected 'reference occupations' in selected countries. This could start with a few occupations and a few countries. Besides the selection question, important issues to be considered relate to the cataloguing of the various documents of the written curriculum (curricula, framework curricula, guides for the implementation of curricula, training guides, occupation profiles, educational standards) and the additional information desired (such as which actors/bodies produced and/or approved the documents). Such an archive would be helpful for various Cedefop projects, not just those which conduct curriculum research.

3. Building up a rudimentary monitoring system for curriculum change in VET.

Based on the information collected, some basic analysis of the changes in 'reference occupations' (such as the share of vocational and general content) could be conducted on a regular basis (as in every 3 years). This could be complemented by regular collection of some easy-to-obtain indicators, such as the number of regulated qualifications, frequency and extent of the renewal of qualifications and curricula. Cooperation between Cedefop and Eurydice is proposed for this activity

4. Linking with research on the enacted and experienced curriculum.

Many of the issues raised in this study only become truly compelling when the analysis of the intended curriculum is combined with the enacted and experienced curriculum. How are general or transversal skills didactically integrated into work-based learning? To what extent does work-based learning foster general or transversal skills? How are cross-sectoral domain-specific skills best taught? There are many other relevant questions. Research on the enacted and experienced curriculum should be combined with research on the written curriculum. For instance, OECD's work on a VET PISA would certainly benefit from the curriculum database and monitoring suggested above, since the written curriculum is a fundamental element in understanding differences in learners' achievements.

5. Linking with other perspectives.

We have 'borrowed' our methodological approach from a model which builds on the three-perspectives model, but we have almost exclusively focused on one of

them, the epistemological and pedagogical-didactical one. A whole set of new research questions arises when the other perspectives are brought in more explicitly. How are changes in the financing or governance of VET influencing the coordination of different learning sites, the balance between company-specific and domain-specific knowledge or the balance between core and optional curriculum elements? How inclusive are IVET curricula concerning different target groups? Which wider conceptions of work and work ethics or of citizenship are conveyed by VET curricula? Some related questions, such as how IVET is opening up to adults, are to be dealt with in other components of the Future of VET project, but many more are left for subsequent projects.

This research has looked in depth at the concepts and practices of the intended and, to some extent, the enacted curriculum, and how they have changed over time. No direct conclusions on the effects on the experienced curriculum (learning achievements) can be made based on this study.

CHAPTER 6.
Glossary

Assessment (internal and external) is the process of appraising knowledge, skills and competences of an individual against predefined criteria (learning expectations, learning outcomes). Assessment can be carried out within the VET provider (internal assessment) or outside the VET provider, e.g. through an external examination board or external verifier (external assessment).

Classroom instruction means instruction that takes place in a setting where individuals receiving training are assembled together and learn through lectures, study papers, class discussion, textbook study, or other means of organised formal education techniques, such as video or other forms of electronic means, and as distinguished from (on-the-job education or training) individual instruction.

Combined schools/institution may offer segregated and/or integrated general and vocational programmes as opposed to separate schools which either offer exclusively general education (GE) or vocational education and training (VET). Essentially, we distinguish between: separated schools, GE or VET; combined schools offering separated GE and VET programmes; combined schools offering integrated GE and VET ('hybrid') programmes and/or separated GE and VET programmes.

Curriculum is a normative document (or a collection of documents) setting the framework for planning learning experiences. Depending on the country, the type of education and training, and the institution, curricula may define, among other learning outcomes, objectives, contents, place and duration of learning, teaching and assessment methods to a greater or to a lesser extent (Cedefop, 2010).

Education provider: Organisation that provides education, either as a main or ancillary objective. This can be a public education institution or a private enterprise, non-governmental organisation or non-educational public body (UNESCO Institute for Statistics (UIS), 2012).

Hybrid qualifications or programmes combine vocational and general education subjects and might be offered in combined schools/institutions. They have a hub function as they prepare for qualified entrance into working life (in the sense of VET) and are valued as labour market entry qualifications by employers while at the same time opening access to higher education.

Initial vocational education and training (IVET) Vocational education and training carried out in the initial education system, usually before entering working life (Cedefop, 2014).

Occupation-specific skills are skills required for or related to the performance of activities (e.g. producing a predefined outcome or solving a problem) within one occupation and its specialisms. Skills are typically expressed in terms of what an individual who works in a specific occupation is able to do. For example, using accounting systems, operating welding equipment or supervising nursing staff.

Practical learning in workshops refers to experiential learning or hands-on learning as the process of learning through experience, or more specifically as learning through reflection on doing, usually taking place in groups (classes) and in specifically equipped classrooms or workshops (e.g. computer rooms, laboratory rooms, workshop rooms, training yards) within the school environment.

Programme (education programme): a 'coherent set or sequence of educational activities designed and organised to achieve pre-determined learning objectives or accomplish a specific set of educational tasks over a sustained period. Within an education programme, educational activities may also be grouped into sub-components variously described in national contexts as 'courses', 'modules', 'units' and/or 'subjects'. A programme may have major components not normally characterised as courses, units or modules – for example, play-based activities, periods of work experience, research projects and the preparation of dissertations' (UNESCO Institute for Statistics (UIS), 2012).

Qualification is usually defined as a formal outcome of an assessment and validation process which is obtained when a competent body determines that an individual has achieved learning outcomes to a given standard (Council of European Union, 2017). In this study, the term 'qualification' is used as a short form for 'qualification standards'**,** i.e. the (written) norms and specifications regulating the award of a certificate or diploma.

Transversal skills and competences (TSCs) are learned and proven abilities which are commonly seen as necessary or valuable for effective action in virtually any kind of work, learning or life activity. They are 'transversal' because they are not exclusively related to any particular context (job, occupation, academic discipline, occupational sector, group of occupational sectors, etc.). In this study, the term 'transversal skills' is used as a short form for 'transversal skills and competences' ([63]).

([63]) Proposed definition as presented by the ESCO/EQF expert group here, see the ESCO portal.

Workplace learning in companies in the context of this work refers to experiential learning or hands-on learning (see above) as part of an education programme, usually taking place individually or in small groups supervised by an instructor, mentor or coach at a specific workplace in a company or another organisation different from an education provider (see above).

Acronyms

BBiG	*Berufsbildungsgesetz* (Vocational Training Act) (DE)
CAS	Common awards aystem (IE)
CCP	*Certificat de capacité professionnelle*
Cedefop	European Centre for the Development of Vocational Training
CIB	*Regionale centra voor innovatie en beroepsonderwijs* (NL) [regional centres for innovation and VET]
DAP	*Diplôme d'aptitude professionnelle*
DT	*Diplôme de technicien*
ECVET	European credit system for vocational education and training
EQAVET	European quality assurance in vocational education and training
ESCO	European skills/competences, qualifications and occupations
EU	European Union
EQF	European qualifications framework
FET	further education and training
GNVQ	general national vocational qualification (UK)
ICT	information and communications technology
ISCED	International standard classification of education
ISCO	International standard classification of occupations
IT	information technology
IVET	initial vocational education and training
KH	knowing how
KT	knowing that
IeFP	*istruzione e formazione professionale*
MCAST	Malta College of Arts, Science and Technology
MQF	Malta qualifications framework
NCFHE	National Commission for Further and Higher Education
NGO	non-governmental organisation
NVQ	national vocational qualification (UK)
ROCs	*Regionaal opleidingencentrum* (NL) [regional training centre]
SASE	specification of apprenticeship standards for England
UNESCO	United Nations Educational, Scientific and Cultural Organization
VET	vocational education and training
WBL	work-based learning

Country abbreviations

AT	Austria
BE	Belgium
BG	Bulgaria
CY	Cyprus
CZ	Czechia
DK	Denmark
DE	Germany
EE	Estonia
EL	Greece
ES	Spain
FI	Finland
FR	France
HR	Croatia
HU	Hungary
IE	Ireland
IS	Iceland
IT	Italy
LT	Lithuania
LU	Luxembourg
LV	Latvia
MT	Malta
NL	Netherlands
NO	Norway
PL	Poland
PT	Portugal
RO	Romania
SE	Sweden
SI	Slovenia
SK	Slovakia
UK	United Kingdom
US	United States

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Annex A: Additional materials, Chapter 2

Box 15. **Categorising and structuring knowledge in written curricula of the German dual system**

When looking at the general or transversal content of dual VET in Germany ([64]) there are three relevant documents ([65]): the training regulation (*Ausbildungsordnung*) that includes the occupational profile; the respective framework-curriculum (*Rahmenlehrplan*); and State curricula (*Landeslehrplan*) determining the cross-occupational content of the school-based part ([66]).

The framework curricula, in their introduction, stress the importance of 'professional competence, self-competence and social competence' and define those at a very general level, but this distinction is not used to structure the curricula. Similarly, the training regulation refers to 'skills, knowledge and abilities' but does not apply this distinction to structure the occupational profile. Instead, a distinction into occupation-related and cross-occupational content is applied. The essential structural element of the framework curricula are so-called learning fields (*Lernfelder*) or fields of occupational work (*berufliche Handlungfelder*). Both terms are used; these are usually to 10-15 essential occupational fields of action, which are described in the form of the enumeration of concrete activity descriptions, i.e. minimum learning outcomes.

The framework curricula, together with the State curricula, form the joint basis for the school-based occupational instruction. The framework curriculum specifies the occupation-related instruction (at least 8 hours of a minimum of 12 hours school-based instruction) for vocational education in vocational colleges. The remaining 4 hours (out of the usual 40 hours for both school-based and work-based learning per week) are devoted to general educational content (*cross-occupational,* e.g. German/communication, religious education/ethics, sports/health promotion, politics/social studies) and can either follow the recommendation of the framework curriculum or be regulated by the State curricula.

However, general and transversal skills are considered to be integrated also into occupation-related instruction. The overall aim to reach professional competence (*Berufliche Handlungsfähigkeit*) according to a specified occupational profile (*Berufsbild*) and the learning fields, includes various elements of general and transversal skills, as the following quote illustrates: 'Compared to traditional subject-

([64]) Vocational experts, nominated by employers, employee associations and the federal states and the respective responsible federal ministries develop the documents within a complex process. Hence, VET curricula always represent a compromise between diverse interests and conceptual backgrounds.

([65]) This box relates only to dual VET according to the federal law, BBiG (Vocational Training Act) or the Crafts Code. For school-based VET there are other curricular reference materials. Information in this box is based on the documents mentioned and a number of sample framework curricula, training regulations and timetables in banking and car service.

([66]) https://www.kmk.org/fileadmin/veroeffentlichungen_beschluesse/2021/2021_06_17-GEP-Handreichung.pdf

oriented teaching, the learning field concept represents the reversal of a perspective. The starting point of learning field-based teaching is no longer the subject-specific theory (*Fachwissenschaft*), for the understanding of which as many practical examples as possible were to be used in teaching. Rather, the starting point is professional tasks or problems that are developed from the professional field of action and prepared didactically. The knowledge required for the professional competence is generated on this basis. The multidimensionality that characterises actions in an increasingly globalised and digitalised world of life and work (e.g. economic, ecological, legal, scientific, technical and foreign language, communicative, social and ethical aspects) requires a broader approach than the perspective of a single subject discipline. For this reason, subject-specific systematics are integrated into an overarching system of action. The subject references to be taught, which are necessary for the accomplishment of professional tasks, result from the requirements of the tasks or problems. Direct practical relevance of the acquired knowledge thus becomes clear and the knowledge is integrated into the new context.' ([67])

For vocational school instruction, however, there is, among other things, a partial 'translation' of learning fields into classic subjects and timetables. These, in turn, are clearly divided into occupation-specific and cross-occupational subjects. An assignment of learning fields and subjects is partly given in the form of assignment matrices, which often results in multiple assignments.

In the written curricula of the German dual system, reference to diverse knowledge classifications such as 'professional competence, self-competence and social competence' or 'skills, knowledge and abilities' can be found. However, these are not used to structure the curriculum. A separation of occupation-related and cross-occupational knowledge is given in the regulations, but their relationship and consequently change of the extent cannot be determined. A separation and determination (of the change in the ratio) between occupation-related and cross-occupational knowledge is partly possible via timetables. However, a separation between more practical and theoretical content for the occupation-specific part is not even possible even the vocational school part; there is no information on the use of practice rooms, workshops or laboratories. Hence, the framework curricula are very integrative (weakly classified) and the systematisation follows principles of professional practice and not the classification of knowledge types; at the school level, some separation between general education and occupation-related content remains.

Source: Cedefop.

([67]) Kultusministerkonferenz (2021, p. 11, own translation).

Box 16. **UK-England apprenticeships: from frameworks to standards**

Publicly funded apprenticeships commenced in 1994. While employer organisations were supportive of a substantial technical component to an apprenticeship and regarded this as central to engaging employers with the programme, the critique of apprenticeships was that the general education content was weak. Although the frameworks contained a requirement for individuals to have a mathematics and English qualification, there was relatively little specification of general education.

Frameworks have increasingly been supplanted by apprenticeship standards from 2017 onwards. Apprenticeship standards are designed by employers (or groups of employers), are less specific and less prescriptive with respect to what is to be learned, do not need to contain a qualification, and require an end point completion.

The switch to standards has brought employers more to the fore in their design (though it needs to be borne in mind that the employer voice was strong on the sector bodies which designed frameworks). It is, however, not clear whether there has been any change in general content of training in that the commitment to this seems to be the same as for frameworks: a qualification in mathematics and English ([68]).

Source: Case study UK-England.

([68]) English, maths and ICT are described as 'transferable skills' (SASE guidance, Specification of apprenticeship standards) or functional skills and key skills (occupation specific SASE framework).

Annex B: Additional materials, Chapter 3

Table 16. **Available qualifications where an award made, 2014 to 2018 for UK-England**

	Available qualifications				
Qualification type	2014/15	2015/16	2016/17	2017/18	2018/19
Advanced extension award	1	1	1	1	1
End-point assessment	0	0	0	5	6
English for speakers of other languages	279	231	209	208	229
Entry level	57	52	37	32	16
Functional skills	209	209	203	179	166
GCE A Level	224	221	271	228	201
GCE AS Level	226	279	294	247	189
GCSE (9 to 1)	0	0	12	96	138
GCSE (A* to G)	340	340	335	180	12
Key skills	25	13	1	0	0
Occupational qualifications	2 316	2 690	2 980	3 219	3 268
Other general qualifications	334	376	440	430	436
Other life skills qualification	1 132	1 121	1 152	1 210	1 268
Other qualifications	103	40	21	10	0
Other vocational qualifications	315	345	388	509	512
Performing arts graded examination	321	337	351	348	371
Project	12	12	12	13	13
QCF	3 449	2 555	1 634	726	172
Vocationally related qualifications	3 934	4 231	4 614	5 112	5 254
Total	13 277	13 053	12 955	12 753	12 252
Total vocational or vocational related	6 565	7 266	7 982	8 840	9 034

Source: Ofqual Annual Qualifications Market Report 2018 to 2019 academic year.

Table 17. **Development of numbers of qualifications (only regional IVET and electrical sector) in Italy**

	1995	2003-06	2010	2020
Number of qualifications	Not available at national level or at regional level	At national level only 'basic-competence minimum standards' have been defined in 2004; 14 qualifications (3 years) defined in 2006, no national definition for diploma-related profiles	21 qualifications (3 years) and 21 diplomas (4 years) (national level)	26 qualifications (-years) and 26 diplomas (4 years) (national level)
Of which referred to electrical equipment installers and repairers	See here above	One profile for qualification (Installer and maintainer of electrical equipment); no profile for diploma	One profile for qualification (Electrical operator, no branches) and one for diploma (Electrical technician, no branches)	One profile for qualification (Electrical operator, with 4 branches) and one profile for diploma (Electrical technician, with 2 branches)

Source: Vergani (2021).

Table 18. **Development of the qualifications, and qualifications between 2012 and 2021 in the Netherlands ([69])**

English	Dutch	2012		2021		2020	
		Qualification files	Qualifications	Qualification files	Qualifications	Student numbers	Students per qualification
Building and infrastructure	1. Bouw en infra 79000	19	63	17	56	14 814	265
Finishing, wood and maintenance	2. Afbouw, hout en onderhoud 79010	24	72	17	45	13	0
Technology and process industry	3. Techniek en procesindustrie 79020	21	90	22	83	41 535	500
Craft, laboratory and health engineering	4. Ambacht, labo-ratorium en gezond-heidstechniek 79030	19	55	15	31	8 054	260
Media and design	5. Mediaen en vormgevin 79040	12	55	10	24	2 719	113
Information and communication technology	6. Informatie en communicatietechnologie 79050	4	9	3	4	23 838	5 960
Mobility and vehicles	7. Mobiliteit en voertuigen 79060	19	41	9	22	16 299	741
Transport, shipping and logistics	8. Transport, scheep-vaart en logistiek 79070	25	46	17	38	18 484	486
Trade and entrepreneurship	9. Handel en onder-nemerschap 79080	16	34	9	16	27 198	1 700
Economy and administration	10. Economie en administratie 79090	11	28	8	22	52 310	2 378
Safety and sports	11. Veiligheid en sport 79100	5	15	4	13	13 455	1 035
Make-up and care	12. Uiterlijke verzorging 79110	3	8	4	10	13 224	1 322
Catering and bakery	13. Horeca en bakkerji 79120	8	26	8	21	24 008	1 143
Tourism and recreation	14. Toerisme en recreatie 79130	4	12	1	4	7 731	1 933
Care and welfare	15. Zorg en welzijn 79140	15	22	12	24	148 827	6 201
Food, nature and living environment	16. Voedsel, natuur en leefomgevin	42	99	16	51	27 301	535
Entry qualifications (level 1)	Entree kwalificaties (niveau 1)			1	9	14 966	1 663
Cross-over					134	5 283	39
Total numbers (not cross-over)		247	675	173	473	460 059	

Source: Crebo lists for 2012 and 2021 (SBB, 2021) and DUO data on students per sector (DUO, 2020), own calculations.

([69]) The table shows a number of interesting aspects of the Dutch system. First, there is a fall in the number of qualifications and qualification files; this is more substantial in specific smaller sectors than larger sectors. For instance, the number of qualifications in some specialisations (finishing, wood and maintenance) fell from 72 to 45. Also, in trade and entrepreneurship, qualifications went from 34 to 16, and in tourism the number decreased from 12 to 4. The larger sectors in terms of student numbers, such as care and welfare, business studies and administration, and technology and process industries – together responsible for half of the VET students – only suffered a limited fall in the number of qualifications.

Table 19. **Development in the number of upper secondary VET programmes and certificates in Norway**

Reference	Number of programmes Vg1	Number of programmes Vg2	Number of certificates
Prior to 1994	113 foundation	160	
Reform 94	11-13	90	224
Reform KL06	9 vocational	80 (50 vocational)	204
2017*	8 vocational	no data	190
2020	10 vocational + 4 new to be introduced	72 (53 vocational)	193

NB: R94 refers to Reform 94, KL06 refers to the Knowledge Promotion Reform of 2006.
Vg1 refers to first-year courses, Vg2 refers to second-year courses.

Source: Own calculations based on Cedefop (2020a) and Mogstad Aspøy and Hagen Tønder (2021).
Data for 2017 is taken from Cedefop (2017b).

Table 20. **Number of actively taught fields by category of upper secondary vocational education (excluding fields in general education): Czechia**

Category of education	1998	2003	2008	2016	2019
ISCED 3C* (C+D+J)	14	11	7	7	7
ISCED 3C (E+H)	289	249	186	111	109
ISCED 3A (L0+M)	376	324	281	108	110
ISCED 4A (L5)	109	72	42	25	24
ISCED 5B (Nk)	6	5	4	9	5
ALL	794	661	520	266	255
From that in the group of fields:					
18 Informatics	0	0	0	1	1
26 Electrical engineering	66	56	32	11	11
53 Healthcare	9	9	9	8	10

Source: Federičová (2021).

Annex C: Additional materials, Chapter 4

Table 21. **Examples: shares between vocational and general components in VET programmes (%, rounded)**

	Vocational component	General component
AT – higher VET college Business	50%	50%
AT– higher VET college Engineering	59%	41%
CZ – ISCED 3c (since 2004)	72%	28%
CZ – ISCED 3a (since 2004)	48%	52%
LT – VET programme (after 2019)	35%	65%
FI – Vocational qualification in business (2017)	62%	19%
	(19% optional component)	
SK – 2-year programmes leading to (second) VET qualification	55%*	0%
	(45% decided by schools)	
SK – 2- year programmes leading to (second) VET qualification with extended practical training	97%*	0%
	(3% decided by schools)	
SK – 3-year Higher professional programmes	60%*	0%
	(40% decided by schools)	

(*): includes VET theory and VET practice.
Source: Cedefop (2020a) and country case studies.

Annex D: Data analysis: quantitative insights from the VET provider survey

Table 22. **Variety of qualifications: past 10 years**

	A8.4 Thinking about changes in your institution over the past 10 years, to what extent has there been an increase or decrease in the following? Please note we are interested in all learners enrolled at your institution: the variety of qualifications we deliver has…											
	Increased a little		Increased a great deal		Stayed the same		Decreased a little		Decreased a great deal		Don't know	
	Anzahl der Zeilen (%)	Anzahl	Anzahl der Zeilen (%)	Anzahl	Anzahl der Zeilen (%)	Anzahl	Anzahl der Zeilen (%)	Anzahl	Anzahl der Zeilen (%)	Anzahl	Anzahl der Zeilen (%)	Anzahl
Austria	42.9%	6	7.1%	1	50.0%	7	.0%		.0%		.0%	
Croatia	30.1%	58	4.1%	8	46.6%	90	10.4%	20	1.6%	3	7.3%	14
Cyprus	25.0%	1	50.0%	2	25.0%	1	.0%		.0%		.0%	
Denmark	50.0%	2	25.0%	1	25.0%	1	.0%		.0%		.0%	
Finland	58.3%	7	.0%		33.3%	4	.0%		8.3%	1	.0%	
France	61.5%	16	26.9%	7	7.7%	2	3.8%	1	.0%		.0%	
Iceland	.0%		.0%		100.0%	2	.0%		.0%		.0%	
Ireland	22.2%	2	11.1%	1	55.6%	5	11.1%	1	.0%		.0%	
Italy	40.6%	13	15.6%	5	31.3%	10	9.4%	3	3.1%	1	.0%	
Latvia	77.8%	7	11.1%	1	11.1%	1	.0%		.0%		.0%	
Malta	50.0%	1	50.0%	1	.0%		.0%		.0%		.0%	
Netherlands	34.8%	8	.0%		43.5%	10	21.7%	5	.0%		.0%	
Poland	53.8%	86	15.0%	24	26.3%	42	3.1%	5	.6%	1	1.3%	2
Romania	43.2%	60	18.0%	25	29.5%	41	7.2%	10	.7%	1	1.4%	2
Slovenia	70.0%	7	.0%		30.0%	3	.0%		.0%		.0%	
Spain	43.4%	119	15.0%	41	35.8%	98	1.8%	5	.4%	1	3.6%	10

Source: VET provider survey. Data from selected countries. n = 911.

Table 23. **B1.1 and B1.2**

B1-4. Changes in your institution over the past 10 y.		AT	HR	FI	FR	IT	NL	PL	RO	ES	CY	DK	IE	IS	LV	MT	SI	Total
B1.1 In our VET programmes general education (e.g. numeracy, literacy and languages) has…																		
Don't know	Count		19		2			9	1	16	1			1				49
	%	0%	9.8%	.0%	7.7%	.0%	.0%	5.6%	.7%	5.8%	25.0%	.0%	.0%	50.0%	.0%	.0%	.0%	5.4%
Decreased a great deal	Count		2	1				9	1	15								28
	%	0%	1.0%	8.3%	.0%	.0%	.0%	5.6%	.7%	5.5%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	3.1%
Decreased a little	Count	1	21	3	5	1	1	16	10	36			1					95
	%	7.1%	10.9%	25.0%	19.2%	3.1%	4.3%	10.0%	7.2%	13.1%	.0%	.0%	11.1%	.0%	.0%	.0%	.0%	10.4%
Stayed the same	Count	9	88	6	14	19	8	75	76	136	2	4	3	1	5		7	453
	%	**64.3%**	**45.6%**	**50.0%**	**53.8%**	**59.4%**	34.8%	46.9%	54.7%	49.6%	50.0%	100.0%	33.3%	50.0%	55.6%	.0%	70.0%	49.6%
Increased a little	Count	3	50	1	3	9	11	36	36	59			5		2	2	3	220
	%	21.4%	25.9%	8.3%	11.5%	28.1%	47.8%	22.5%	25.9%	21.5%	.0%	.0%	55.6%	.0%	22.2%	100.0%	30.0%	24.1%
Increased a great deal	Count	1	13	1	2	3	3	15	15	12	1				2			68
		7.1%	6.7%	8.3%	7.7%	9.4%	13.0%	9.4%	10.8%	4.4%	25.0%	.0%	.0%	.0%	22.2%	.0%	.0%	7.4%
B1.2 Changes in your institution over the past 10 years: in the VET programmes we deliver, the use of real-world problems and work processes to transfer knowledge has…																		
Don't know	Count		19		4			11	1	13								48
	%	0%	9.8%	.0%	15.4%	.0%	.0%	6.9%	.7%	4.7%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	5.3%
Decreased a great deal	Count		4					4		4								12
	%	0%	2.1%	.0%	.0%	.0%	.0%	2.5%	.0%	1.5%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	1.3%
Decreased a little	Count		13	1	1	1	1	6	5	16								44
	%	0%	6.7%	8.3%	3.8%	3.1%	4.3%	3.8%	3.6%	5.8%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	4.8%
Stayed the same	Count	2	54	4	7	5	1	47	43	73	2		3		1		3	245
	%	14.3%	28.0%	33.3%	26.9%	15.6%	4.3%	29.4%	30.9%	26.6%	50.0%	.0%	33.3%	.0%	11.1%	.0%	30.0%	26.8%
Increased a little	Count	10	82	7	7	19	12	69	60	96		3	4	1	5	1	5	381
	%	71.4%	42.5%	58.3%	26.9%	59.4%	52.2%	43.1%	43.2%	35.0%	.0%	75.0%	44.4%	50.0%	55.6%	50.0%	50.0%	41.7%
Increased a great deal	Count	2	21		7	7	9	23	30	72	2	1	2	1	3	1	2	183
	%	14.3%	10.9%	.0%	26.9%	21.9%	39.1%	14.4%	21.6%	26.3%	50.0%	25.0%	22.2%	50.0%	33.3%	50.0%	20.0%	20.0%

Source: VET provider survey. Data from selected countries. n = 911.

Table 24. **B1.3 and B1.4**

B1-4. Changes in your institution over the past 10 y.		AT	HR	FI	FR	IT	NL	PL	RO	ES	CY	DK	IE	IS	LV	MT	SI	Total
B1.3 Taking into account the needs of individual companies in our VET programmes has...																		
Don't know	Count		29					15	4	14				1	1			64
	%	0%	15.0%	.0%	.0%	.0%	.0%	9.4%	2.9%	5.1%	.0%	.0%	.0%	50.0%	11.1%	.0%	.0%	7.0%
Decreased a great deal	Count		8	1				7		4								20
	%	0%	4.1%	8.3%	.0%	.0%	.0%	4.4%	.0%	1.5%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	2.2%
Decreased a little	Count	1	16						8	10								35
	%	7.1%	8.3%	.0%	.0%	.0%	.0%	.0%	5.8%	3.6%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	3.8%
Stayed the same	Count	5	63	1	4	6	5	58	28	74	1	3	3	1	1		1	254
	%	35.7%	32.6%	8.3%	15.4%	18.8%	21.7%	36.3%	20.1%	27.0%	25.0%	75.0%	33.3%	50.0%	11.1%	.0%	10.0%	27.8%
Increased a little	Count	8	64	9	12	18	9	55	54	98	2	1	5		3	2	6	346
	%	57.1%	33.2%	75.0%	46.2%	56.3%	39.1%	34.4%	38.8%	35.8%	50.0%	25.0%	55.6%	.0%	33.3%	100.0%	60.0%	37.9%
Increased a great deal	Count		13	1	10	8	9	25	45	74	1		1		4		3	194
	%	.0%	6.7%	8.3%	38.5%	25.0%	39.1%	15.6%	32.4%	27.0%	25.0%	.0%	11.1%	.0%	44.4%	.0%	30.0%	21.2%
B1.4 The use of vendor-specific learning materials, content and tools (e.g. specific car or software brands) has…																		
Don't know	Count		22		1	2	3	16	5	19		1	1		1			71
	%	.0%	11.4%	.0%	3.8%	6.3%	13.0%	10.0%	3.6%	6.9%	.0%	25.0%	11.1%	.0%	11.1%	.0%	.0%	7.8%
Decreased a great deal	Count		5				1	4	1	9								20
	%	.0%	2.6%	.0%	.0%	.0%	4.3%	2.5%	.7%	3.3%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	2.2%
Decreased a little	Count		14	1	1		1	6	7	7								37
	%	.0%	7.3%	8.3%	3.8%	.0%	4.3%	3.8%	5.0%	2.6%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	4.1%
Stayed the same	Count	2	43	6	11	12	3	70	38	93	2	2	4	1		1	3	291
	%	14.3%	22.3%	50.0%	42.3%	37.5%	13.0%	43.8%	27.3%	33.9%	50.0%	50.0%	44.4%	50.0%	.0%	50.0%	30.0%	31.9%
Increased a little	Count	8	90	5	10	11	9	43	52	99		1	1	1	5	1	5	341
	%	57.1%	46.6%	41.7%	38.5%	34.4%	39.1%	26.9%	37.4%	36.1%	.0%	25.0%	11.1%	50.0%	55.6%	50.0%	50.0%	37.3%
Increased a great deal	Count	4	19		3	7	6	21	36	47	2		3		3		2	153
	%	28.6%	9.8%	.0%	11.5%	21.9%	26.1%	13.1%	25.9%	17.2%	50.0%	.0%	33.3%	.0%	33.3%	.0%	20.0%	16.8%

Source: VET provider survey. Data from selected countries. n = 911.

Table 25. **B1.5 and B1.6**

		AT	HR	FI	FR	IT	NL	PL	RO	ES	CY	DK	IE	IS	LV	MT	SI	Total
B1.5 The extent of learning at work or on-the-job in our programmes has…																		
Don't know	Count	1	17		1			6	2	8					1			36
	%	7.1%	8.8%	.0%	3.8%	.0%	.0%	3.8%	1.4%	2.9%	.0%	.0%	.0%	.0%	11.1%	.0%	.0%	3.9%
Decreased a great deal	Count	1	4					3	1	7								16
	%	7.1%	2.1%	.0%	.0%	.0%	.0%	1.9%	.7%	2.6%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	1.8%
Decreased a little	Count		14					8	5	11			1	1				40
	%	.0%	7.3%	.0%	.0%	.0%	.0%	5.0%	3.6%	4.0%	.0%	.0%	11.1%	50.0%	.0%	.0%	.0%	4.4%
Stayed the same	Count	9	61	1	8	8	4	73	26	89	1	3	3		2		3	291
	%	64.3%	31.6%	8.3%	30.8%	25.0%	17.4%	45.6%	18.7%	32.5%	25.0%	75.0%	33.3%	.0%	22.2%	.0%	30.0%	31.9%
Increased a little	Count	3	74	8	13	15	13	50	61	108	2	1	3	1	4	1	5	362
	%	21.4%	38.3%	66.7%	50.0%	46.9%	56.5%	31.3%	43.9%	39.4%	50.0%	25.0%	33.3%	50.0%	44.4%	50.0%	50.0%	39.6%
Increased a great deal	Count		23	3	4	9	6	20	44	51	1		2		2	1	2	168
		.0%	11.9%	25.0%	15.4%	28.1%	26.1%	12.5%	31.7%	18.6%	25.0%	.0%	22.2%	.0%	22.2%	50.0%	20.0%	18.4%
B1.6 The position of the classroom as the central place of learning has…																		
Don't know	Count		14		1			4	1	6				1				27
	%	.0%	7.3%	.0%	3.8%	.0%	.0%	2.5%	.7%	2.2%	.0%	.0%	.0%	50.0%	.0%	.0%	.0%	3.0%
Decreased a great deal	Count		5	5	3	2	2	6	7	6	1	1	2		1			41
	%	.0%	2.6%	41.7%	11.5%	6.3%	8.7%	3.8%	5.0%	2.2%	25.0%	25.0%	22.2%	.0%	11.1%	.0%	.0%	4.5%
Decreased a little	Count	3	41	6	6	14	16	17	20	57	1	2			4	1	5	193
	%	21.4%	21.2%	50.0%	23.1%	43.8%	69.6%	10.6%	14.4%	20.8%	25.0%	50.0%	.0%	.0%	44.4%	50.0%	50.0%	21.1%
Stayed the same	Count	8	91	1	11	11	3	81	52	141	1	1	3	1	3	1	2	411
	%	57.1%	47.2%	8.3%	42.3%	34.4%	13.0%	50.6%	37.4%	51.5%	25.0%	25.0%	33.3%	50.0%	33.3%	50.0%	20.0%	45.0%
Increased a little	Count	1	30		5	3	1	37	41	39			3		1		3	164
	%	7.1%	15.5%	.0%	19.2%	9.4%	4.3%	23.1%	29.5%	14.2%	.0%	.0%	33.3%	.0%	11.1%	.0%	30.0%	18.0%
Increased a great deal	Count	2	12			2	1	15	18	25	1		1					77
	%	14.3%	6.2%	.0%	.0%	6.3%	4.3%	9.4%	12.9%	9.1%	25.0%	.0%	11.1%	.0%	.0%	.0%	.0%	8.4%

Source: VET provider survey. Data from selected countries. n = 911.

Table 26. **B1.7 and B1.8**

		AT	HR	FI	FR	IT	NL	PL	RO	ES	CY	DK	IE	IS	LV	MT	SI	Total
B1.7 Curricular choices within our programmes for learners have…																		
Don't know	Count		19		3	4	1	8	3	10				1				49
	%	.0%	9.8%	.0%	11.5%	12.5%	4.3%	5.0%	2.2%	3.6%	.0%	.0%	.0%	50.0%	.0%	.0%	.0%	5.4%
Decreased a great deal	Count		1		1		1	4	1	3								11
	%	.0%	.5%	.0%	3.8%	.0%	4.3%	2.5%	.7%	1.1%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	1.2%
Decreased a little	Count	1	4	2	1		1	7	5	10				1			1	33
	%	7.1%	2.1%	16.7%	3.8%	.0%	4.3%	4.4%	3.6%	3.6%	.0%	.0%	.0%	50.0%	.0%	.0%	10.0%	3.6%
Stayed the same	Count	6	77		13	12	6	86	53	122		2	1		1		2	381
	%	42.9%	39.9%	.0%	50.0%	37.5%	26.1%	53.8%	38.1%	44.5%	.0%	50.0%	11.1%	.0%	11.1%	.0%	20.0%	41.7%
Increased a little	Count	7	75	8	6	16	9	43	52	101	3	1	6		6	2	7	342
	%	50.0%	38.9%	66.7%	23.1%	50.0%	39.1%	26.9%	37.4%	36.9%	75.0%	25.0%	66.7%	.0%	66.7%	100.0%	70.0%	37.5%
Increased a great deal	Count		17	2	2		5	12	25	28	1	1	2		2			97
	%	.0%	8.8%	16.7%	7.7%	.0%	21.7%	7.5%	18.0%	10.2%	25.0%	25.0%	22.2%	.0%	22.2%	.0%	.0%	10.6%
B1.8 Integrated learning and instruction of general subjects (e.g. mathematics, foreign languages) and vocational or practical training has…																		
Don't know	Count		15		2			11	4	20								52
	%	.0%	7.8%	.0%	7.7%	.0%	.0%	6.9%	2.9%	7.3%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	5.7%
Decreased a great deal	Count		4		1		2	5		9			1					22
	%	.0%	2.1%	.0%	3.8%	.0%	8.7%	3.1%	.0%	3.3%	.0%	.0%	11.1%	.0%	.0%	.0%	.0%	2.4%
Decreased a little	Count	1	16	1	2	1		4	9	26								60
	%	7.1%	8.3%	8.3%	7.7%	3.1%	.0%	2.5%	6.5%	9.5%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	6.6%
Stayed the same	Count	8	89	8	14	13	8	66	54	116	3	2	4	1	2		4	392
	%	57.1%	46.1%	66.7%	53.8%	40.6%	34.8%	41.3%	38.8%	42.3%	75.0%	50.0%	44.4%	50.0%	22.2%	.0%	40.0%	42.9%
Increased a little	Count	5	55	2	4	14	10	56	47	82	1	2	4	1	7	2	6	298
	%	35.7%	28.5%	16.7%	15.4%	43.8%	43.5%	35.0%	33.8%	29.9%	25.0%	50.0%	44.4%	50.0%	77.8%	100.0%	60.0%	32.6%
Increased a great deal	Count		14	1	3	4	3	18	25	21								89
	%	.0%	7.3%	8.3%	11.5%	12.5%	13.0%	11.3%	18.0%	7.7%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	9.7%

Source: VET provider survey. Data from selected countries. n = 911.

Table 27. **B1.10 and B1.11**

		AT	HR	FI	FR	IT	NL	PL	RO	ES	CY	DK	IE	IS	LV	MT	SI	Total
B1.10 The need for self-directed student learning in our programmes has…																		
Don't know	Count		17		3		1	4	1	5				1				32
	%	.0%	8.8%	.0%	11.5%	.0%	4.3%	2.5%	.7%	1.8%	.0%	.0%	.0%	50.0%	.0%	.0%	.0%	3.5%
Decreased a great deal	Count		3					5	2	10								20
	%	.0%	1.6%	.0%	.0%	.0%	.0%	3.1%	1.4%	3.6%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	2.2%
Decreased a little	Count		5					7	5	15								32
	%	.0%	2.6%	.0%	.0%	.0%	.0%	4.4%	3.6%	5.5%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	3.5%
Stayed the same	Count	1	55	1	7	11	3	61	35	72			4		1		3	254
	%	7.1%	28.5%	8.3%	26.9%	34.4%	13.0%	38.1%	25.2%	26.3%	.0%	.0%	44.4%	.0%	11.1%	.0%	30.0%	27.8%
Increased a little	Count	10	95	5	13	20	15	60	69	113	1	3	2	1	6	1	7	421
	%	71.4%	49.2%	41.7%	50.0%	62.5%	65.2%	37.5%	49.6%	41.2%	25.0%	75.0%	22.2%	50.0%	66.7%	50.0%	70.0%	46.1%
Increased a great deal	Count	3	18	6	3	1	4	23	27	59	3	1	3		2	1		154
		21.4%	9.3%	50.0%	11.5%	3.1%	17.4%	14.4%	19.4%	21.5%	75.0%	25.0%	33.3%	.0%	22.2%	50.0%	.0%	16.9%
B1.11 Individualised and tailored learning (e.g. through individual learning plans) has?																		
Don't know	Count	1	17					9	2	10				1	1			41
	%	7.1%	8.8%	.0%	.0%	.0%	.0%	5.6%	1.4%	3.6%	.0%	.0%	.0%	50.0%	11.1%	.0%	.0%	4.5%
Decreased a great deal	Count		2					5	2	11			1					21
	%	.0%	1.0%	.0%	.0%	.0%	.0%	3.1%	1.4%	4.0%	.0%	.0%	11.1%	.0%	.0%	.0%	.0%	2.3%
Decreased a little	Count	1	7					2	6	9								25
	%	7.1%	3.6%	.0%	.0%	.0%	.0%	1.3%	4.3%	3.3%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	2.7%
Stayed the same	Count	2	54	1	4	7	5	64	30	113		1	3	1				285
	%	14.3%	28.0%	8.3%	15.4%	21.9%	21.7%	40.0%	21.6%	41.2%	.0%	25.0%	33.3%	50.0%	.0%	.0%	.0%	31.2%
Increased a little	Count	9	89	1	12	21	14	58	80	97	1	2	5		5	2	10	406
	%	64.3%	46.1%	8.3%	46.2%	65.6%	60.9%	36.3%	57.6%	35.4%	25.0%	50.0%	55.6%	.0%	55.6%	100.0%	100.0%	44.5%
Increased a great deal	Count	1	24	10	10	4	4	22	19	34	3	1			3			135
	%	7.1%	12.4%	83.3%	38.5%	12.5%	17.4%	13.8%	13.7%	12.4%	75.0%	25.0%	.0%	.0%	33.3%	.0%	.0%	14.8%

Source: VET provider survey. Data from selected countries. n = 911.

Table 28. **B2**

Country		B2. And thinking about changes in the content of VET at your institution, have they led to an increased focus on the following being delivered?														
		B2.1 Depth of vocational expertise and specialisation	B2.2 Breadth of vocational expertise	B2.3 Literacy skills	B2.4 Numeracy skills	B2.5 Digital / computer skills	B2.6 Foreign languages (other than English)	B2.7 English language	B2.8 Environmental / green skills	B2.9 Being able to work with others	B2.10 Learning to take initiative	B2.11 Social and communication skills	B2.12 Physical and manual skills, e.g. dexterity	B2.13 Other (please specify)	B2.14 Don't know	Total
Austria	Count	5	2	3		10	1	4	2	3	1	7	1			14
	%	35.7%	14.3%	21.4%	.0%	71.4%	7.1%	28.6%	14.3%	21.4%	7.1%	50.0%	7.1%	.0%	.0%	100.0%
Croatia	Count	50	36	8	9	123	10	21	34	46	40	38	35		19	193
	%	25.9%	18.7%	4.1%	4.7%	63.7%	5.2%	10.9%	17.6%	23.8%	20.7%	19.7%	18.1%	.0%	9.8%	100.0%
Finland	Count	1	3			9			4	4	6	3			1	12
	%	8.3%	25.0%	.0%	.0%	75.0%	.0%	.0%	33.3%	33.3%	50.0%	25.0%	.0%	.0%	8.3%	100.0%
France	Count	11	8	2	2	15	1	3	8	9	2	6	3	1	1	26
	%	42.3%	30.8%	7.7%	7.7%	57.7%	3.8%	11.5%	30.8%	34.6%	7.7%	23.1%	11.5%	3.8%	3.8%	100.0%
Italy	Count	21	10		1	20	3	5	5	12	6	10	1			32
	%	65.6%	31.3%	.0%	3.1%	62.5%	9.4%	15.6%	15.6%	37.5%	18.8%	31.3%	3.1%	.0%	.0%	100.0%
Netherlands	Count	6	8	4	4	9	1	2	3	12	8	11				23
	%	26.1%	34.8%	17.4%	17.4%	39.1%	4.3%	8.7%	13.0%	52.2%	34.8%	47.8%	.0%	.0%	.0%	100.0%
Poland	Count	58	104	13	13	62	8	31	17	23	13	45	23	2	12	160
	%	36.3%	65.0%	8.1%	8.1%	38.8%	5.0%	19.4%	10.6%	14.4%	8.1%	28.1%	14.4%	1.3%	7.5%	100.0%
Romania	Count	53	24	5	7	68	9	20	20	67	26	32	41		5	139
	%	38.1%	17.3%	3.6%	5.0%	48.9%	6.5%	14.4%	14.4%	48.2%	18.7%	23.0%	29.5%	.0%	3.6%	100.0%
Spain	Count	88	63	12	5	154	10	58	29	97	71	97	24	7	16	274
	%	32.1%	23.0%	4.4%	1.8%	56.2%	3.6%	21.2%	10.6%	35.4%	25.9%	35.4%	8.8%	2.6%	5.8%	100.0%
Cyprus	Count	2	1			3				2	1	1				4
	%	50.0%	25.0%	.0%	.0%	75.0%	.0%	.0%	.0%	50.0%	25.0%	25.0%	.0%	.0%	.0%	100.0%
Denmark	Count	1				4			2	3		2				4
	%	25.0%	.0%	.0%	.0%	100.0%	.0%	.0%	50.0%	75.0%	.0%	50.0%	.0%	.0%	.0%	100.0%
Ireland	Count	1	2	4	3	7		3			1	2				9
	%	11.1%	22.2%	44.4%	33.3%	77.8%	.0%	33.3%	.0%	.0%	11.1%	22.2%	.0%	.0%	.0%	100.0%
Iceland	Count	1				2			1		1		1			2
	%	50.0%	.0%	.0%	.0%	100.0%	.0%	.0%	50.0%	.0%	50.0%	.0%	50.0%	.0%	.0%	100.0%
Latvia	Count	3	3			7	1	2	4	2	1	3				9
	%	33.3%	33.3%	.0%	.0%	77.8%	11.1%	22.2%	44.4%	22.2%	11.1%	33.3%	.0%	.0%	.0%	100.0%
Malta	Count	2	1			1	1					1				2
	%	100.0%	50.0%	.0%	.0%	50.0%	50.0%	.0%	.0%	.0%	.0%	50.0%	.0%	.0%	.0%	100.0%
Slovenia	Count	3	4	1		10		1	4	1		4				10
	%	30.0%	40.0%	10.0%	.0%	100.0%	.0%	10.0%	40.0%	10.0%	.0%	40.0%	.0%	.0%	.0%	100.0%
Total	Count	303	265	52	43	494	45	149	129	274	174	257	128	10	54	899
	%	33.7%	29.5%	5.8%	4.8%	54.9%	5.0%	16.6%	14.3%	30.5%	19.4%	28.6%	14.2%	1.1%	6.0%	100.0%

Source: VET provider survey. Data from selected countries. n = 911.

Table 29. **G1.1 and G1.2: Thinking about the next 10 years…**

		AT	HR	FI	FR	IT	NL	PL	RO	ES	CY	DK	IE	IS	LV	MT	SI	Total
G1.1 The variety of qualifications we deliver will…																		
Don't know	Count		17		1		1	14	7	16								56
	%	.0%	8.8%	.0%	3.8%	.0%	4.3%	8.8%	5.0%	5.8%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	6.1%
Decrease a great deal	Count		3			1	1	3		1								9
	%	.0%	1.6%	.0%	.0%	3.1%	4.3%	1.9%	.0%	.4%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	1.0%
Decrease a little	Count		4	3			9	4	2	6							2	30
	%	.0%	2.1%	25.0%	.0%	.0%	39.1%	2.5%	1.4%	2.2%	.0%	.0%	.0%	.0%	.0%	.0%	20.0%	3.3%
Stay the same	Count	5	32	5	1	5	3	24	20	56		1	1				1	154
	%	35.7%	16.6%	41.7%	3.8%	15.6%	13.0%	15.0%	14.4%	20.4%	.0%	25.0%	11.1%	.0%	.0%	.0%	10.0%	16.9%
Increase a little	Count	8	106	3	17	19	5	91	78	137	1	1	6	2	6		6	486
	%	57.1%	54.9%	25.0%	65.4%	59.4%	21.7%	56.9%	56.1%	50.0%	25.0%	25.0%	66.7%	100.0%	66.7%	.0%	60.0%	53.2%
Increase a great deal	Count	1	31	1	7	7	4	24	32	58	3	2	2		3	2	1	178
	%	7.1%	16.1%	8.3%	26.9%	21.9%	17.4%	15.0%	23.0%	21.2%	75.0%	50.0%	22.2%	.0%	33.3%	100.0%	10.0%	19.5%
G1.2 The range of our services (e.g. further training, assisting with social inclusion, provision of training in new areas) will…																		
Don't know	Count		18		1			19	8	17								63
	%	.0%	9.3%	.0%	3.8%	.0%	.0%	11.9%	5.8%	6.2%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	6.9%
Decrease a great deal	Count		2					2		3								7
	%	.0%	1.0%	.0%	.0%	.0%	.0%	1.3%	.0%	1.1%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.8%
Decrease a little	Count		5			1		5	1	1								13
	%	.0%	2.6%	.0%	.0%	3.1%	.0%	3.1%	.7%	.4%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	1.4%
Stay the same	Count	7	27	3	3	3	4	36	21	82			2				2	190
	%	50.0%	14.0%	25.0%	11.5%	9.4%	17.4%	22.5%	15.1%	29.9%	.0%	.0%	22.2%	.0%	.0%	.0%	20.0%	20.8%
Increase a little	Count	5	107	7	13	18	14	74	72	114	1	3	3	1	5		7	444
	%	35.7%	55.4%	58.3%	50.0%	56.3%	60.9%	46.3%	51.8%	41.6%	25.0%	75.0%	33.3%	50.0%	55.6%	.0%	70.0%	48.6%
Increase a great deal	Count	2	34	2	9	10	5	24	37	57	3	1	4	1	4	2	1	196
	%	14.3%	17.6%	16.7%	34.6%	31.3%	21.7%	15.0%	26.6%	20.8%	75.0%	25.0%	44.4%	50.0%	44.4%	100.0%	10.0%	21.5%

Source: VET provider survey. Data from selected countries. n = 911.

Table 30. **G1.6 and G1.8: Thinking about the next 10 years…**

		AT	HR	FI	FR	IT	NL	PL	RO	ES	CY	DK	IE	IS	LV	MT	SI	Total
G1.6.: Work-based elements in our programmes will…																		
Don't know	Count		20		2	2	1	27	11	26								89
	%	.0%	10.4%	.0%	7.7%	6.3%	4.3%	16.9%	7.9%	9.5%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	9.7%
Decrease a great deal	Count		1					1		2								4
	%	.0%	.5%	.0%	.0%	.0%	.0%	.6%	.0%	.7%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.4%
Decrease a little	Count		4			1		3	3	3								14
	%	.0%	2.1%	.0%	.0%	3.1%	.0%	1.9%	2.2%	1.1%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	1.5%
Stay the same	Count	6	37	2	7	4	3	57	13	75		2	3	1	1		2	213
	%	42.9%	19.2%	16.7%	26.9%	12.5%	13.0%	35.6%	9.4%	27.4%	.0%	50.0%	33.3%	50.0%	11.1%	.0%	20.0%	23.3%
Increase a little	Count	8	96	8	9	18	10	49	66	119	1	1	2	1	4	1	6	399
	%	57.1%	49.7%	66.7%	34.6%	56.3%	43.5%	30.6%	47.5%	43.4%	25.0%	25.0%	22.2%	50.0%	44.4%	50.0%	60.0%	43.7%
Increase a great deal	Count		35	2	8	7	9	23	46	49	3	1	4		4	1	2	194
	%	.0%	18.1%	16.7%	30.8%	21.9%	39.1%	14.4%	33.1%	17.9%	75.0%	25.0%	44.4%	.0%	44.4%	50.0%	20.0%	21.2%
G1.8 The emphasis we put on transversal/soft skills (e.g. being able to work with others) will…																		
Don't know	Count		25			1		13	8	12			1					60
	%	.0%	13.0%	.0%	.0%	3.1%	.0%	8.1%	5.8%	4.4%	.0%	.0%	11.1%	.0%	.0%	.0%	.0%	6.6%
Decrease a great deal	Count		1							3								4
	%	.0%	.5%	.0%	.0%	.0%	.0%	.0%	.0%	1.1%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.4%
Decrease a little	Count		4					2	2	5								13
	%	.0%	2.1%	.0%	.0%	.0%	.0%	1.3%	1.4%	1.8%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	1.4%
Stay the same	Count	1	41	2	4	2	4	46	12	60	1	1	1	1				176
	%	7.1%	21.2%	16.7%	15.4%	6.3%	17.4%	28.8%	8.6%	21.9%	25.0%	25.0%	11.1%	50.0%	.0%	.0%	.0%	19.3%
Increase a little	Count	8	84	8	11	18	14	61	60	124	1	3	3	1	5	1	9	411
	%	57.1%	43.5%	66.7%	42.3%	56.3%	60.9%	38.1%	43.2%	45.3%	25.0%	75.0%	33.3%	50.0%	55.6%	50.0%	90.0%	45.0%
Increase a great deal	Count	5	38	2	11	11	5	38	57	70	2		4		4	1	1	249
	%	35.7%	19.7%	16.7%	42.3%	34.4%	21.7%	23.8%	41.0%	25.5%	50.0%	.0%	44.4%	.0%	44.4%	50.0%	10.0%	27.3%

Source: VET provider survey. Data from selected countries. n = 911.

Table 31. **G1.10 and G1.11: Thinking about the next 10 years…**

		AT	HR	FI	FR	IT	NL	PL	RO	ES	CY	DK	IE	IS	LV	MT	SI	Total
G1.10 The influence of our institution on the content of the VET it delivers will...																		
Don't know	Count		34		4	4	1	16	12	20			1	1				93
	%	.0%	17.6%	.0%	15.4%	12.5%	4.3%	10.0%	8.6%	7.3%	.0%	.0%	11.1%	50.0%	.0%	.0%	.0%	10.2%
Decrease a great deal	Count		1					2	1	7			1					12
	%	.0%	.5%	.0%	.0%	.0%	.0%	1.3%	.7%	2.6%	.0%	.0%	11.1%	.0%	.0%	.0%	.0%	1.3%
Decrease a little	Count		4	1			1	1	3	3		1					1	15
	%	.0%	2.1%	8.3%	.0%	.0%	4.3%	.6%	2.2%	1.1%	.0%	25.0%	.0%	.0%	.0%	.0%	10.0%	1.6%
Stay the same	Count	7	45	6	9	7	10	60	24	119		2	4		2	1	2	298
	%	50.0%	23.3%	50.0%	34.6%	21.9%	43.5%	37.5%	17.3%	43.4%	.0%	50.0%	44.4%	.0%	22.2%	50.0%	20.0%	32.6%
Increase a little	Count	7	81	5	10	15	10	56	61	98	2	1	2	1	4		6	359
	%	50.0%	42.0%	41.7%	38.5%	46.9%	43.5%	35.0%	43.9%	35.8%	50.0%	25.0%	22.2%	50.0%	44.4%	.0%	60.0%	39.3%
Increase a great deal	Count		28		3	6	1	25	38	27	2		1		3	1	1	136
	%	.0%	14.5%	.0%	11.5%	18.8%	4.3%	15.6%	27.3%	9.9%	50.0%	.0%	11.1%	.0%	33.3%	50.0%	10.0%	14.9%
G1.11 Options for learners within our programmes (e.g. curricular choices, individual pathways) will…																		
Don't know	Count		20		1	2		19	16	17				1				76
	%	.0%	10.4%	.0%	3.8%	6.3%	.0%	11.9%	11.5%	6.2%	.0%	.0%	.0%	50.0%	.0%	.0%	.0%	8.3%
Decrease a great deal	Count		1					1		4								6
	%	.0%	.5%	.0%	.0%	.0%	.0%	.6%	.0%	1.5%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.7%
Decrease a little	Count		4	1		1			2									8
	%	.0%	2.1%	8.3%	.0%	3.1%	.0%	.0%	1.4%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.9%
Stay the same	Count	6	47	1	5	7	1	57	28	111			5	1			1	270
	%	42.9%	24.4%	8.3%	19.2%	21.9%	4.3%	35.6%	20.1%	40.5%	.0%	.0%	55.6%	50.0%	.0%	.0%	10.0%	29.6%
Increase a little	Count	8	93	8	11	16	14	61	61	106	2	3	2		6	1	7	399
	%	57.1%	48.2%	66.7%	42.3%	50.0%	60.9%	38.1%	43.9%	38.7%	50.0%	75.0%	22.2%	.0%	66.7%	50.0%	70.0%	43.7%
Increase a great deal	Count		28	2	9	6	8	22	32	36	2	1	2		3	1	2	154
	%	.0%	14.5%	16.7%	34.6%	18.8%	34.8%	13.8%	23.0%	13.1%	50.0%	25.0%	22.2%	.0%	33.3%	50.0%	20.0%	16.9%

Source: VET provider survey. Data from selected countries. n = 911.

Table 32. **G1.13: Thinking about the next 10 years…**

		AT	HR	FI	FR	IT	NL	PL	RO	ES	CY	DK	IE	IS	LV	MT	SI	Total
G1.13.: The inclusion of transversal/soft skills (e.g. being able to work with others) in the assessment of our VET learners will...																		
Don't know	Count		24		1	2	1	15	9	16			1					69
	%	.0%	12.4%	.0%	3.8%	6.3%	4.3%	9.4%	6.5%	5.8%	.0%	.0%	11.1%	.0%	.0%	.0%	.0%	7.6%
Decrease a great deal	Count		1					2		3								6
	%	.0%	.5%	.0%	.0%	.0%	.0%	1.3%	.0%	1.1%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.7%
Decrease a little	Count		1					1	2	1								5
	%	.0%	.5%	.0%	.0%	.0%	.0%	.6%	1.4%	.4%	.0%	.0%	.0%	.0%	.0%	.0%	.0%	.5%
Stay the same	Count	3	47	3	4	5	4	44	16	77	1	2	2			1		209
	%	21.4%	24.4%	25.0%	15.4%	15.6%	17.4%	27.5%	11.5%	28.1%	25.0%	50.0%	22.2%	.0%	.0%	50.0%	.0%	22.9%
Increase a little	Count	9	89	9	13	14	16	70	58	122		2	3	2	6	1	9	423
	%	64.3%	46.1%	75.0%	50.0%	43.8%	69.6%	43.8%	41.7%	44.5%	.0%	50.0%	33.3%	100.0%	66.7%	50.0%	90.0%	46.3%
Increase a great deal	Count	2	31		8	11	2	28	54	55	3		3		3		1	201
		14.3%	16.1%	.0%	30.8%	34.4%	8.7%	17.5%	38.8%	20.1%	75.0%	.0%	33.3%	.0%	33.3%	.0%	10.0%	22.0%

Source: VET provider survey. Data from selected countries. n = 911.

The future of vocational education and training in Europe

Volume 1

The changing content and profile of VET: epistemological challenges and opportunities

This study examines changes in the way that knowledge, skills and competence are differentiated in curricula, and how learning is organised across different learning sites: in classrooms, workshops or laboratories, and at workplaces. The study collected information through Cedefop's ReferNet network, in-depth country case studies, and an online survey among almost 1 000 European VET providers.

Results show that several countries have strengthened the general education component of their VET programmes either by increasing the extent of teaching general subjects or by better integrating them into the vocational curriculum. At the same time, the increased emphasis on general skills has not taken place at the expense of workplace learning; on the contrary, an expansion of workplace learning in IVET curricula has been ubiquitous. However, it is becoming increasingly difficult to assess the exact extent of workplace learning, due to increased flexibility allowed at provider and individual level in the combination of different learning environments.

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