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# Vocational pedagogies and benefits for learners: practices and challenges in Europe

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# Foreword

Understanding the effects of vocational pedagogies, and particularly of learner-centred approaches, matters. It enables policy-makers to develop models and tools which can help VET teachers and trainers more effectively match teaching and learning methods to the needs of their students and their contexts. Through such means, vocational pedagogies can directly impact on the quality of teaching and learning, and achieving the wider goals of vocational education and training.

Learner-centred approaches in education and training were advocated in the European Commission's communication on lifelong learning (European Commission, 2001) and the work programmes on education and training, ET 2010 (Council of the European Union, 2010) and now ET 2020 (Council of the European Union, 2009). However, such approaches have, until now, taken only a minor role in the development of VET policies at European level. Nevertheless, greater emphasis has gradually been placed on the role of teachers and trainers in the greater application of learner-centred approaches in VET. Following the Riga conclusions 2015 (Latvian Presidency of the Council of the European Union et al., 2015), innovation in teaching and learning has now become a priority on the policy agenda. This is mainly in relation to entrepreneurship, the development of information and communication technology (ICT) in learning, and the promotion of innovative approaches to combine key competences and occupation-specific skills, but without detailed consideration of or recommendations on successful practices that benefit learners.

This research paper should be understood against these developments in European policy and a series of Cedefop comparative investigations into curriculum development and implementation using learning outcomes (Cedefop, 2008b; 2010; 2012; 2015 forthcoming) which has drawn attention to conditions necessary for their successful delivery. Particular attention to the importance of pedagogical practice, if defined learning outcomes in VET curricula are to be achieved, has informed Cedefop's research paper *Curriculum reform in Europe* (Cedefop, 2012) which anatomised the different stages of curriculum development and implementation across 32 European countries. The paper concludes that, as learning outcomes are now well established within written curricula across most European countries, there is greater policy interest in pedagogical innovation, particularly, but not limited to, learner-centred approaches, and calls for further research on the factors that affect them and the impact they have on learners.

The effects of vocational pedagogies are under-researched and under-theorised: this publication seeks to redress the situation. It is a key objective of this study to develop and test key concepts and methods that permit robust judgements about similarities and differences between teaching and learning practices in initial VET in Europe and their impacts on and benefits to learners. The study provides insights into drivers and obstacles to the more broadly implemented learner-centred approaches in teaching and learning in 15 European countries. It discusses the role of teachers and trainers in interpreting defined learning outcomes in VET curricula into learning activities; it produces evidence on the influence of the design and use of physical and social learning environments and materials to the application of learner-centred vocational pedagogies.

The research adopts a micro-level examination using observation of lessons, interviews with teachers and learners from selected cases, and a learner survey of the perceptions of learners on their learning experience. Findings reveal the impact of learner-centred pedagogies on learners, taking account of how they may benefit by becoming more motivated, engaged and satisfied with the chosen programme, so that they remain and progress within education and training. Conclusions show that learner attentiveness, engagement, striving for success, aspirations and assertiveness are all associated with key outcomes such as achievement, satisfaction and lower risk of dropout.

Joachim James Calleja
*Director*

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The work took account of discussions from Cedefop conference 'The shift to learning outcomes and its impact' that took place in Thessaloniki on 21 and 22 November 2013 ([2]).

([1]) Contract No 2012-0154/AO/ECVL/IPS/Teaching methods in VET/015/2012.

([2]) Cedefop conference *The shift to learning outcomes and its impact: taking stock of European policies and practices*. http://www.cedefop.europa.eu/en/events-and-projects/events/cedefop-conference-shift-learning-outcomes-and-its-impact-taking-stock [accessed 11.8.2015].

# Table of contents

Foreword ..... 1
Acknowledgements ..... 3
Table of contents ..... 4
List of tables, figures and boxes ..... 6
Executive summary ..... 7
1. Introduction ..... 14
1.1. Scope of the research ..... 15
1.2. Theoretical model ..... 17
1.3. Methodology ..... 19
1.4. Structure of the report ..... 20
2. Understandings of vocational pedagogy across Europe ..... 22
2.1. Vocational pedagogy as distinct from general ..... 22
2.2. Concepts of learner-centred approaches ..... 24
2.3. Multidimensional framework of learner-centred vocational pedagogy ..... 28
2.3.1. Vocational identity ..... 28
2.3.2. Task authenticity ..... 29
2.3.3. Reconciliation of subject-oriented and thematic material ..... 29
2.3.4. Construction ..... 30
2.3.5. Adaptive instruction and modelling ..... 30
2.3.6. Coaching ..... 30
2.3.7. Development of reflection ..... 31
3. The extent and use of learner-centred pedagogies in Europe ..... 32
3.1. Policy drivers for learner-centred pedagogies ..... 32
3.2. Progress of national policy developments ..... 33
3.2.1. Incremental steps and adjustments ..... 36
3.2.2. Relatively strong and continuing ..... 37
3.2.3. Encouraged by EU support ..... 38
3.2.4. No strong policy focus ..... 38
3.3. From policy to practice ..... 39
4. Why learner-centred pedagogies matter? The benefits for learners ..... 42
4.1. Impact on motivation and engagement ..... 43
4.2. Impact on learner satisfaction ..... 45
4.3. Impact on dropout and retention ..... 45
4.4. Impact on progression ..... 47

4.5. Impact on achievement ....48
5. The role of learning outcomes ....51
5.1. The influence of curriculum standards ....51
5.2. The influence of units and modules ....54
5.3. Reconciling theory and practice in learning outcomes ....56
5.4. Granularity of learning outcomes ....58
5.5. The influence of transversal skills ....61
5.6. The influence of assessment ....62
6. The role of teachers and trainers ....64
6.1. Learning outcomes and lesson planning ....64
6.2. School culture and teachers' beliefs ....68
6.3. Teacher autonomy ....70
6.4. Teacher and trainer professional development ....72
6.4.1. Initial teacher training ....72
6.4.2. Continuous teacher professional development ....74
7. The role of learning environments ....76
7.1. Learning environments and the multidimensional framework of learner-centred pedagogies ....76
7.2. Models of learning environments: opportunities and barriers to their use ....80
8. The role of learning materials ....86
8.1. Curriculum reform and learning materials ....86
8.2. How learning materials shape pedagogy ....89
8.3. Barriers to using learning materials for learner-centred pedagogies ....96
9. Implications for policy-making and further research ....99
List of abbreviations ....105
References ....106
Annex 1. Interviewees by country ....115

# List of tables, figures and boxes

## Tables

1. Dimensions of learner-centred vocational pedagogy .....18
2. Summary of case studies on production and service sectors.....20
3. Main differences between vocational and subject-specific didactics .....23
4. Main drivers for pedagogical change in VET.....33
5. Policy developments by country and period of introduction.....34
6. Characteristics of vocational pedagogy significantly associated with higher levels of motivation or attentiveness, grouped by pedagogical dimension .....44
7. Perceived characteristics of vocational pedagogy, negatively associated with contemplating dropout, grouped by pedagogical dimension .....46
8. Perceived characteristic of vocational pedagogy associated with the intention to progress into the occupation connected to the current vocational programme and grouped by pedagogical dimension .....48
9. Perceived characteristics of vocational pedagogy, grouped by pedagogical dimension, associated with higher perceived achievement.....50
10. Granularity of learning outcomes in 10 case studies.....60
11. Explicit use of learning outcomes in lesson plans .....66
12. Explicit use of learning outcomes observed in case studies.....67
13. Governance of IVET and development of policy for learner-centred pedagogies .....71
14. Linking the main identified dimensions of vocational pedagogy with the operating learning environments.....81
15. Typology of learning environments for vocational pedagogy.....82
16. Learning materials and dimensions of learner-centred pedagogy by case study .....91

## Figures

1. Model of the study domain.....17

## Boxes

1. Student support in Dutch case study 2 (NLC 2) on ICT .....47
2. Danish example on local curriculum development .....52
3. Dutch example on local curriculum development.....53
4. Enterprise training in Germany .....54
5. UK case study 2 on art and design .....55
6. Module design around authentic activity .....56
7. Example from the Slovenian case studies .....56
8. Communicating learning outcomes to learners in Spain .....67
9. Curriculum for teacher education in Finland .....73
10. Slovenian VET school training electricians .....78
11. Waterhole pedagogy in a vocational college in Denmark.....79

# Executive summary

This Cedefop research paper examines the role played by learning outcomes approaches in pedagogical change in initial VET in 15 EU Member States: Denmark, Germany, Ireland, Spain, France, Italy, Lithuania, Hungary, Malta, Netherlands, Romania, Slovenia, Finland, Sweden and UK-England. The study builds upon previous evidence published by Cedefop on the design and delivery of learning outcome-based curricula (Cedefop, 2008b; 2010 and especially 2012) which have drawn attention to the importance of appropriate pedagogies for achieving intended learning outcomes. It examines the benefits that learner-centred pedagogies have for learners and discusses the way that teachers and trainers, learning environments and learning materials support or hinder pedagogical change.

Findings are based on a combination of EU and national literature review and empirical research involving visits to schools and enterprises, observations of teaching and learning practice, interviews with teachers, trainers and learners, a survey of 382 learners, and analysis of curriculum materials. Ten selected case studies in seven different countries explore good practice in learner-centred vocational pedagogy. These analyse EQF levels 3 and 4 programmes, from the service and the production sectors, delivered in school-based, work-based and mixed environments.

## Learning outcomes in the taught curriculum

Learning outcomes approaches to written curricula aim to benefit learners. In practice, though, new curricula have been introduced with little attention to how teachers will deliver them to ensure success. The way that defined learning outcomes in written curricula are interpreted and converted into teaching and learning performances is complex and success depends on a variety of factors: the manner in which the learning outcomes are formulated and organised; the manner in which teachers work together to plan the local curriculum; past experiences and culture of teachers; the degree of autonomy that schools and training organisations have to determine the local curriculum; amount of time, the resources and learning environments, and learning materials available.

The research makes clear that the authenticity and effectiveness of learning outcomes do not depend only on the process through which they were generated – occupational standards and stakeholder consultations – and have been defined

in curricula; they also depend on the manner in which they are delivered. It follows that a learning outcomes or competence-based approach to vocational pedagogy should not be understood as a one-way transmission system that codes messages about labour market needs into curriculum standards in order to define performance goals for teachers and learners. Rather, teachers and schools require both sufficient autonomy and considerable support to interpret curricula in the light of the needs of their students and contexts.

The manner in which learning outcomes are formulated and organised can, may in some circumstances, encourage or discourage some pedagogical approaches. For example, when learning outcomes articulate competences in a relatively general, rather than a highly specific, manner,; when they integrate knowledge and skills, and when they include transverse or generic skills, it is easier for teachers to adopt learner-centred pedagogies.

The research demonstrates that learning outcomes shape the teaching and learning experience through planning the local curriculum and, to a lesser degree, through lesson planning.

## Multidimensional framework for learner-centred vocational pedagogy

The learner-centred pedagogy remains a ‘fuzzy’ concept in literature and policy debate and, in consequence, difficult to apply with precision in research and practice. The terms ‘learner-centredness’ or ‘learner-centred pedagogy’ and a number of related terms, such as inductive, personalised and constructivist learning are used in various ways to provide a critique of traditional teaching or to suggest alternative approaches more responsive to the interests and needs of individual learners:

(a) to engage them fully and increase motivation;
(b) to increase the control that individuals or groups of learners exercise over teaching and learning;
(c) to give greater attention to outcomes or competences of individual learners as well to their personal attitudes or capability for learning.

The term remains ill-defined and does not consider social, professional, inter-professional, environmental, and material factors which influence the way curricula are taught. Further, it does not necessarily address specific features of vocational pedagogy, such as authenticity, vocational identity and the reconciliation of theory and practice, which are of critical importance in the successful delivery of VET curricula.

To do justice to the complexity of analysing developments in vocational pedagogy and to make precise and comparable judgements about the different factors that make for successful teaching and learning in initial vocational education and training (IVET), the research shifts the focus of the discussion from learner-centred pedagogy to a multidimensional framework for vocational pedagogy. This is favoured by researchers in a number of European countries (such as Denmark, Finland and the UK) and widely applied in the Netherlands. The study builds on the theoretical model developed by Elly de Bruijn and her colleagues (de Bruijn and Leeman, 2011) which introduces eight dimensions, each of which references a distinctive function served by some experience or activity that should form part of learner-centred teaching and learning in IVET:

(a) formation of vocational identity: skills and knowledge are connected to the development of attitudes, beliefs and values associated with a vocation or occupation;
(b) authenticity of task: learning activities are real or realistic work tasks performed in real or realistic contexts;
(c) reconciliation of subject-orientated and thematic material: subject learning and other learning experiences are connected together for the learner; for example, theoretical knowledge is applied in practical tasks;
(d) construction: students were able to formulate problems and seek solutions;
(e) adaptive instruction and modelling: teachers adapt their support to the current understanding and capability of learners, seeking, for example, through the use of learning materials, progressively to reduce support;
(f) coaching: students are guided through learning; and shown how to learn and progress;
(g) development of self-regulation skills: learners are helped to develop self-management and organisational skills;
(h) development of reflection: through reflection on learning and work experiences, students develop autonomy, expertise and habitus.

## Policy on vocational pedagogy not strongly developed

An important finding of the research is that policy has not been strongly developed with regard to vocational pedagogy. With some notable exceptions, pedagogical change has not been widely identified in Europe as being of critical importance. The same can be said for policies that are directed at the introduction of learner-centred pedagogies. These were found to be relatively well developed in Denmark, the Netherlands and the UK (England), and more recently established in Spain (Basque region), Malta and Finland.

Where pedagogical change has been sought, five main drivers have been identified in the policy documents of the countries examined: introduction of learning outcomes; development of a dual system; increasing permeability; reducing high non-completion rates; and addressing the increasing diversity of learners. Other quoted drivers include improving the attractiveness of IVET, addressing changing labour market skill needs, and the effort of the Member States to introduce European policies on education and training. For newer Member States, EU enlargement and funding have been important drivers for pedagogical change. In some cases, bottom-up pressure from the local level and from professional communities of practice has led to the introduction of new pedagogies.

The Riga conclusions (Latvian Presidency of the Council of the European Union et al., 2015), advocate the introduction of systematic approaches to, and opportunities for, initial and continuous professional development of VET teachers, trainers and mentors in both school and work-based settings. One of the five policy priorities for 2015-20 to be given more emphasis is use of effective vocational pedagogies focusing on the learner. Vocational pedagogy is likely to be improved by greater collaboration between teachers, support from specialist development agencies, active involvement of local management and continuous professional development (CPD) to develop teaching skills, for example, in modelling and coaching.

## Pedagogical change: often advocated not implemented

A limitation to this study has been the possibility to assess in depth the extent to which pedagogical change has been implemented in the initial VET systems examined. Too often, learner-centred pedagogies have been advocated, but implementation has not taken place or has not been judged as successful.

For example, learner-centred pedagogies such as group work, project work and enquiry-based learning are found to be more widely practised in some countries than in others. In Denmark, Italy, Malta, the Netherlands and Finland, these approaches are recognised as sharing a distinctive pedagogic approach, supported by policy and research or particular VET providers. However, in countries such as Germany and France, they are regarded in literature and policy debate as useful methods but there is no strong evidence of their use in practice.

Barriers to implementation vary and may concern the culture of teachers and schools such as pressure of work, habit, and lack of confidence. Competences in making use of new pedagogies can also have an effect, given that, in many countries, these are not strongly developed in initial teacher training (ITT) or in

the CPD of teachers; curriculum and qualifications standards and statements do not always provide pedagogical guidance (Cedefop, 2012). Further, weak partnership with enterprises, traditional assessment methods and the competing policy objectives are also identified in some countries, as barriers to the improvements in pedagogy.

## Combining learning environments and materials for positive pedagogical change

Through observations of teaching and learning practices in 10 case studies, the research has produced evidence of the importance of the physical and social environments of learning to the application of learner-centred vocational pedagogies. Teachers and learners need access to a variety of learning environments if all eight pedagogical dimensions defined in the theoretical model of learner-centred approaches are to be realised. Attempts to improve IVET pedagogy by changing learning environments have taken a variety of forms. New kinds of learning environment, such as those shared between different providers, hybrid environments that cater for a range of skills development, and virtual environments based on information technology have been brought into use to overcome the shortcomings of traditional environments (classroom, workshop and workplace), as the main, often poorly connected, learning environments. Some IVET systems are rebalancing the amount of learning time apportioned among environments (as in Hungary, Slovenia, Finland and Sweden). Attempts are also being made to improve coordination and communication between different learning environments (Germany, Finland).

Further, learning materials can be used in a variety of ways, some more innovative and some more traditional. Interviewees in several countries (including Denmark, Germany, France, Lithuania, Hungary, Slovenia and UK-England) highlighted the importance of having available a variety of learning materials from which to select those that meet learners' needs, interests and preferred ways of learning. Case studies show that teachers are more likely to use a combination of materials that they design themselves; open access materials derived from the web and externally designed resources related to particular modules or topics. Information technology is creating many new opportunities for teachers and learners to address all of the dimensions of learner-centred vocational pedagogy in new and powerful ways.

## Benefits of specific teaching and learning methods

Apart from research that shows that learner-centred pedagogies are associated with higher levels of student engagement, there is relatively little literature that examines the impact of vocational pedagogy on learners. The study found statistically significant correlations between particular methods of teaching and learning (such as group work, authentic and interactive learning tasks, linked to the future occupation, well-tailored support) and perceptions of achievement, progression, motivation and likelihood of dropout. For example, high incidence of problem solving in groups, differentiated support from teachers, the use of authentic learning materials and coaching, and support from teachers to help students to plan their own work were all positively correlated parameters with high levels of perceived achievement. Adaptive instruction and modelling were found to be significantly associated with higher levels of attentiveness or with higher levels of motivation. Well-tailored support, effective coaching and working in groups were significantly and positively associated with learner satisfaction. Three pedagogic dimensions were associated with lower inclination to think about dropping out: adaptive instruction and modelling; learning experimentally or construction; and students with strong vocational commitment (vocational identity). Good support systems, good communication and high levels of trust (good coaching and reflection) between teacher or trainer and learner were also emphasised as important factors for retention. An important conclusion is that some pedagogical dimensions are particular strongly associated with specific benefits for learners.

## Policy considerations

Despite the limited focus and resources of the research, rich evidence has been collected to allow the formulation of policy considerations for strengthening the use of learner-centred vocational pedagogies in initial VET. These are summarised in the following points:

(a) vocational pedagogy needs to be better integrated into IVET policies including curriculum development, allocation of funding, professional status of teachers, quality assurance and stakeholder involvement;

(b) top-down and bottom-up drivers of pedagogical change need to be coordinated, for example, curriculum reform and education investment should be informed by pedagogical opportunities and school-based continuous professional development should be informed by national level research and policy;

(c) curricula have to be designed in a manner to support effective vocational pedagogy;
(d) teachers and trainers need support through professional development programmes and collaboration with their peers and guidance from their managers to be able to contribute effectively to the design and delivery of local curricula;
(e) monitoring, evaluation and quality assurance systems are required to guide innovation in pedagogy and professional development at national and institutional levels;
(f) innovation, investment and collaboration are required to ensure that learning environments and learning materials are developed and deployed to support all dimensions of learner-centred vocational pedagogy;
(g) multidimensional approaches to learner-centred pedagogy should be supported by further research, through resource development and professional development.

CHAPTER 1.
# Introduction

This study aims to inform policy-making through understanding better the impact of learning outcomes approaches on vocational pedagogies. Bringing evidence on the benefits of learner-centred teaching and learning methods, it discusses existing challenges and barriers to applying successfully such pedagogies in initial VET. It concludes by suggesting good practices, policies and initiatives to help overcome the obstacles identified.

National developments are examined in 15 European countries in the light of the objectives set by the European strategy Education and Training 2020. This has implications for vocational pedagogies, and in particular (Council of the European Union, 2009, pp. 3-4) to:

(a) make learning more attractive, including the development of new forms of learning and use of new teaching and learning technologies (strategic objective 1);
(b) ensure the acquisition of key competences, including basic skills, mathematics, science and technology competences, together with high quality teaching (strategic objective 2);
(c) enable all citizens, irrespective of circumstance, to acquire, update and develop both job-specific skills and key competences for employability and further learning, active citizenship and intercultural dialogue, with provision of more personalised learning (strategic objective 3);
(d) promote the acquisition of transversal key competences such as digital competence, learning to learn, a sense of initiative and entrepreneurship, and cultural awareness, ensuring a fully functioning knowledge triangle of education-research-innovation (strategic objective 4).

In 2008, the introduction of the European qualifications framework brought significant reform with the introduction of learning outcome approaches to the design of VET provision. The same year, the Council recommended that ‘curricula should be used as a tool to encourage more learner-centred approaches in education and training’ (Council of European Union, 2008). But this interest in learner-centred pedagogies is not new and not limited to Europe. The late 1980s, the 1990s and the 2000s witnessed an explosion of international research reports and policy documents focusing on reforming teachers’ attitudes to learner-centred and active-learning pedagogies. These included the World declaration on education for all statement (Unesco, 1990, Article IV) that ‘active

and participatory (instructional) approaches are particularly valuable in assuring learning acquisition and allowing learners to reach their fullest potential' to the Dakar framework, which reiterated an international policy commitment to active learning pedagogies (Unesco, 2000, p. 17 and Unesco, 2015), and a global education strategy (USAID, 2005) which recognised that 'improving instruction is a complex task that entails a wide range of interventions' including teaching methods that involved students in the learning process (Ginsburg et al., 2009). More recently, Unesco's publication *Unleashing the potential: transforming technical and vocational education and training* (Unesco, 2015) emphasises that 'Reforming technical and vocational education and training institutions to make them more inclusive also calls for new pedagogical approaches and learning materials. A more diverse population of learners requires different approaches to learning'.

Although reform initiatives in many countries around the world have promoted learner-centred pedagogies for quite some time now, relatively little is known about variations in how this pedagogical approach is framed by reform policies, how teachers' professional development activities are organised to promote it, how teachers and trainers implement it, and what constraints are faced in implementation efforts (Ginsburg, 2010, p. 64). The lack of consistent empirical evidence to show the impact of such pedagogies on learner outcomes is also noted by other authors (Psifidou, 2012).

The study aims to fill this gap, generating empirical evidence on how vocational pedagogy is influenced by written curricula; in particular, by the way learning outcomes are defined and formulated in standards, modules and units. It also investigates how identified learner-centred pedagogies are implemented in particular learning environments, using particular learning materials to produce benefits for learners in 10 case studies.

## 1.1. Scope of the research

This Cedefop research paper examines the extent and use of learner-centred pedagogies in IVET in 15 Member States: Denmark, Germany, Ireland, Spain, France, Italy, Lithuania, Hungary, Malta, the Netherlands, Romania, Slovenia, Finland, Sweden and UK-England. Ten case studies in seven of these countries produce new empirical evidence on the benefits that learner-centred pedagogies have for learners and discuss the way that VET teachers and trainers, existing learning environments, and available teaching and learning materials support or hinder pedagogical change.

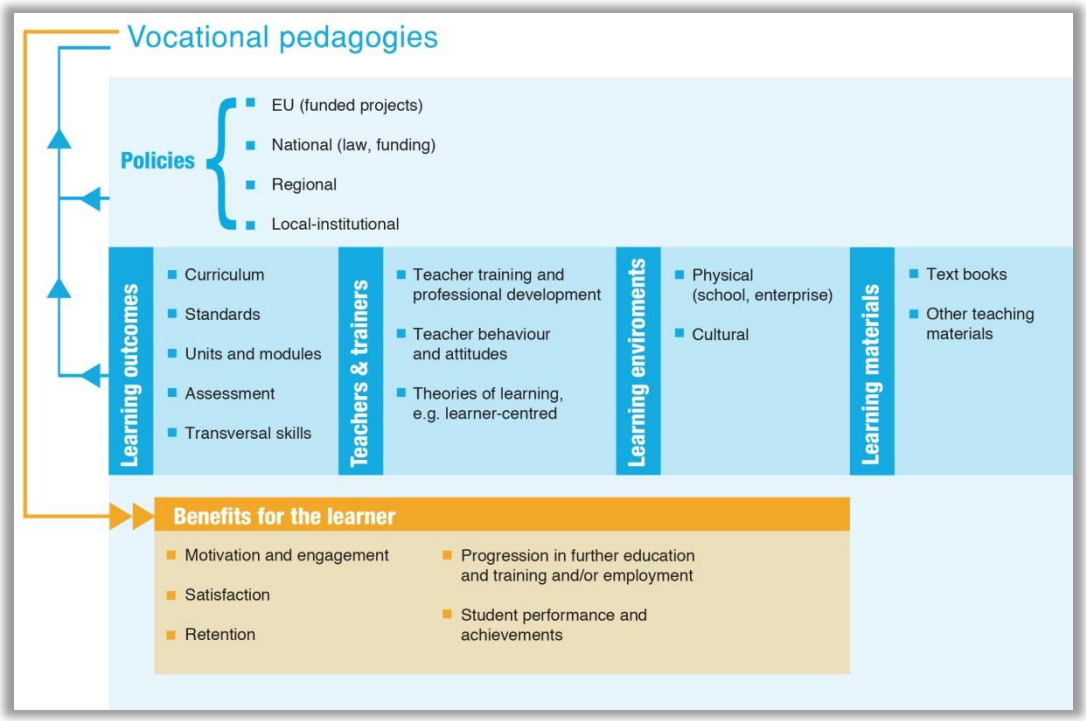
Research addressed the following questions:

(a) what are the main motivations and drivers behind changing vocational pedagogies towards learner-centredness?
(b) what evidence exists on the benefits of such pedagogical approaches for learners?
(c) what is the role of learning outcomes approaches in the use of more learner-centred pedagogies? How (if at all) are these influenced by the way learning outcomes are conceptualised and defined in VET curricula?
(d) how do teachers and trainers, learning environments and learning materials support or hinder the use of learner-centred pedagogies? How (if at all) are these influenced by the focus on learning outcomes in VET provision?
(e) what are the existing challenges and barriers to applying successfully such pedagogies in initial vocational education and training (IVET) and how may these be overcome?

Figure 1 provides a visualisation of the study domain. Policies at different levels (European, national, regional, local and institutional) impact either directly or indirectly on teaching and learning practices. Four main areas of policy-making that affect vocational pedagogy in IVET have been studied in detail: teachers and trainers, and the way curricula, learning materials and environments are designed and organised. The central question of this study is how learner-centred pedagogies benefit learners in terms of five indicators (motivation and engagement; satisfaction; dropout and retention; progression; and achievement).

The research has examined both policy and practice across this study domain; however, some of the factors affecting the pedagogical activity, such as assessment, are dealt with only in a limited manner, as they have been the focus of earlier Cedefop studies. Other important factors that intervene and shape pedagogies have fallen entirely outside of the project scope, such as learners' aspirations, motivation and prior learning, their learning roles, behaviour and attitudes in learning situations, their interaction with the teacher, as well as family and peer group factors.

Figure 1. **Model of the study domain**




*Source*: Cedefop

## 1.2. Theoretical model

It is a conclusion of this research that there is no clear understanding of the term 'learner-centred pedagogy' among policy-makers or practitioners nationally or across Europe. For the purposes of this study, learner-centred pedagogy is taken to mean a range of learning theories, teaching methods and teaching cultures which are believed, by various stakeholders, to do one or more of the following: make educational provision more responsive and accessible to learners; align it with the nature of learning processes; link it with the interests, capacities and needs of individual learners; and associate it with the learning outcomes defined in the curricula.

The usefulness of the term for providing a framework of analysis against which findings may be compared and analysed remains limited. The present research has built on a conceptual framework for vocational pedagogy which arises from the research of Elly de Bruijn to develop more precise concepts that can be researched empirically with greater success (de Bruijn, 2004; 2011; 2012).

The framework proposes eight broadly defined dimensions (Table 1) of vocational pedagogy. Each dimension references to a distinctive function served

by some experience or activity that should form part of teaching and learning in IVET. 'Construction', for example, refers to teaching methods or learning activities where learners are able to set problems and then seek solutions. Students may be asked in a group to accomplish a project that they have helped teachers to design. This activity might also serve other dimensions; it may provide opportunities for coaching or the development of self-regulation skills.

Applied to the present research, these dimensions have been proved to be sufficiently comprehensive to do justice to the wide variety of teaching and learning activity commonly undertaken in IVET, while also sufficiently distinctive to signal the complexity and heterogeneity of the separate processes.

Table 1. **Dimensions of learner-centred vocational pedagogy**

| Dimension | Evidence for high performance in this dimension |
|---|---|
| Formation of vocational identity | Skills and knowledge are connected to the development of attitudes, beliefs and values associated with a vocation or occupation |
| Authenticity of task | Learning activities are real or realistic work tasks performed in real or realistic contexts |
| Reconciliation of subject-oriented and thematic material | Subject learning and other learning experiences are connected together for the learner, for example, theoretical knowledge is applied in practical tasks. |
| Construction | Students were able to formulate problems and seek solutions |
| Adaptive instruction and modelling | Teachers adapt their support to the current understanding and capability of learners, seeking, for example, through the use of learning materials, progressively to reduce support |
| Coaching | Students are guided through learning; they are shown how to learn and progress |
| Development of self-regulation skills | Learners are helped to develop self-management and organisational skills |
| Development of reflection | Through reflection on learning and work experiences, students develop autonomy, expertise and habitus |

*Source*: Adapted from de Bruijn and Leeman (2011).

Although not all of these dimensions are essentially about 'learner-centredness', their conceptualisation is underpinned by effective vocational learning styles and behaviours that emphasises the developmental and contextualised character of the learning process, the experience and the expectations of learners. Findings show how policy and practice for learner-centred pedagogies can be understood as addressing particular dimensions of this framework (Section 2.3).

## 1.3. Methodology

The research, conducted from December 2012 to March 2014 adopts an explorative and comparative approach consisting of two strands of work: first, an extensive literature review across the 15 countries examined and interviews with 59 national interviewees (Annex 1) in order to produce individual country reports ([3]); second, extensive field work with a view to identifying good practices in learner-centred approaches. Ten case studies were selected in six countries (Denmark, Germany, Spain, the Netherlands, Slovenia, and UK-England). These include different IVET systems and histories with respect to the development of learning-outcomes-oriented curricula. To permit comparisons between vocational sectors, in Denmark, the Netherlands, Slovenia and UK-England, two case studies have been selected, one serving a service sector and one serving a production sector ([4]). Details of the case studies selected are set out in the tables below.

Case study methodology included interviews with 36 teachers/trainers and school managers (Annex 1) and focus groups involving 68 learners. At least one session of teaching (lasting between one to two hours) was observed in each of the 10 case studies. Teacher and learner behaviours were systematically recorded and two learners were randomly selected for close observation.

National curriculum standards and local documentation relating to the learning programmes were investigated and analysed to inform judgements about the relationship between written and taught curricula. Where possible, use was made of existing evaluations or other data on the benefits to learners in relation to particular programmes, such as data on dropout or attainment.

A survey of 40 learners from each case study generated 382 responses; a response rate of 95%. Survey design was not meant to be representative but to provide a quantitative account of student perceptions of pedagogy across the case studies that could be contrasted with the opinion of teachers and policy-makers on the effectiveness of the applied vocational pedagogies.

([3]) These reports are available on request to Cedefop project manager Irene Psifidou.

([4]) Lack of access to the intended programme in the Netherlands meant that both programmes fall within the service sector.

Table 2. **Summary of case studies on production and service sectors**

| Name | Denmark 1 (DKC 1) | Denmark 2 (DKC 2) | Germany (DEC) | Netherlands 1 (NLC 1) | Netherlands 2 (NLC 2) |
|---|---|---|---|---|---|
| **Curriculum** | Agriculture | Sales assistants and offices clerks | Electronics technician for industrial engineering | ICT and Media | Business |
| **Broad sector** | Production | Services | Production | Services | Services |
| **Level** | EQF 4 | EQF 4 | EQF 4 | EQF 4 | EQF 4 |
| **Environment** | Largely school-based | Largely school-based | Largely work-based | Mixed | Mixed |
| **Name** | Slovenia 1 (SIC 1) | Slovenia 2 (SIC 2) | Spain (ESC) | UK-England 1 (UKC1) | UK- England 2 (UKC 2) |
| **Curriculum** | Electrician | Nature protection technician | Business | Art and design | Construction |
| **Broad sector** | Production | Services | Services | Services | Production |
| **Level** | EQF level 4 | EQF level 4 | EQF level 4 | EQF level 3/4 | EQF level 3 |
| **Environment** | Largely school-based | Largely school-based | Mixed | Largely school-based | Largely school-based |

*Source:* Cedefop.

## 1.4. Structure of the report

Chapter 2 reviews European and national literatures to explore how the concept of 'learner-centred pedagogy' is understood across different countries and settings and how this relates to the wider concept of 'vocational pedagogy'. This Chapter makes it possible to use these concepts critically and transparently throughout the report.

Chapter 3 presents the findings on policy development concerning, first, vocational pedagogy in general and then learner-centred approaches more specifically. It considers drivers and barriers to the implementation of policies relating to learner-centred teaching and then contextualises this by exploring how policy and implementation have also been addressing other dimensions of vocational pedagogy.

Chapter 4 addresses whether and how learners benefit from learner-centred pedagogies. It reviews evidence from literature, interviewees and observations that formed part of the case studies and a student survey. It also describes how practitioners are using evidence to inform developments in teaching and learning.

Chapter 5 draws on the case studies to describe how different ways of articulating learning outcomes in the written curriculum shape the planning and teaching methods of teachers. In particular, the chapter considers how the formulation of learning outcomes can support or hinder learner-centred teaching.

Chapter 6 discusses the role of teachers and trainers in shaping the teaching methods and in interpreting written curricula and defined learning outcomes.

Chapters 7 and 8 investigate the way in which different learning environments and learning materials condition pedagogy.

Chapter 9 sets out the implications for policy-makers, researchers and practitioners.

CHAPTER 2.

# Understandings of vocational pedagogy across Europe

This chapter explores the different understandings of vocational pedagogy across and within countries. It explores what is distinctive about vocational as opposed to general pedagogy (Section 2.1) and examines the different ways that the concept of 'learner-centred pedagogy', as a specific feature of vocational pedagogy, is used across the 15 countries studied (Section 2.2). The chapter concludes with specific country examples of the different dimensions that constitute learner-centred vocational pedagogy on the basis of the applied theoretical model (Section 2.3).

## 2.1. Vocational pedagogy as distinct from general

The term 'vocational pedagogy' has different meanings, or connotations which reflect different educational traditions and influences. Some of these differences reflect national understandings about the scope of a teacher's decision-making. For example, in Slovenia 'vocational pedagogy' (*poklicna pedagogika*) is defined in the literature as a pedagogical discipline that deals with the wider issues of VET, such as organisation, principles, and financing of VET, cooperation between the worlds of work and education (Muršak 2004). Similarly, in Hungary, the literature suggests that the concept (*szakképzés pedagógia*) is understood in a broad sense to incorporate: the basic principles and funding issues of VET; interactions between VET and the economy; options to develop occupation-specific competences; the substantive and methodological questions of VET; approaches to dealing with learners with special educational needs; and remedial education for learners lagging behind their peers (Benedek, 2003 and 2006). The Swedish national literature refers to vocational pedagogy as 'didactics' which also has a broad meaning, comprising planning, execution and evaluation of teaching and learning methods (Johansson et al., 2007). However, in other countries, vocational pedagogy is understood in a more narrowly defined sense as involving planning and executing activities in the workshop or classroom. For example, in England, 'pedagogy', as distinct from 'curriculum' is usually taken to refer to the processes of teaching, in particular interaction with learners, but also planning and designing learning situations (Lucas et al., 2012).

In some countries, there is a difference in the way pedagogy is shaped between learning in school-based and work-based environments. For example, Danish respondents confirmed this differentiation in the dual system of IVET: the teaching methods in the school-based part of VET programmes are often more traditional compared to the more practical-oriented in the workplace. They suggested that variations in teaching practice between different learning environments and venues have to do with traditions within the specific skilled occupation or profession and variation in the level of regulation in the school-based and work-based part of education. The teaching venue may aid or hinder more innovative approaches, which are also dependent on different curricula and occupations. The application of learner-centred approaches is also strongly dependent on the choice and beliefs of the teacher.

Traditional teacher-centred pedagogies have been criticised in the literature as being particularly inappropriate for VET, because they give undue emphasis to 'inert knowledge' which has no relevance to the expected competences for VET graduates (Cedefop, 2010). In the Swedish national literature, for example, (Johansson et al., 2007) draw a distinction between vocational didactic (*yrkesdidaktik*) which is mostly guided by constructivist learning theory and subject-specific didactic (*ämnesdidaktik*) which is mostly related to cognitive learning theory (Table 3).

Table 3. **Main differences between vocational and subject-specific didactics**

| **Vocational didactic *(yrkesdidaktik)*** | **Subject-specific didactic (*ämnesdidaktik*)** |
|---|---|
| Mostly guided by constructivist learning theory, | Mostly related to cognitive learning theory. |
| Teaching and learning have to cross a wide range of scientific knowledge areas. | Guided by university knowledge fields, there is a desire to keep subjects separate. |
| Vocational education inherits its didactic from working life, often with blurred knowledge area. | Subjects are based on more or less well framed disciplines. |
| Vocational didactic is action-oriented and what is learned is not separated from its usefulness. | Focus on theory and the quality of knowledge. |
| There is generally a problem to solve, which requires both theoretical and practical skills. | Based on the didactic question of 'how?' which is answered by academia. |
| There is often tacit and informal learning included in vocational didactic. | The knowledge can often be communicated verbally or in written form. |
| Occupations are framed by various rules and regulations, which have to be integrated in training. | Subject-specific didactics do not have the same 'embeddedness'. |
| Specific demands from labour market stakeholders carry considerable weight, as does working context. | Demands from stakeholders leave greater freedom for interpretation. |

*Source*: Adapted from the Swedish country report; based on Johansson et al., 2007.

In other countries, there is also growing insistence that vocational programmes cannot be delivered in the same way as academic programmes. This is the case in England (Qualification and curriculum authority, 2008; Lucas et al., 2012). In Denmark, unlike in general education, the new way of understanding learning in IVET is centred on practical tasks and activities to catch students' interest, attention and motivation (Svendsen, 2006). This more practical approach is related to the tradition of apprenticeship learning (*mesterlære*) which highlights the importance of non-verbal and physical elements as part of acquiring and practising competence within the profession (Aarkrog, 2012) while at the same time supporting the dual principle of VET: the basic connection between vocational training and school in the IVET (Brown and Katznelson, 2011), and between theory and practice. More weight is given to 'knowing how' than to knowledge in the sense of declarative knowledge, 'knowing that', though students emphasise that both are important and cannot be separated (Juul, 2005). Lene Tanggaard and Svend Brinkmann in their paper *In defence of a hybrid pedagogy*, argue that vocational learning is both cognitive and practical (Tanggaard and Brinkmann, 2008).

The above examples are in contrast to other countries (the Basque region of Spain, Italy, Lithuania, Hungary and Romania) where little pedagogical difference has been identified in the literature between general education and IVET. In Romania for example, the absence of an alternative conception of vocational pedagogy reflects the fact that, in practice, pedagogy in IVET is, for the most part, based on traditional pedagogy.

In this research, the term vocational pedagogy is understood as the sum total of the many decisions which vocational teachers and trainers take as they teach, adjusting their approaches to meet the needs of learners and to match the context in which they find themselves. This simplified approach of the concept allows for comparability across different countries and understandings.

## 2.2. Concepts of learner-centred approaches

The research demonstrated that, within vocational pedagogies, there is no Europe-wide, transnational discourse on learner-centred approaches in VET. Searches of national literature published between 2002 and 2013 conducted as part of the current research found little reference to how learner-centredness is conceptualised in some countries. For example, the concept of *Lernerzentrierung* (a literal translation) is not discussed explicitly in the German literature. In Malta and Slovenia, no documents were found in searches using the term 'learner-centred', while only one document was found in Romania and in Finland. In

England, the literature suggests that the vocational curriculum has, since the early 1980s, embodied most of the characteristics associated with progressive vocationalism (Fisher and Simmons, 2012). However, the search generated no research items with a key focus on 'learner-centred' vocational education published between 2002-13.

Despite the paucity of references to the concept of learner-centredness in the literature, a variety of pedagogic approaches is described both in the literature and mentioned by respondents which can be commonly understood as learner-centred or that incorporate methods that support learner-centred learning. For example, Bohlinger and Münk (Cedefop, 2009, p. 187), in a study of European strategies for modernising VET, include approaches that comprise features of learner-centred learning such as:

> '(a) the development/imparting of key skills opening the doors to the knowledge society, including the imparting of entrepreneurial skills';[…]
> (b) learner-focused approaches, in which measures and action programmes are implemented primarily from the perspective of the learner, with the use of new technologies and media;
> (c) approaches in which motivation to learn is to the fore and corresponding measures, especially the aim of 'learning to learn', are adopted;
> (d) approaches covering the multiple aims of education policy, such as learning for one's own self-realisation, personal development and economic, social and cultural goals'.

Sometimes learner-centred approaches are discussed as part of a critique of existing pedagogical practice and/or in proposing an alternative model for teaching and learning. This is particularly the case in discussions of teaching and learning for disadvantaged learners. In France, for instance, as 'traditional' teaching practices have been seen to fail with disengaged and disadvantages students, teachers are reported as keen to try out new ways of teaching that incorporate a more learner-centred approach (Jellab, 2005a). In Finland, alternative education models for students with challenging behaviour have also been mentioned in the literature (Jahnukainen and Helander, 2007; Komonen, 2002, 2003).

When it comes to describing practice, the term learner-centredness is used in different ways. Analysis of data gathered from the literature and discussions with respondents reveals four main ways that learner-centred pedagogies are discussed. Such pedagogies are understood to:

(a) make the processes of teaching and learning more responsive to learner interests and needs and to increase motivation;

(b) increase the control that individuals or groups of learners exercise over the processes of learning, for example emphasising teachers' facilitator or coaching roles;
(c) give greater attention to learner outcomes or competences, for example, communication skills or capability for learning;
(d) use a range of 'innovative' methods, in particular, project work, group work and 'active' (otherwise known as 'inductive' or experiential) learning.

Some respondents lay particular emphasis on one of these, while others emphasise more than one. The following account describes how these different understandings are exemplified across the 15 different national contexts.

In France, trends towards a more learner-centred approach to meeting student interests and needs are explained in the context of the changing profile of learners (Jellab, 2005b; Périer, 2008). Teaching includes more individualised learning for disadvantaged learners, with attention being paid to the needs of the individual learner and using evaluation to motivate students. Teachers have been observed as selecting (sometimes through negotiation between teachers and learners) themes more interesting for students (Jellab, 2005a). It is reported that thinking about pedagogy is sharply divided between the partisans of 'differentiated pedagogy' (represented, for example, by Legrand, de Peretti, Meirieu) who have developed the progressive ideas of Montessori and Freinet claiming to put the individual learner at the centre of the teaching process, and 'simultaneous pedagogy' (same contents, time and methods for the whole class) (Houssaye, 2002).

A recent study in Denmark highlights the need to organise the learning according to the young person's style, as this can promote the students' concentration and consequently their learning. The study underlines the importance of the teachers' knowledge about different methods and pedagogical skills, so they can assess what may be appropriate in relation to the individual student's needs and abilities (LG Insight, 2013). In Sweden, it is also to be expected that teaching is 'adapted to each pupil's conditions and needs and that there are different ways to reach the learning outcomes' (Swedish country report, p. 11). In the Netherlands, a key idea behind competence-based education (CBE) is the idea of a career, which implies the organisation of the curriculum and educational pathways according to the needs of the individual learner; the identification of learning needs at the start of vocational study programmes is one of the key principles (Sturing et al., 2011).

The principle of individualisation of education is strong in both the Lithuanian and Slovenian literature. In Lithuania following this principle means to consider and satisfy differences in abilities, knowledge, motivation, interest, and learning

styles. among individual students, as well as groups of students (Daukilas, 2008). The learner-centred approach focuses on the need to make pedagogical work more effective and transform pedagogical culture (as in paying closer attention to individual learners and using differentiated teaching methods).

Hungarian respondents reported that VET teachers and trainers now have the task of coaching trainees in independent learning and in overcoming obstacles in the learning process. In Slovenia, coaching was mentioned by one respondent as part of the teacher's role in supporting reflection on learning processes. In The Netherlands, learners are 'challenged to develop meta-cognitive skills, such as self-regulation and self-reflection. They are made responsible for their own learning and they have to monitor their own development… proven teaching methods (such as whole-class instruction) are related and brought into balance with more experimental practices (coaching students' learning processes)' (Ketelaar et al., 2012).

In Germany, change in the teacher's role from instructor to guide has been prompted by the need to develop learners' abilities for self-directed competence development. In the Netherlands, CBE includes among its principles the active role of learners who are stimulated to take responsibility for, and reflect on, their learning, and the dual role of teachers as coaches and experts (Sturing et al., 2011). In Hungary, the new approach to VET relies on more personalised and active pedagogy; it now focuses on competence development through autonomous learning and problem solving, with mechanisms to stimulate individualisation, including portfolios, individual education plans, and elective modules (Udvardi-Lakos, 2005; Nagy L. 2005; Kraiciné, 2004).

In France, innovative methods cited in the literature include small group work, problem based approaches, and project-based teaching which can take different forms: a multidisciplinary project with an occupational character, a specific project in a vocational subject, or subject-based or interdisciplinary activities linked to an internship (Jellab, 2005a). Many VET centres in Spain have also begun to work on projects (Spanish country report). There has also been a shift in Malta towards more innovative teaching methods, particularly at the lower levels of the qualifications framework, to ensure different learning needs are catered for (Cedefop ReferNet, 2011). In Slovenia, the importance is stressed of planning and implementing didactic strategies which contribute to greater learning activity for students, such as active teaching methods, learning-by-doing, inquiry learning, constructivist approaches to teaching etc. (cf. Marentič Požarnik 2004, 2006; Kramar, 2009; Strmčnik, 2001; Blažič et al. 2003; Rutar Ilc 2003).

It is also worth noting that the use of ICT is commonly associated with personalisation. A study into the impact of the web on teaching methods argues

that it is a key way to achieve 'personalised and flexible learning; the use of technologies should be embedded in educational practice' (European Commission and IPTS, 2010, p. 8). For example, social computing is said to promote:

> '…pedagogical innovation by encouraging teaching and learning processes that are based on personalisation and collaboration. As a consequence, interaction patterns between and among students and teachers are changed, redefining the roles of teachers and learners. Teachers become designers, coordinators, moderators, mediators and mentors, rather than instructors or lecturers… learners need to assume a proactive role in the learning process, and develop their own – individual and collective – rules and strategies for learning.'

In summary, learner-centred approaches to vocational pedagogy can be understood as emphasising some or all of the elements highlighted above: meeting students' interests and needs, individualisation of education and training processes and competence development; innovative methods including small group work, problem-based approaches; and project-based teaching.

## 2.3. Multidimensional framework of learner-centred vocational pedagogy

The concept of learner-centred teaching is not clearly understood or established within European research or practice. Developments in research suggest that synthetic theoretical approaches that draw attention to the multiple dimensions of vocational pedagogy are more useful for applied research and the development of practice.

To this end, the study adapted and applied the multidimensional model developed by Dutch researchers who have theorised about the relationship between competence-based education, learner-centred approaches and the identification of key dimensions of vocational pedagogy. The model, validated through several studies and teachers 'is rooted in the theory of cognitive apprenticeship' (de Bruijn and Leeman, 2011, p. 695) and is currently used by many schools (Sturing et al., 2011).

In continuation, we present how each of these dimensions (Table 1) is used in the national literature on vocational pedagogy in the 15 countries examined.

### 2.3.1. Vocational identity

Formation of vocational identity was mentioned by many respondents as a key aspect of vocational pedagogy. It appeared to be a particularly strong feature in countries that have or aspire to develop a dual system. It was regarded as a

crucial objective of IVET according to respondents in Denmark, Germany, Lithuania, Hungary and Slovenia. In Germany, for example, the concept of vocational identity is fused with the concept of professional competence to define the purpose of VET: *berufliche Handlungsfähigkeit*. Hungarian contacts suggested that a benefit of the dual system is that it makes it possible for the learner to acquire not only vocational skills, but also learn the culture and ethics of the occupation. Interviewees in Denmark suggested that learners and teachers are driven by the aim to develop a specific vocational identity, while in Slovenia, it was said to increase the motivation of students for learning and for choosing a specific occupation. Lithuanian respondents also understood that vocational pedagogy is primarily directed at the formation and enhancement of personality, including professional ethics and values. Vocational identity received less emphasis in those countries where vocational education is primarily 'school-based', such as in Ireland, Spain, France, Malta, Italy, Romania, Sweden and UK-England.

### 2.3.2. Task authenticity

Authenticity of task is another important feature of vocational pedagogy. This was regarded in school-based systems as a means to correct an overly subject-oriented approach; in dual systems (as in Denmark), it was seen as a way to reconcile the two learning environments. Respondents in Finland pointed out that learning activities need to be real work tasks and performed in real or realistic contexts. In Slovenia, one of the vital aims of curriculum reform has been to encourage and empower schools and teachers to develop and carry out learning activities that aid authenticity. French respondents suggested that learning in IVET should start with an authentic problem; they highlighted the important role of internships and simulated working environments in vocational pedagogy. In Spain, Hungary and the Netherlands authenticity of task was also identified within the understanding of vocational pedagogy. German respondents, although not making explicit reference to the concept of authenticity, highlighted the important role of projects that build on concrete work tasks. It seems likely that this difference of emphasis reflects the division of labour in the German dual system: authenticity is delivered by the enterprise sector, so it is less of a concern in the school side.

### 2.3.3. Reconciliation of subject-oriented and thematic material

The reconciliation of subject-oriented and thematic material was generally regarded as essential, but also as somewhat problematic. This was particularly the case in Germany, because it depended on the coordination of the two realms of the dual system. In case studies in the Netherlands and in Slovenia, theory

and practice were taught separately but teachers pointedly sought to demonstrate the relevance of their interconnection. In Denmark and the UK-England, examined curricula are designed so that theoretical learning or learning about techniques was wholly integrated into practical tasks as a matter of pedagogical principle.

#### 2.3.4. Construction

The construction dimension was identified by interviewees in several countries, including those from Spain, France, Lithuania, Hungary, the Netherlands, Slovenia, Finland and UK-England, as part of their understanding of vocational pedagogy, in terms of catering for individual needs.

#### 2.3.5. Adaptive instruction and modelling

Responsiveness to individual differences, for example through adaptive instruction and modelling, was also explicitly endorsed in many countries, even by those which lack an extensive literature on vocational pedagogy, such as Ireland, France, Italy, Lithuania, Hungary and Malta. Slovenia and Finland emphasised flexibility and individuality as a starting point of any teaching method in IVET. In Finnish VET, for instance, individual learning plans enable these principles to be applied in practice, especially in implementing on-the-job learning. Denmark demonstrates understanding that teachers must differentiate their methods in accordance with learners' qualifications and learning styles. In England, it was agreed that it is primarily up to the individual teacher/trainer to tailor their teaching style according to the needs of learners: 'teachers may start a session with demonstration, but then progress to activities designed to lessen support, with the teacher/trainer acting as a facilitator'.

#### 2.3.6. Coaching

Respondents in Hungary and Finland highlighted the role of coaching and mentoring. In Malta, this pedagogical dimension was said to be more prevalent in programmes at lower levels of the qualification framework, while in Germany it was said to be more used during the latter part of a dual vocational programme, placed at the NQF/EQF level 4. Information from other countries implied that coaching or mentoring was a feature of vocational practice, although these dimensions were not describing explicitly in their understanding of vocational pedagogy. Coaching was regularly cited as a key method of work-based learning and in training centres where the focus was upon skill acquisition, for example, on traineeships in Ireland.

### 2.3.7. Development of reflection

Development of reflection was identified as an important pedagogical dimension in Lithuania, Slovenia, Finland and UK-England; this was sometimes in association with the development of self-regulation skills. In Slovenia, reflection is integrated in every VET programme as part of the key competence of 'learning to learn'. In Denmark, both of these dimensions were deemed important, but mainly through the learner's socialisation in work-based training. In Germany, the development of capacity for self-organisation is typically conceptualised as *berufliche Handlungsfähigkeit* (professional capacity to act) or *Handlungskompetenz* (acting competence): this is the capacity to exercise an occupation independently and to organise one's work processes autonomously instead of performing highly specialised tasks from detailed instructions, a type of learner-centredness in vocational pedagogy.

The findings from the national analyses proved as useful the multidimensional account adopted in the theoretical model of this research in capturing the range of vocational pedagogical dimensions relevant to the success of pedagogical practice.

CHAPTER 3.

# The extent and use of learner-centred pedagogies in Europe

This chapter starts with a review of the key drivers in developing policy for improving vocational pedagogy and strengthening learner-centred approaches (Section 3.1). Section 3.2 details the progress made at national level in terms of pedagogical reform and Section 3.3 assesses the extent to which policies for learner-centred pedagogies have been implemented and are practised.

## 3.1. Policy drivers for learner-centred pedagogies

Pedagogical change in IVET has not been a major and explicit policy priority at European level. This is perhaps because pedagogy is believed to be rooted in national cultures or due to the fact that other measures, such as curriculum reform or developing national qualifications frameworks, have been judged to be more urgent. Although learner-centred approaches in education and training have been clearly advocated by the communication on lifelong learning (European Commission, 2001) and the subsequent work programmes on education and training ET 2010 (Council of the European Union, 2010) and now ET 2020 (Council of the European Union, 2009), pedagogical innovation was not highlighted in EU strategic documents.

At national level, where there has been an explicit policy focus on pedagogy, this has usually been a subordinate part of broader reform of IVET. However, in a few countries, policies supporting diverse developments in vocational pedagogy have been in place for many years, particularly in adult and special education but also in vocational education and training (Psifidou, 2014; Cedefop, 2012)

Based on the data collected in the country reports, four broad policy trajectories on drivers for pedagogical change in IVET were identified within which it is possible to group countries, even if some are following more than one direction. Each of the four trajectories has a primary driver; they are set out in Table 4.

Table 4. **Main drivers for pedagogical change in VET**

| Dominant policy driver and policy trajectory | Countries |
|---|---|
| The introduction and development of learning outcome approaches in IVET with a view to supporting the development of curricula and qualifications more responsive to the needs of the learners and the economy. | Ireland, Malta, Netherlands and UK-England, as well as Lithuania, Hungary Slovenia, Romania* |
| The introduction and/or the reinforcement of apprenticeship or dual systems, as well as seeking closer cooperation between school-based and work-based learning to match better the needs of the labour market. | Denmark, Germany, Hungary, Slovenia, Finland, Sweden, UK-England |
| Reforms aimed at increasing access to IVET and responding to the needs of an increasingly diversified range of learners. | Germany, Ireland, Spain, France, Italy, Romania, Slovenia |
| Reforms with a strong focus on teacher and trainer training. | Denmark, Germany, Ireland, Lithuania, Slovenia, Finland, |

NB: These countries have experienced different outcomes from similar policies as discussed, for example, in Grootings and Nielsen (2005).

*Source:* Authors.

## 3.2. Progress of national policy developments

Routes to policy development in learner-centred pedagogy are more difficult to explore due to lack of common understanding of the concept among different countries.

Some learner-centred practices began to be implemented in innovative IVET schools in the 1960s and 1970s, particularly in countries where control over IVET was relatively decentralised (Netherlands, UK-England). But policy developments based on an explicit learner-centred pedagogy concept started later: in the 1980s in Italy and in UK-England; in the early 1990s in Denmark, Ireland, the Netherlands and Finland; in the mid-1990s in Lithuania and in Slovenia; at the beginning of the 2000s in Spain, Malta and Romania; and more recently, in Hungary (Table 5).

In France, Germany and Sweden it was not possible to identify, with the research methods applied, a policy directly supporting learner-centred pedagogies.

Table 5. **Policy developments by country and period of introduction**

| Decade of introduction | Country | Policy description |
|---|---|---|
| 1980s | Italy | Based on Montessori's theories, the 'learner-centred teaching' idea is today widely accepted and the term is widely used, both in literature and in everyday professional language, although, there is limited explicit policy with respect to IVET. Implementation was supported since 1974 to support a 'democratic' approach to teaching and learning and developed particularly in adult professional training. It was recently reinforced due to increased consideration for 'special needs' students in 2011. |
| | UK-England | There is no policy prescription on pedagogy, but there are several policy documents where learner-centred pedagogies were recognised as a long-established dimension of the VET system. Such pedagogies are supported in guidance and qualification documentation for further education institutions (that supply most IVET provision) since the 1980s. Over the same period, there has been an increasing policy shift towards learning outcomes approaches to qualifications and assessment. Since 2000, and through recent policy documents on reforms to further education and apprenticeship provision (2011), there is a growing focus putting the student at the heart of the education process, in particular empowering students to make choices about their learning. |
| Early 1990s | Denmark | Learner-centred pedagogies were introduced in education reform in 1991, which advocated inter-disciplinarity and holistic teaching; they became a key factor of the 2000 IVET reform of the dual system. They were reinforced by the introduction of assessment of prior learning (APL) in 2003 and were seen as a response to the increasing diversity of learners. Emphasis is now moving to making closer connection between school-based and work-based learning and to the central role of teachers when practising learner-centred pedagogies. |
| | Netherlands | Learner-centred pedagogies are one element of the broader concept of competence- based education (CBE) largely inspired by constructivist theories (de Bruijn, 2004). Since the 1990s, the government has reformed IVET, rewriting curricula based on learning outcomes in order to make it competence-based. The implications of a shift to competences/learning outcomes in terms of pedagogical-didactical approaches, learning environments and learning materials have been acknowledged since the beginning: 'Although the concept 'competence-based' is used inconsistently, from the early stages of this development the aim was to realise a shift in the schools' culture: no longer the curriculum, but the student him/herself has to be at the centre of the educational process' (Winters, 2012, p. 334). |
| | Ireland | Learner-centred pedagogies were introduced in the 1990s, at the same time as a competence approach for VET and adult education; this policy was reinforced in the 2000s because of the integration of special needs within mainstream education. Syllabuses are now focused on the learner and help teachers and students to engage in learner-centred activities to achieve the learning outcomes; however, implementation remains limited. |

| Decade of introduction | Country | Policy description |
|---|---|---|
| | Finland | The first signs of learner-centred pedagogies in education research were visible in 1980s and changes in practice started in 1990 through education reform. Currently, a commitment to learner-centred approaches is strongly supported and widely shared. In 1998, new legislation on VET emphasised the provision of flexible individual paths for all learners and collaboration between VET and working life. A challenge for IVET remains to develop work-based learning and real working-life environments. |
| Mid 1990s | Lithuania | The promotion of learner-centred pedagogies can be dated to the beginning of the 1990s with the reform of IVET focusing on curricula and teacher training. Learner-centred pedagogies are associated with the need to shift from a planned economy-oriented VET system to a new system-oriented towards the needs of individuals and market economy. |
| | Slovenia | Although the term learner-centred teaching is not widely used, learner-centred pedagogies were systematically built into the VET system and into teacher training, particularly in relation to the inclusion of students with 'special needs' and through VET curriculum reforms after 1990. |
| Beginning of the 2000s | Malta | A commitment to learner-centred pedagogies has been present for over two decades; however, it has recently become a mission statement for the Maltese College of Arts, Sciences and Technology and is closely associated with the national reform programmes of 2005 and 2008. |
| | Romania | Building on the experience of the EU Phare programmes, the 2003 reforms included learner-centred methods in IVET curriculum. Pedagogy is considered to be a key element of the IVET curriculum, but there is no clear evidence about how well these approaches are understood and the extent to which they are used in the classroom. |
| | Spain | National literature sees learner-centred teaching as a new development in VET. Learner-centred pedagogies are seen as a necessity due to the diversity of actors, needs and backgrounds. Learner-centred pedagogies have been strongly supported in some regions, such as the Basque Region, through teacher training. |
| Mid 2000 | Hungary | Vocational orientation and career guidance form the basis of learner-centred VET. The first important step towards learner-centredness occurred in the mid-2000s as part of IVET reform involving modularisation and the development of regional centres to support modernisation. |

*Source*: Country reports.

In France, learner-centred teaching has its historical roots in the reforms advocated by thinkers such as Montessori and Freinet in the early 20th century. Although there have been many reforms within IVET since 1980 with a direct or indirect impact on teaching practices, there is no dedicated policy in France for learner-centred teaching in IVET. Opinions among VET teachers and trainers on the need to apply more learner-centred pedagogies to address differences in

performance, sociocultural background and learning styles at the expense of more traditional approaches vary and there is no current consensus.

In Germany, there little explicit reference to learner-centred pedagogies although some associated methods, such as project and group work are common in part-time German vocational schools. The concept of 'learning areas' was introduced in the VET school curricula around 2000 with the intention of improving the connection between the school and the enterprise parts of the dual system for the individual learner.

In Sweden, there is no commonly accepted definition of learner-centred pedagogy, but there is a broad understanding of it as encompassing active learning. There was a move away from 'authoritarian' and teacher-centred approaches from the 1960s to the 1990s. More recently, there has been increasing emphasis on apprenticeship training. The main key pedagogical questions concern integration between school-based and workplace-based education and training.

While there are differences in what is understood by learner-centred pedagogy and in the policies introduced, some countries have similarities in the way that policy in this area has developed. We may group policy developments in the following three broad categories ([5]).

### 3.2.1. Incremental steps and adjustments

Learner-centred pedagogies have been implemented progressively since the 1990s in Denmark, the Netherlands and UK-England.

In Denmark, the development of more learner-centred vocational pedagogy can be seen as an iterative process along the same path, each new step trying to go more in depth taking into account the progress already made and the problems encountered during implementation. The reform began in 1991, when learner-centred pedagogic principles were first introduced, followed by reform in 2000 making provision more individualised and flexible and defining pedagogical principles and teacher roles. The 2003 amendments including accreditation of prior learning (APL) and the 2007 reform marked a small reversal to a teacher-centred approach by placing emphasis on the role of the teacher in differentiating and structuring learning rather than expecting learners to be able to direct their

([5]) This judgement is made in relation to the period 2000-13. It concerns 'learner-centred pedagogy' rather than other changes in vocational pedagogy.

own learning. This move was consolidated by the seven quality initiatives to improve the quality of VET in 2012 ([6]).

In England and in the Netherlands, policy development was strongly influenced by the focus on qualifications, outcome-based education and assessment from the 1980s onward. An interest in learner-centred pedagogies was partly put aside in the 1980s and 1990s when the focus on qualifications took on greater importance, but became prominent again when purely outcome-based approaches showed limitations (as in the case of NVQs in England). Implementation has alternated between a focus on top-down (qualifications) to bottom-up (support for teachers and CPD) approaches.

In these three countries, it seems that quality assurance and evaluation played a substantial role in shaping pedagogical reform, through regular Ofsted ([7]) inspection in England, the Education Council review of initial teacher education in the Netherlands, and, in Denmark, through studies conducted by DEA, an independent, non-profit think tank which aims to promote intelligent and effective investment in research, education and innovation.

#### 3.2.2. Relatively strong and continuing

Finland has developed a strong commitment to learner-centred pedagogy but implementation is more recent and continuing. It is associated with decentralisation but is guided by central government. The National Board of Education has played a key role, notably through support given to initial and continuing teacher training.

National vocational qualification reform and decentralisation have permitted the Basque region of Spain to pursue a policy of incentivising learner-centred pedagogies through awards for good practice and supporting teachers through local VET development centres.

In Malta, the reform of pedagogy is endorsed by key policy-makers. The Malta College of Arts, Science and Technology (MCAST) states in its strategic plan that it 'aims to implement the best inclusive learning practice, promoting self-directed learning and developing new ways of teaching and learning that support and enhance the curriculum' (Maltese country report, p. 3).

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([6]) These are: competence boost of teachers and managers; shared pedagogical basis in colleges; strengthened, differentiation (among learners); closer connection between school-and work based dimensions of VET; better learning environments including homework assistance; individually structured and more practice-oriented basic courses; mentoring arrangement, contact teacher arrangement, and more psychological and social counselling (Danish country report, p. 9).

([7]) Ofsted is the Office for Standards in Education, Children's Services and Skills.

### 3.2.3. Encouraged by EU support

Priority for learner-centred pedagogies developed in Central and Eastern European Countries in reaction to the previous approach prevailing in State-driven economies and societies. From the mid-1990s, EU projects through Phare programmes mainly focused on curriculum development, teacher training and ICT as vehicles for IVET reform. Projects were implemented in each country in a selection of pilot VET schools, involving the school leader and some teachers as 'change agents' aimed at supporting their colleagues during implementation. Such projects were supported by national VET institutes (Hungary, Romania, Slovenia) and/or specialised universities (Lithuania, Slovenia) and additional help came from exchanges between VET schools in EU Member States. Some countries were better prepared than others for these changes for historical reasons; in Slovenia, for instance, learner-centred pedagogies had already been gaining ground in the 1980s.

Weaknesses of this approach came from the fact that Phare-funded projects were not systematically supported by national governments; they were implemented by project management units situated outside of the Ministries, with a three to four-year duration that often was not followed by effective dissemination and policy mainstreaming. Teacher training was disrupted at the end of the project and it was difficult to maintain motivation and to pursue the work after that. More fundamental was that the assessment system was not reformed to address pedagogical changes, leading innovating schools and teachers into difficulties in applying traditional assessment methods. The effectiveness of EU financial support improved after the accession of these countries to the EU, with ESF-funded projects that were embedded in national policies. However, ESF did not target particularly learner-centred approaches or vocational pedagogy for reform.

### 3.2.4. No strong policy focus

Germany, Ireland, France and Sweden do not currently have an explicit strong policy focus on learner-centred pedagogy for IVET. In Sweden, priority is now being given to the development of apprenticeship training and to combining school-based and work-based learning. In Germany, the last major reform in vocational pedagogy was the introduction of 'learning areas' (*Lernfelder*) in the 1990s, intended to make work processes the point of reference for the new national curricula in 2000. The favoured vocational pedagogy for IVET is action-oriented acquisition of competence. There are bottom-up developments involving learner-centred approaches, particularly in the so-called 'transition system' where students stay for about half to one-and-a-half years; this includes different

training schemes, which do not lead to full qualifications. The development of new training ordinances reflecting new emerging occupations is leading to greater emphasis on occupational tasks and skills, rather than broad competences, but it is not clear how this is impacting on pedagogy.

In France, there is no single 'official doctrine' on vocational pedagogy. The approach is pragmatic and there is broad consensus about what can be considered as good practice. Pedagogical autonomy is granted to teachers by law but, at the same time, they receive programmes and instructions from the ministry. However, policy is shifting: the main priority in IVET since the 2001 reform was the introduction of multidisciplinary projects *(projet pluridisciplinaire à caractère professionnel*) as a compulsory element of the curriculum. Since the 2009 reform, schools have to organise project-based teaching, but they are free to do it as they want and the amount of project-based learning is not specified (French country report, p. 9).

Implementation of learner-centred approaches is modest in Ireland up to now, although all revised and new syllabuses are said to be focused on the learner.

## 3.3. From policy to practice

The emerging picture is one of considerable diversity when it comes to policy implementation. In Hungary, learner-centred pedagogies are sporadic; in Romania, pedagogy is widely based on traditional teaching processes. At the other extreme, learner-centred approaches are extensively practised in Denmark and in the Basque region of Spain; in the latter it is estimated that, on average, learner-centred approaches are used in 70% of schools, as well as in practical training periods in companies and in enterprises.

There are cases where there has been an intention to implement learner-centred pedagogies but this has been frustrated in the level of delivery. In some countries, such as Germany, France, Hungary and Sweden, there have been relatively weak, or at least inconsistent, messages about pedagogy emanating from the government, which helps to explain limited implementation. However, in some cases, bottom-up forces have been as important as the strength of top-down pressure for implementation. In Germany, although learner-centredness is not a significant part of pedagogic discourse, methods associated with learner-centred thinking, such as project work, are widely practised in VET schools.

In more than half of the 15 countries examined, implementation is said to vary depending on the sectors, type of VET, providers, teachers and learners. Learner-centred approaches to pedagogy are found to be more frequent in some

sectors than others. In Lithuania, learner-centred pedagogies fit better in mechatronics and in the service sector than elsewhere. In the Netherlands, learner-centred pedagogies exist on a larger scale in technical occupations than in other fields, such as business education. In Denmark, in commercial programmes, teaching methods are often more traditional and classroom based compared to the more practically oriented technical VET occupations. In Germany, learner-centred pedagogies are reported to be stronger in the care sector, and in specific areas, such as the Bremen region, where they are widely accepted in occupations such as engineering and technology or business training.

Learner-centred approaches are practised to a larger extent in the school-based part of the dual system than in the company-based part. In company-based training in Germany, a distinction is also drawn between larger and smaller enterprises. Small enterprises are often rather conservative and prefer traditional methods. Large companies such as Daimler or Siemens have their own training departments, which often use innovative methods.

Differences can also come from the diversity of learners. The research showed that greater heterogeneity of learners leads to more learner-centred pedagogies. In France, Ireland and Germany, schools with many at-risk students or students with special educational needs, were keener to adopt individualised approaches, out of the need to find new ways of addressing the learning difficulties of their students. Similarly, in Germany, learner-centred pedagogies appear to be more popular in the 'transition system' which caters for those learners who cannot find apprenticeships. Programmes aiming at second chance education for vocational learners were also associated with learner-centred and other innovative approaches to teaching; this happens in Ireland, Germany and UK-England.

The extent of application of learner-centred approaches depends on school management (Germany, Ireland, Hungary). The role of the school leader and school management is generally an important driver in supporting learner-centred pedagogies. In Slovenia, evaluations have shown that behind many of the schools that have managed to implement new approaches was a charismatic and knowledgeable school principal. In Denmark, Germany and Hungary, the lack of pedagogical leadership in vocational colleges is often quoted as an obstacle to the spread of learner-centred approaches. The school leader also has a role to play in supporting networking among teachers, between teachers, researchers and employers, as well as with other schools and institutions for the promotion of learner-centred pedagogies. A lack of opportunities for networking was mentioned by respondents in Lithuania, Hungary and Slovenia.

Funding may affect pedagogy in different ways. It may affect teacher-student ratios (as in Denmark) or lead to poor infrastructure in terms of environments (equipment, simulators, machinery) constraining the application and promotion of learner-centred approaches (as in Spain). Funding based on results, in conjunction with competence-based assessment, may lead to a VET system which places too much emphasis on the achievement of qualifications and not enough on what students have learned or on whether the qualifications achieved are appropriate or have value in the labour market. Related concerns have been raised in England (Wolf, 2011). The use of learner-centred approaches may also be dependent on whether or not schools have participated in EU funded projects. This is particularly evident in the case of pilot schools involved in EU projects before accession in Lithuania, Hungary and Romania.

Evidence gathered through this research supports only qualified generalisations about the development of policy and the extent to which learner-centred approaches to vocational pedagogy are generally practised in different countries. It suggests that there is considerable support for learner-centred pedagogies, but relatively little high level explicit policy commitment. Policy is most developed in Denmark, the Netherlands, UK-England and to a slightly lesser degree Spain (Basque region), Malta and Finland.

There is very little quantitative research that supports generalisations about the extent of practice of learner-centred pedagogy in IVET. Various methods associated with learner-centred pedagogies – group work, peer learning, project work, simulations, case studies, problem solving, using different learning styles and strongly work-related tasks – are found in most countries. However, these methods may be used only occasionally or only by some teachers and such use does not amount to a coherent approach to vocational pedagogy. This variation points to the importance of ‘bottom-up’ factors in determining practice: otherwise it would be reasonable to expect that practice would be uniform within each country.

As teaching and learning approaches differentiate in each learning situation and setting, to analyse further the degree of implementation of learner-centred pedagogies in each of the examined countries was beyond the scope of the research. The study, instead, concentrated on four main factors that interfere when translating written curricula into taught curricula: the components of the curriculum and the way learning outcomes are defined and structured; the culture and experience of teachers and trainers; the way learning environments are organised and used; and the design, use and availability of learning materials. The following chapters discuss each of these factors in detail.

CHAPTER 4.

# Why learner-centred pedagogies matter? The benefits for learners

This chapter considers what the research reveals about the impact of learner-centred pedagogies on learners, taking account of how learners may benefit in terms of becoming more motivated, engaged and satisfied with the chosen programme, so that they remain and progress within education and training.

The literature review revealed extensive research dealing with the impact of vocational pedagogies across Europe, especially in the countries investigated. Some 288 items published in the last 10 years were identified that addressed both 'learner benefits' and 'vocational pedagogy'. However, closer examination showed that much of this literature only tackled benefits tangentially or failed to apply robust methodologies to measure the impact of vocational pedagogy on learner benefits. Further, these studies were not necessarily concerned with learner-centred pedagogies; many studies concerned the description of activities or the description of learning processes and their effectiveness rather than measurement of impact.

To reinforce evidence, this research adopts a micro-level examination based on of observing lessons, interviews with case study teachers and learners and a survey of the perceptions of learners on their learning experience. Ten teaching and learning sessions were observed in the course of the case studies and two randomly identified learners were monitored to evaluate the extent to which they actively participated in learning. This micro-evidence acts as a caution against generalisations about the impact of teaching and learning methods on individual learners. The lesson observations assessed the extent to which the applied learner-centred pedagogies addressed all or some of the eight dimensions of vocational pedagogy described in the applied theoretical model (Table 1).

The survey includes virtually all the learners of the 10 programmes that were selected as case studies ([8]) (N=382) plus other students who were taking similar programmes in the same institutions. As already explained (Section 1.3), the sample does not aim to reflect the perceptions of IVET students in Europe, rather than in the examined countries, but to report how students evaluate their

([8]) On average, one or two students on each programme failed to participate in the survey.

pedagogic experiences, providing valuable information on the impact of pedagogies at the level of the lessons studied and institutions visited.

Benefits for learners have been considered for five indicators: motivation and engagement; satisfaction; prevention of dropout; achievement; and progression within the education and training system. The research has found promising associations between particular teaching and learning approaches with these five indicators but these do not demonstrate causality. It shows that learner attentiveness, engagement, striving for success, aspirations and assertiveness are associated with key outcomes such as achievement, satisfaction and lower risk of dropout. Further research is needed to explore these relationships and to establish causality more clearly. The following sections present the findings in the 10 case studies by success indicator.

## 4.1. Impact on motivation and engagement

The evidence from the literature and a meta-analysis of research conducted in Finland (Koramo, 2011) suggests that approaches that develop learner-centred pedagogy, flexible learning paths and working-life related approaches have a positive impact on student motivation and on re-engaging disaffected students. This finding is reinforced by the interviews conducted with teachers and learners in the lessons observed for the case studies. Teachers and learners reported that students were motivated by hands-on, authentic and interactive tasks, particularly those that involved competition and were clearly connected to work. The case studies suggest that IVET learners tend to be easily bored by book learning, but enjoy practical learning activities. These positive results are further confirmed by the learner survey: dimensions of vocational pedagogy such as construction, self-regulation and authenticity of task correlated positively with high levels of learner motivation and engagement. Further, students who have strong vocational commitment (vocational identity) to the corresponding occupational sector were more likely to be highly attentive.

Table 6 details the characteristics of teaching or learning that were significantly associated with higher levels of attentiveness or motivation. These characteristics have been grouped together according to which of the eight pedagogical dimensions of the theoretical model they correspond to. So, for example, those students that reported that they ‘received the right level of support from their teacher’ were more likely to report that they give ‘all their attention to their learning tasks when in lessons’ and that they ‘strived for the highest possible marks’. Similarly, assertiveness (being ready to ask for a change in task if it was too easy or too difficult) was associated with higher levels of

attentiveness ([9]). Higher levels of motivation were associated with students reporting that their teacher or tutor showed them how they could improve their performance. These three characteristics of teaching are classified as 'adaptive instruction and modelling; they are grouped together in Table 6.

Table 6. **Characteristics of vocational pedagogy significantly associated with higher levels of motivation or attentiveness, grouped by pedagogical dimension**

| Pedagogical dimension | Perceived character of teaching or learning |
|---|---|
| Adaptive instruction and modelling | My teacher or tutor gives me the right level of support: not too much and not too little. |
| | If I find a task too easy or too hard I will ask the teacher for a different task or to change the task. |
| | I am shown how to improve performance by teacher. |
| Construction – induction | We learn by carrying out practical tasks at school/college. |
| | I work out how to solve problems by trying things out. |
| | We work on projects that require at least one week to complete. |
| | We work in small groups to come up with a joint solution to a problem or task. |
| Coaching | My teacher/tutor gives me feedback which shows me how I could study better, e.g. be more organised. |
| Self-regulation | My teacher/tutor presents the learning goals of the lesson. |
| | I help the teacher/tutor to plan which activities I do. |
| | I know what I should learn each lesson, for example, what I should know or what skills I should have by the end of the lesson. |
| | This programme is helping me to take responsibility for my own learning |
| Authenticity | The tasks that we carry out are similar (or identical) to the tasks that qualified workers carry out. |
| Reflection | I review my own work to consider how I can improve it in the future. |
| | My teacher helps me to review my own work so that I can improve my performance. |
| Vocational identity | I plan to work in an occupation that is connected to my vocational programme (though I may carry out further studies before I do this). |

*Source*: Findings from learner survey.

([9]) See also Taylor et al. (1994).

## 4.2. Impact on learner satisfaction

Generally, satisfaction is helpful as an indicator of whether learners are pleased with all aspects of their programme: the teaching methods, their progress, and the support received. The students surveyed were all involved in programmes covered by the case studies intended to exemplify good practice; it may be expected that a very high level of satisfaction (90% of learners agreed or agreed strongly that they were satisfied with their programmes) was indicated in student self-reporting. The students attributed this to well-tailored support, effective coaching and working in groups (construction).

Well-tailored support (adaptive instruction) was significantly and positively associated with general satisfaction. 92% of those who agreed that 'my teacher or tutor gives me the right level of support: not too much and not too little' also agreed or strongly agreed that 'all in all I am satisfied with my programme', against 62% of those who did not consider that they receive the right level of support.

There was also evidence for the impact of coaching on satisfaction levels. 92% of students who judged that their teachers frequently demonstrated how they could improve their performance expressed high levels of general satisfaction, against 83% of those that did not.

Working in groups to solve problems (construction), was associated with higher satisfaction. 93% of those saying that frequently 'we work in small groups to come up with a joint solution to a problem' expressed high satisfaction as against 81% of those that did not.

## 4.3. Impact on dropout and retention

The literature on dropout and retention widely recognises that the quality of teaching and learning is one among a number of other institutional and individual factors that explain retention and dropout (Eurydice and Cedefop, 2014; Cedefop, 2013; Wahlberg, 2007). Research literature in Denmark (Hansen and Størner, 2010, Jørgensen et al., 2012) reaches the conclusion that a focus on supporting young people's motivation through practice-related learning reduces dropout. The learner survey asked students if they had thought about giving up their studies and reinforces these conclusions. Table 7 shows that three pedagogic dimensions were associated with a lower inclination to think about dropping out: adaptive instruction and modelling; learning experimentally or construction; and students with strong vocational commitment (vocational identity) were less likely to contemplate dropping out.

Table 7. **Perceived characteristics of vocational pedagogy, negatively associated with contemplating dropout, grouped by pedagogical dimension**

| Pedagogical dimension | Perceived character of teaching or learning |
|---|---|
| Adaptive instruction and modelling | The teacher sets different tasks for different learners or different groups in the class. |
| | I try my best to understand everything and perform tasks to the best of my abilities when I am at school/college. |
| Construction and induction | I work out how to solve problems by trying things out. |
| Vocational identity | I plan to work in an occupation that is connected to my vocational programme (though I may carry out further studies before I do this). |

*Source*: Findings from learner survey.

In the case studies (Table 2 provides a summary), good support systems, good communication and high levels of trust (good coaching and reflection) between teacher or trainer and learner were also emphasised as important factors for retention. Teachers in UKC 2, for example, reported that retention rates had been increased by making the course more enjoyable and improving respect and relationships between teachers and learners. Teachers in DKC 2 placed emphasis on good communication between individual students and their teachers. Student well-being requires that students feel acknowledged and heard. An enterprise-based trainer placed emphasis on trust between apprentice and trainer as the most important factor for retention. Dropout, in relation to this programme, was likely to be associated with personal problems, so trust was essential to address them. Improved trust between teachers and learners was also identified as a benefit in Lithuania. The Waterhole pedagogy in DKC1 was reported to result in a dropout rate of 21%, below the average rate for 'basic courses' of 28%. Dropout was reported to have been reduced in the Spanish case study on business ESC and attendance rates to have increased as a result of the pedagogies introduced. Similarly, dropout in Dutch case NLC 2 was reported to have decreased, partly attributed to improvements in learner motivation but also to a sophisticated support system (Box 1).

Box 1. **Student support in Dutch case study 2 (NLC 2) on ICT**

Students are grouped into year classes. Differentiation takes place within these groups when possible and desirable. For example, students who find learning more difficult get extra assignments, extra explanation and/or homework assistance. In higher years, students who are interested and capable can broaden and deepen their knowledge and experience by taking on extra assignments. Depending on interests and the pace and level of development, students can obtain extra vocational certificates (e.g. for Microsoft Windows).

Before the start of the course, an assessment is made during intake to determine how each student can be supported in the best way. The assessment is based on conversations with the student, information from previous training institutions, and diagnostic tests. The (digital) student tracking system, which is available on the intranet for each teacher and student (and their parents) to see, is colour coded to indicate which profile applies. An extra support profile is added to help students with social, emotional, cognitive or behavioural disorders. Students with special learning needs (such as Asperger's condition) receive personalised support from specialist ambulant support workers. The support workers are called on when a teacher or student feels it is useful. Teachers are very positive about this form of extra support on demand in class.

Learners receive study guidance or coaching, which takes place both in class and one-to-one outside. Under their coach's guidance, students look back at their learning progress and draw up PDPs (personal development plans) containing learning and developmental goals for the period to come.

*Source*: NLC 2.

## 4.4. Impact on progression

This section explores evidence for the impact of pedagogy on progression into either employment or further education and training. It first considers the views of teachers and students and then the findings from the survey. A limitation of the research is that the data provide a snapshot of what current students think – they are still IVET learners, so they have not yet progressed in further education or into the labour market.

Progression to a job in the labour market was an anxiety-provoking issue for many students in the current European employment context, though the different case studies, in differing national contexts, indicate variation in the attitudes of IVET learners about their job prospects. While some of the learners shared these anxieties, others (notably in the German apprenticeship scheme) were more confident about their prospects; some expressed the view that students with a vocational qualification had better labour market prospects than those with a less practical qualification from the general track. The learner survey produced results that suggest ways (within the broader context described above) that vocational pedagogy impacts on learner confidence and transition:

(a) where learners understand the relevance of their school learning to work (reconciliation), this might be expected to help confirm occupational aspirations supporting transition into employment;
(b) reflection was also associated with progression intentions: significantly more students who kept a record of achievements/skills expressed a strong occupational commitment;
(c) authenticity is important, and significantly more students who could see the relevance of their programme to the world of work they wanted to progress to demonstrated an occupational commitment;
(d) group work (construction) and student assertiveness (adaptive instruction) are also associated with strong vocational commitment.

The survey showed that several pedagogic dimensions are associated with strong intention to progress into the occupation connected to the current vocational programme (Table 8). By contrast, there were no significant associations between intentions for further study and distinctive pedagogic approaches.

Table 8. **Perceived characteristic of vocational pedagogy associated with the intention to progress into the occupation connected to the current vocational programme and grouped by pedagogical dimension**

| Pedagogical dimension | Perceived character of teaching or learning |
|---|---|
| Construction – induction | I talk with other students about how to solve problems. |
| | We work in small groups to come up with a joint solution to a problem or task. |
| Self-regulation | If I find a task too easy or too difficult I will ask the teacher for a different task or to change the task. |
| Reconciliation | What I learn in school/college helps me to be successful in my work experience. |
| Authenticity | What we are learning on this programme is very relevant to the work that I want to carry out in the future. |
| Reflection | I keep a record of what I have learned or of what skills I have demonstrated. |

*Source:* Findings from learner survey.

## 4.5. Impact on achievement

There is relatively little recent European literature on the impact of vocational pedagogies on achievement. The limited research found cautioned against over-optimistic expectations, concluding that active, collaborative or self-directed learning are not always suitable for all learners, such as those with learning problems (Nieuwenhuis et al., 2012). Other authors state that only a minority of

students involved in one initiative introducing individual learning plans found them helpful in improving learning achievements and learning habits (Klarič et al., 2010). However, this research brings evidence that learner-centred pedagogies have an impact on student performance. According to teachers interviewed, this was evidenced by an improvement in grades, or in practice, shown by what learners can actually do.

In the absence of a suitable objective measure, the survey asked learners to make a subjective assessment of their own achievement. Responses show that identifiable teaching and learning methods are positively associated with perceived high achievement. Group work, helping to shape tasks and practical work, all of which serve the dimension of construction, are associated with greater perceived achievement. Adaptive instruction and modelling were associated with higher achievement, with a high percentage of students reporting that when their teachers demonstrated how they could improve performance, this helped with outcomes. Similarly, learners' responses indicated that authentic materials and coaching (including feedback) are associated with improved achievement. This is the same for self-regulation where teachers help students to plan their own learning. Students reported higher perceived achievement when they knew what the intended learning outcomes were. The following table lists the characteristics of teaching and learning, grouped by pedagogical dimension, associated with higher achievement.

The associations found suggest that vocational teachers should address multiple pedagogic dimensions to maximise impact. Addressing all dimensions is professionally demanding: teachers and trainers should be supported by adequate curricula, teaching materials and learning environments which permit the full range of dimensions to be addressed. The following chapters discuss in detail how their design and use influence the application of vocational pedagogies.

Table 9. **Perceived characteristics of vocational pedagogy, grouped by pedagogical dimension, associated with higher perceived achievement**

| Pedagogical dimension | Perceived character of teaching or learning |
|---|---|
| Adaptive instruction and modelling | The teacher sets different tasks for different learners or different groups in the class. |
| | My teacher shows me how I can improve my performance. |
| Construction – induction | We learn by carrying out practical tasks at school/college. |
| | We work in small groups to come up with a joint solution to a problem or task. |
| Coaching | My teacher/tutor gives me feedback which shows me how I could study better, e.g. be more organised. |
| Self-regulation | I help the teacher/tutor to plan which activities I do. |
| | I know what I should learn in each lesson, for example, what I should know or what skills I should have by the end of the lesson. |
| Authenticity | We use the same kind of materials and equipment at school/college as you would find in the workplace. |
| Reflection | I keep a record of what I have learned or what skills I have demonstrated (this may be a tracker sheet). |

*Source:* Findings from learner survey.

CHAPTER 5.

# The role of learning outcomes

This chapter builds on the conceptual clarification and findings of curriculum reform in Europe (Cedefop, 2012) to give an account of the various ways that learning outcomes have been found to shape vocational pedagogy in the 10 case studies carried out (Section 1.3 and Table 2). It explores how particular formal characteristics of the curriculum – such as unitisation and the number of learning outcomes used to define the curriculum – can, in combination with other factors, facilitate or discourage learner-centred pedagogies. In a few cases, it has been possible to consider how the formulation of learning outcomes impacts on the key dimensions of pedagogy as defined by the multidimensional framework explained in Chapter 1.

## 5.1. The influence of curriculum standards

The analysis presented in *Curriculum reform in Europe* (Cedefop, 2012) distinguished between a nationally agreed 'curriculum standard' defined in terms of learning outcomes and a 'local curriculum' or 'training programme' which translated those learning outcomes into activities for particular groups of learners and teachers, to be delivered in defined learning environments with defined learning materials. The publication showed that this translation process was relatively direct in some countries, whereas in others there were intermediate stages. In Hungary for example, modules containing content for teaching and learning are defined at national level; in Ireland, a national development agency (Further education support service (FESS)) supports the collaboration of groups of colleges to produce a 'programme of study'.

In principle, the learning outcomes approach to curriculum design implies learner-centred teaching approaches. However, opinions vary as teachers develop diverse and differentiated methods to enable students to meet nationally defined standards. Some respondents believe that an emphasis on the importance of meeting those standards may, in practice, distract teachers from the traditional educational method of building on the current capability of learners (Denmark); in other cases, it may lead to instrumental approaches which give too great an emphasis on assessment (that is demonstrating that those standards are met) rather than on learning (England) or on whole class teaching rather than personalised support (France). This raises a fundamental question addressed

here: under what circumstances do standards expressed in learning outcomes encourage learner-centred approaches and under what circumstances do they discourage them?

Findings show that space and flexibility given for local curriculum planning is crucial to accommodate vocational pedagogy to the particular needs of learners. Respondents emphasised that if teachers attempt 'to teach the curriculum standard', rather than designing a local curriculum which is responsive to local needs and context, learning outcomes will discourage rather than encourage a learner-centred approach:

> 'The shift in emphasis towards meeting a standard and away from designing a curriculum has tended to undermine or 'harness' any sort of framework within which providers can figure out the most effective pedagogies to use' (English country report, p. 7)

Two good examples of practice are presented from Denmark and the Netherlands, where schools enjoy an important level of autonomy in designing the local curriculum.

Box 2. **Danish example on local curriculum development**

In Denmark, the national curriculum sets out about 13 broad holistic competences for each vocational subject ([10]). Vocational schools have autonomy to produce a local curriculum including a course plan leading to diverse pedagogical approaches: in case study 1 (agriculture), teaching and learning is organised, planned and evaluated in terms of work-like activities. In case study 2 (commerce), teaching and learning is planned, organised and evaluated in terms of themes and subject content, although care is taken to devise activities in lessons that are work-related and work-like. This difference reflects the enduring presence of traditional disciplines, such as economics, within case study 2. The Spanish case study demonstrates that the influence of the 'subject' tradition can be minimised, if teachers want. This comparison suggests that school autonomy can, as in case study 1, permit schools to introduce a strongly competence-orientated pedagogy; it can also permit schools to preserve a more subject-based approach, as in case study 2.

*Source:* Danish country report.

Box 3. **Dutch example on local curriculum development**

Broad competences are defined nationally in the Netherlands and schools are expected to elaborate them into more precise learning outcomes. This is done in a document called a qualifications dossier, which sets out different kinds of learning outcomes (general, basic, core and optional) and also maps them against transverse competences. The qualifications dossier for ICT and media management in the NLC1 was produced by the national expertise centre for the sector (Kenniscentrum Beroepsonderwijs Bedrijfsleve), a national vocational-business education partnership). The school has the further responsibility for developing a study guide corresponding to the qualification dossier: this will include a course plan, lesson plans and assessment events. Such a study guide may be developed by teachers in the teaching team but the particular module investigated in this case study was a commercial learning package developed by the IT company Cisco. Some of the school teachers had helped to develop this commercial package and it was checked to ensure that it matched the learning outcomes specified in the qualification dossier. The module addresses three core tasks (*Kerntaken*) which derive from different units in the curriculum standard. From the point of view of students and teachers, simultaneous participation in a 'vendor qualification' enhances the credibility and work-relatedness of their learning: in terms of the eight dimensions identified in this research as related to learner-centred vocational pedagogy, this supports the vocational identity and authenticity of the programme.

*Source:* Dutch country report.

In Slovenia, Denmark and Spain, this freedom in interpreting the curriculum standard was made possible by strong teamwork among teachers and tutors. In DKC 1, for example, collaboration led to an innovative local curriculum, which required joint delivery in a large distributed workshop of 60 to 80 learners. In the German case study, DEC, teachers in the vocational school were said to work individually to design course plans that correspond to the framework curriculum designed by the KMK (Standing Conference of the Ministers for Education and Cultural Affairs) drawing on a repertoire of teaching styles and methods that they prefer.

At the other extreme is the Enterprise training in Germany. Enterprises have significant autonomy and control over the training plan, where often they adapt the method of training to fit with the work process and context without direct connection to the curriculum requirements and defined learning outcomes (Box 4).

Box 4. **Enterprise training in Germany**

The German dual system incorporates a dominant enterprise-based component. In the German case study, it was reported that in the enterprise, the practice of training is shaped by the training ordinance which defines training hours for the acquisition of identified competences. However, the practice of training was described as serving the objective of attaining 'holistic professional competence (*berufliche Handlungsfähigkeit*)…more than the acquisition of certain skills' in accordance with the Vocational Training Act (German case study, on electronics technician for industrial engineering (DEC), p 7). This implies that apprentices should develop encompassing competences, a sense of quality and an understanding of the entire work process. Individual learning plans, rather than a course plan, govern the course of learning. The various stages of the manufacturing process and the different work and learning environments of the business (a large aircraft manufacturer) are exploited to plan individual work placements for apprentices in accordance with their individual learning needs.

Competence development is not monitored in terms of learning outcomes but by regular appraisal interviews with the apprentices and feedback forms. In elementary training at the training workshop the focus is on imparting fundamental skills; with on-the-job training in the manufacturing department, it is impossible to say that the training activities aim at one particular learning outcome or another as the range of tasks is too wide to draw a clear distinction. Even though each of the different departments focuses on certain essential contents of professional work, the interviewed trainer's view is that it is not possible to relate these exactly to specific units of the curriculum.

Learners acquired skills and tasks directly from their trainers and from experienced workers, and these skills and tasks were performed within the work process. In this way, the process, environment, materials and personnel of enterprise-based learning communicate authentic competences to the learner, making the documentary record – the training ordinances – almost unnecessary.

*Source*: German case study, DEC.

## 5.2. The influence of units and modules

The way that learning outcomes are separated into units may influence vocational pedagogy and contribute to or constrain some of the eight learner-centred dimensions identified in this study. Analysis of written curricula and the observation of teaching and learning situations in the selected case studies, allowed us to build the following causal relationships:

(a) where a unit combined both theory and skills, as for example in the Danish case studies, this encouraged schools to teach learning outcomes corresponding to knowledge and skills at the same time. In contrast, where theoretical knowledge and practical skills are divided between different units, it was easier for the two kinds of learning outcomes to be allocated, to be separately planned and timetabled, and to be taught by different teachers, in

different learning spaces, leading to distinct assessments (as in the case studies in Germany, Slovenia and the UK-England);

(b) where the curriculum standard was divided into units that were separately assessed ('unitised'), such as in the case studies of UK-England (Box 5), Netherlands and Slovenia, these divisions were largely followed in the design of the local curriculum. This meant that there was an identifiable learning module in the local curriculum corresponding to each unit in the curriculum standard;

(c) where the curriculum standard was not unitised, as in the Spanish case study (Box 6), this made it possible for teachers to design a teaching and learning module which does not mirror a section of the curriculum document but which selects learning outcomes from across the curriculum to create a module that closely resembles real work (authentic situation);

(d) where learning outcomes from one unit in the curriculum standard were distributed between several modules, this allowed for flexibility and adaptation to teaching methods (see Box 7).

Box 5. **UK case study 2 on art and design**

In an art and design programme of the UK-England case study 2 (UKC 2), learning outcomes are defined in a general manner, permitting wide interpretation in terms of materials, technologies, markets and styles. The local curriculum consists of modules in the form of assignment briefs which give scope for students to design their own projects. This kind of local curriculum resulted in highly learner-centred teaching and learning: the role of the teacher was largely one of facilitator or coach; student activity took up most of the time; teachers were highly responsive to the needs of individuals and students, who exhibited high levels of autonomy in relation to both the process and the origination of their work.

The teaching of particular techniques and theories was fitted into a course of learning structured by a sequence of modules designed around assessment. In the lesson observed, teaching of a moulding technique was inserted as a demonstration followed by question and answer (taking 20 minutes altogether) into a much longer session during which students were pursuing their own projects individually. This way of organising learning time would not have been possible without relatively generic learning outcomes defined in the curriculum and without a method of assessment consisting entirely of teacher-designed practical assignments.

*Source:* English country report.

Box 6. **Module design around authentic activity**

In the Spanish case study, in the lesson observed addressed learning outcomes derived from several units in the curriculum standard (e.g. design and elaboration of communication materials, digital marketing and means of communication). Activities corresponding to each of these units were allocated to different groups of students in the class, who were taking the role of different departments in a simulated organisation. In this, the systematic presentation of learning outcomes in the curriculum standard was reorganised for teaching and learning to produce a way of working that was both authentic (like a real organisation) and engaging (students were placed in groups which created peer pressure and peer support). The final assessment required a report on marketing and publicity which simultaneously assesses outcomes from across four units. This would not have been possible if the curriculum was unitised and each unit in the curriculum standard was separately assessed.

*Source*: Spanish country report.

Box 7. **Example from the Slovenian case studies**

A team of teachers had designed 'competence-based didactic modules.' These modules bring together learning outcomes specifying knowledge, skills and attitudes (including key competences) from across several units in the curriculum standard with the aim of teaching students to deal with actual and complex real-life situations. The Slovenian curriculum standard provides analysis of each learning outcome (*poklicne kompetence*) into a number of 'formative' and 'informative' learning objectives (*cilji*). One teacher explained how she selected learning outcomes from different parts of the unit in line with students' needs and the assessment standards. This process involves the selection of learning outcomes to fit with a realistic task and situation; the teacher who designs the lesson is guided by his/her knowledge of what goes on in industry in combination with their knowledge of which activities can be supported in the learning environments they have at their disposal.

*Source*: Slovenian country report.

## 5.3. Reconciling theory and practice in learning outcomes

This section explores whether the formulation of theoretical and practical learning outcomes encourages the division of pedagogy into theoretical and practical modes. Reconciling theory and practice or subject knowledge and thematic focus has been identified as one dimension of learner-centred vocational pedagogy (Table 1).

If all the learning outcomes in a curriculum standard can be clearly classified as knowledge, skills or competences, it is quite possible for practical learning and theoretical learning to be assigned to different teachers and to be taught in

different places at different times. Such learning outcomes are described as 'simple'. When learning outcomes combine together skills, knowledge and competences, they are considered as 'complex' ([10]). Given that there is a strong tradition in many VET systems that practice and theory are taught separately – even in largely school-based systems – it will seem to teachers that learning outcomes have been written in this way so that the traditional division between teaching theory and practice can be sustained. The case studies suggest that the use of 'simple' rather than 'complex' learning outcomes helps to maintain this separation/reconciliation in VET teaching.

In the UKC 1 and the two Slovenian case studies, the 'simple' formulation of the learning outcomes permitted practice and theory to be taught by different teachers in different learning environments. The teachers said that they sought to make connections in their teaching when opportunities arose. Observation revealed that each lesson was mostly planned and experienced as either 'practice' or 'theory' and this was underpinned by its function of addressing either knowledge or skills learning outcomes. However, teachers were observed to seek to bridge practical and theoretical learning, for example, relating a general theoretical principle to a particular job.

Germany has two different curricula, authored under two different jurisdictions. These broadly correspond to theoretical knowledge and practical skills, although the two are connected through the 'learning areas'. The lesson observed in Germany combined practical and theoretical elements. However, the dual system permits theory and practice to be taught and experienced separately and this is often the case in practice.

The two curriculum standards in the Dutch case studies contained some simple learning outcomes, that were identifiable as knowledge or skills, while some were complex as they required the application of knowledge. This was reflected in the learning observed: the lessons were divided into distinct phases concerned with 'knowledge' and phases concerned with the application of knowledge through skills. In the Dutch case studies, these different learning outcomes were not allocated to different teachers nor were they taught in different learning environments. Each teacher was expected to take responsibility for teaching a variety of learning outcomes: theoretical, key competences, application, and language skills. The complexity of some learning outcomes encouraged but did not compel this interpretation; it appears that these Dutch

([10]) This distinction is drawn from *Curriculum reform in Europe* (Cedefop, 2012). By 'competences' we mean here learnable attitudes or dispositions aside from skills and knowledge, known in French as *savoir être.*

teachers interpreted the curriculum standard with a prior commitment to 'reconciliation' in their pedagogy.

The complex learning outcomes found in the art and design programme in the UKC 2 encouraged teachers to combine skills and knowledge learning within a single session. This encouraged a just-in-time approach to knowledge learning, whereby the teaching and learning of knowledge is fed into practical sessions as a possible resource for learners. Similarly, in the two Danish case studies, complex learning outcomes encouraged the combined teaching of theory and practice. Pedagogic practice in these case studies placed great emphasis on reconciling subject and theme. Rather than knowledge being set out according to its own internal logic, the selection of knowledge and its provision were subordinated to the choices that teachers make when they design modules or the choices learners make when they design their own projects.

The Spanish case study, ESC, helps us to understand the causality of the relationship better. The learning outcomes in the Spanish curriculum standard are mostly simple. The curriculum standard permits Spanish teachers to separate practice from theory. However, teachers in the ESC decided to combine skills and knowledge in their teaching and learning sessions. It is worth noting, however, that the Spanish teachers were particularly keen to address those learning outcomes that concerned transverse skills, which were expressed in a complex manner.

Where learning outcomes are systematically formulated as either relating to skills or relating to knowledge, this encouraged, but did not compel, the separation of theory and practice in teaching and learning.

## 5.4. Granularity of learning outcomes

Curriculum standards may be set out in terms of a large number of relatively well defined learning outcomes or a relatively small number of generalised or holistic learning outcomes. The former are described as 'granular' while the latter are 'holistic' ([11]). *Curriculum reform in Europe* (Cedefop, 2012) showed that it was possible to compare the granularity of outcome-based curricula by measuring the number of learning hours prescribed per learning outcome. The report concluded that curricula designed to regulate both teaching and assessment practices were likely to be granular. The research made it possible to investigate the relationship

([11]) The concept of granularity is drawn from *Curriculum reform in Europe* (Cedefop, 2012).

between granularity and learner-centred pedagogies, and to conclude that greater granularity in terms of learning outcomes works against more learner-centred pedagogies, although other factors, such as assessment, must be taken into account.

Table 10 presents the findings on the degree of granularity in the case studies. In the two Danish studies, for example, granularity is exceptionally low. This means that the learning outcomes have been defined in a highly generalised manner which gives considerable flexibility to teachers when they come to design or select activities that will develop these outcomes. Further, they can dedicate a relatively long period of time – 37.5 hours – to achieving each outcome. They have the discretion to extend hours significantly for those learners that need longer because this programme is not fixed length. This permits them to spread the achievement of a particular learning outcome over a number of different activities and to allow students to determine the pace at which they progress. This found to be an approach that supports experiential (construction) learning, coaching, adaptive instruction and self-regulation dimensions of vocational pedagogy.

The German vocational curriculum is articulated in terms of a relatively small number of broad competences which are holistic rather than specific. However, examination of the training ordinances shows that the German vocational curriculum specifies a large volume of learning outcomes for the enterprise part of dual training (Table 10). Granularity is low because German apprenticeships are relatively long in terms of learning hours. This arrangement means that training ordinances can be prescriptive and can demand a consistent standard nationally, but there is enough time to give both to apprentices and trainers freedom to develop knowledge and skills in tandem with the work process and to sequence and pace development according to individual learner needs. While this is not exactly 'learner-centred', it is a flexible approach adapted to the needs of both the trainee and the enterprise.

In the case study UKC2 granularity is medium. This implies that prescription of competences is not highly specified and may permit English teachers to design authentic modules which draw upon learning outcomes from across the standard.

Table 10. **Granularity of learning outcomes in 10 case studies**

| Case study | Contact hours (actual) /modules | Number of learning outcomes and objectives (competences) (*) | Granularity: hours per learning outcome (hours per competence) | Complex/ simple | General level (**) (competence) |
|---|---|---|---|---|---|
| England 1 | 300 hours | 50 | 6 | Simple | High |
| England 2 | 1080 hours | 71 | 15 | Complex and simple | Medium |
| Germany (enterprise) | 2940 hours (estimate) | 130 (approx.) (15) | 23 (196) | Complex | Low |
| Germany (school) | 980 hours | 14 | 70 | Complex | Low |
| Netherlands 1 | 8 modules | 7 | 1.1 | Some are complex and others are simple | High |
| Netherlands 2 | 60 modules | 4 | 15 | Some are complex and others are simple | Medium |
| Spain | 50 modules | 5 | 10 | | High |
| Slovenia 1 | 114 hours | 64 learning objectives (7)(***) | 1.7 (16.3) | Simple (complex) | High (medium) |
| Slovenia 2 | 145 hours | 51 learning objectives (6) | 2.84 (24.2) | Simple (complex) | High (low) |
| Denmark 1 | 750 hours | 20 specific learning outcomes (4) | 37.5 (187) | Some are complex and other are simple | Low |
| Denmark 2 | 2812 hours | 47 | 60 | Complex | Low |

(*) In some countries, curriculum standards contain both 'competences' (broadly defined) and 'learning outcomes' (more specific). The number of competences is indicated by the figure in brackets.

(**) High<10; medium greater than 10 and less than 20; low >20 (Cedefop, 2012).

(***) Linked to competences.

*Source*: 10 case studies.

In Slovenia, granularity is layered. For example, in SIC2, the sample unit measured 24.2 hours per high-level competence but just 2.84 hours in terms of the more specific learning objective. It is possible that this layering helps teachers both to plan at a broad level and then to check to see if every learning objective is being addressed. Nevertheless, it is clear that planning is demanding: one teacher interviewed said that some teachers had problems with the workload involved. Planning explicitly to address a highly granular standard is demanding and, if it is to be achieved by all teachers, would require high levels of support

and teamwork. Without this support, teachers are unlikely to innovate and to adopt learner-centred methods.

The Spanish case study exhibits relatively high granularity but, despite this, teachers were able to combine learning outcomes from across units to design strongly work-related modules. This finding can be explained by the fact that the teachers have complete control over assessment, which can be shaped to fit with the holistic modules they have written rather than tied to the more granular learning outcomes in the curriculum standard. The curriculum in UKC 1 was experienced as relatively granular and this was said to encourage more traditional pedagogies, with a focus on transmission of knowledge, particularly with respect to teaching theory.

## 5.5. The influence of transversal skills

Where transversal skills ([12]), such as organisation and planning, are given emphasis in the written curriculum, this encourages teaching methods associated with learner-centred approaches. More precisely, it encourages teachers to deploy pedagogies corresponding to the vocational dimensions of reconciliation, self-regulation and reflection.

In the UKC 2, transversal skills were reinforced by a college-wide initiative which directs and supports teachers to integrate them with vocational skills: this is known as T teaching and encourages teachers in the college to expect their students to plan and regulate their own work. Students are expected to organise their own learning over extended periods of time, so it is essential that they plan and monitor their own progress. The role of the teacher is to model and coach planning and review skills.

In the Spanish case study, the impact of transversal learning outcomes on teaching and learning has been enhanced by decisions about assessment. Teachers and mangers in the vocational school have exercised their discretion to determine that 20% of the final mark will depend on the evaluation of transversal competences as exhibited in activities. This has encouraged teachers to design lessons that make students the main agents in the learning activities. Students understand that they have to take responsibility for planning, monitoring and reviewing their work because only if they evidence these outcomes can they gain 20% of the marks.

([12]) Transverse or generic skills are widely understood as competences that have application across occupations. They include key competences, key skills, soft skills and personal or social skills and *savoir être*.

In the Slovenian case study, SIC 1, interactive group work was used as part of a lesson about environmental issues which addressed an identified learning outcome: 'Collaborative work: cooperating with other learners in a proactive and co-responsible fashion to achieve common goals' (SIC 1). In the Netherlands, teachers chose to bring together learning outcomes from different modules by demanding that students produce technical reports in English as part of their module on network addressing.

Transversal learning outcomes are often articulated in a complex rather than a simple manner: they bring together knowledge and skills, and sometimes values and competences as well. In the Spanish case study, ESC, one learning outcome states: '[the learner] applies teamwork strategies, evaluating their efficiency, and values the necessary diversity of roles and opinions within a team' (ESC).

Where transverse skills are explicitly articulated in learning outcomes, particularly where they are integrated or mapped in some way in relation to subject or sector-related learning outcomes, this encourages learner-centred approaches. In particular, transverse skills encourage methods associated with the vocational pedagogic dimensions of self-regulation, review and reconciliation.

## 5.6. The influence of assessment

Teachers report that they take into account assessment criteria and assessment methods when they interpret learning outcomes and work out how best to realise them through their lesson plans and their teaching. In an outcomes-oriented approach, assessment criteria should define what performances, actions or capabilities can be taken as evidence that the intended learning outcomes have been achieved. However, the form and the governance of assessment methods in IVET are affected by tradition and by practice in general education (which vary between countries) as well as by institutional and organisational differences. The consequence is considerable variety of assessment methods in operation across the case studies, even though learning outcomes are sometimes similar.

Assessment criteria provide an authoritative guide of how assessors will interpret the learning outcomes when they write assessment tasks and judge student work. Teachers say that they are very attentive to assessment criteria and are concerned, particularly in practical work, to prepare students for those tasks which they expect will figure in practical assessments.

In Denmark, Spain, the Netherlands, Slovenia and the UK-England, in case study UKC 2, teachers have authority to design an assessment method to match their innovative ways of teaching and learning. In Slovenia, teachers have the

responsibility for agreeing the evaluation standard, specifying standards for the purposes of evaluation in relation to learning outcomes. These evaluation standards are incorporated into the school curricula. The experience of setting evaluation standards is reported to have been extremely influential in making teachers more aware of learning outcomes and encouraging them to adapt their pedagogies. These locally set evaluation standards are incorporated into the 'competence-based didactic modules', ensuring that the objectives of authenticity and accountability are reconciled.

Teachers have to interpret the assessment criteria, methods and experience of how the methods are applied. They also have to decide how much weight to give to messages coming from assessment in comparison to messages coming from the learning outcomes, from their own experience, and from the way that learners respond. From the policy perspective, this means that changing assessment is a tool for influencing teaching behaviour but that its influence may be offset by other factors. In France, for example, there is uncertainty about the impact of continuous assessment on teachers' behaviour. Some teachers are said to have placed greater emphasis upon learning through activity, while others deny this.

Only a brief review of the impact of assessment on pedagogy has been possible here. However, it is clear that the impact of the written curriculum on pedagogy is closely tied to the character of assessment.

This chapter has set out some empirical findings of how, in practice, learning outcomes shape pedagogy. The case studies reveal that learning outcomes mostly influence pedagogy indirectly through local curriculum planning. The role of teachers and trainers in developing the curriculum locally is discussed in the following chapter.

CHAPTER 6.

# The role of teachers and trainers

There is considerable variation in the way that learning outcomes are formulated and structured in written curricula and their degree of granularity. The research found evidence that these differences, alongside factors, such as teachers' beliefs, autonomy and experience, have an effect on the ways that teachers interpret the written curriculum and the way that they practise their teaching. Several factors were found in the case studies to have an effect when written curricula are being translated into taught curricula by teachers and trainers.

## 6.1. Learning outcomes and lesson planning

A 'learning outcomes approach' might be thought to imply that teachers would study the learning outcomes or the unit, and then choose the content and devise a method to deliver them. The case studies suggest that, in practice, teachers often draw upon a repertoire of tested learning activities, which they personally believe to support competences required in work and which provide a reasonable interpretation of the defined expected learning outcomes. This demonstrates that the influence of learning outcomes on teaching methods is mediated and qualified, confirming what Lundgren et al, (2012) concluded for the Swedish national curriculum: the tacit knowledge of vocational teachers is of great importance in terms of organising and 'concreting' the learning in relation to the more or less abstract defined learning outcomes.

The case studies distinguish three broad approaches to local curriculum production: the teacher or trainer takes sole responsibility for designing the lesson according to his/her learners; teachers plan the local curriculum jointly and in collaboration with their colleagues; teachers and trainers use external support for planning their lessons.

In the solo teacher/trainer approach, teachers may be highly innovative, bringing new ideas and experiences to the curriculum standard:

> 'My job is to translate the outcomes into language and lessons that they understand' (Teacher, UKC 1)

However, other teachers reported that they taught the way that they had been trained on the job or the way that they had always taught subjects.

In the Slovenian and Spanish case studies, teachers planned their lessons jointly; in the Danish case study, DKC 1, they also taught together. In Finland and the Netherlands, well-structured processes were in place so that teams of teachers share the production of local curricula. The case studies generally revealed that greater pedagogical innovation is associated with collaboration in local curriculum development as opposed to individual development.

Some schools and teachers make use of training programmes and lesson plans written by experts for general use. For example, Edexcel, a London-based company that designs qualifications and performs assessment, also designs learning programmes which teachers may use or adapt. In Ireland, the Further education support service (FESS) brings together specialists from a number of vocational schools to write shared local curricula. In the Netherlands, schools sometimes buy training programmes from commercial suppliers. This kind of external support can be effective at transferring innovation, since a particular interpretation and approach can be tested and refined and then shared widely through professional networks or through the education market.

In these approaches, six of the 10 case study teachers, when asked whether they took account of learning outcomes when planning individual lessons, replied positively. However, observation of lessons by the research team suggested that this was not always the case for the particular lesson observed (Table 11). Some teachers reported that they distributed learning outcomes through their course plans and then designed individual lessons to teach particular outcomes defined in the curriculum. Others planned an extended activity or project addressing a number of learning outcomes together. This was a common approach when teachers, particularly in practical sessions, were guided by their understanding of the kinds of activities relevant to the workplace (as in enterprise-based training in Germany). Lesson planning is often informed and authorised by teachers' first-hand experience of industrial practice or by their experience as teachers, rather than by the learning outcomes defined in the curriculum itself.

Where students had been empowered to shape the activity of the lesson in pursuing their own projects, the defined learning outcomes in the written curriculum were not always taken into consideration in planning particular lessons. For example, when project activities extended over a number of weeks, the same learning outcomes were being addressed repeatedly over that period; this was the case in DKC1, UKC2 and ESC. As a teacher explained: 'It's really dictated by the learner what they're focusing on in each lesson' (UKC 2).

By contrast, there were cases in the Netherlands and Slovenia, where even though teachers had assigned their learners particular activities, project work or role plays, they continued to control closely the specific learning outcomes

learned in the course of that lesson. This analysis suggests that where teachers plan lessons in terms of learning activities, rather than in terms of learning outcomes, the learning outcomes are operationalised in the activities but they do not feature in lesson planning (e.g. in DKC 1). Table 11 identifies those case studies where learning outcomes feature in lessons plans and those where they do not.

Table 11. **Explicit use of learning outcomes in lesson plans**

| Learning outcomes included in lesson plans | Learning outcomes not included in lesson plans |
|---|---|
| NLC 1 & 2, ESC, SIC 1 & 2, UKC 1 | DKC 1, UKC 2, DKC 2, DEC |

*Source:* Case studies.

If learning outcomes are to impact on pedagogy, it would be reasonable to expect that they are used not only to plan lessons but also to guide teaching and learning during the lessons. However, observation of teaching and learning situations revealed that learning activities in lessons are mostly understood in terms of tasks and activities rather than in terms of learning outcomes. Learning outcomes are more likely to feature at the start of a project or during discussion of assessment.

In three of the 10 case studies, learning outcomes were explained at the start of the lesson (Table 12). In SIC2, particular care was taken by the teacher to explain to students exactly what they needed to be able to do and understand. Lesson observation revealed that this explanation requires skill and experience: the teacher must translate the curriculum standard so that it makes sense to the students in the context of the lesson's activities. In the other case studies, teachers were observed setting tasks rather than trying to explain learning outcomes.

Teachers in Denmark, Spain, Slovenia and England said that they explained learning outcomes at the start of modules or units, rather than the start of each lesson. Teachers in Spain, the Netherlands, Slovenia and England said that they explicitly used learning outcomes and assessment criteria when giving feedback to students (Table 12).

Table 12. **Explicit use of learning outcomes observed in case studies**

| Learning outcomes explained at the start of a phase of activity (reported) | Learning outcomes explained at start of lesson | Learning outcomes discussed during lesson – individually | Learning outcomes discussed at end of lesson | No discussion of learning outcomes in the lesson |
|---|---|---|---|---|
| Danish 1 and 2<br>UK 1 and 2<br>Slovenia 1 and 2 | Slovenia 2<br>Netherlands 1<br>Spain | Slovenia 1<br>England 2<br>Spain | Netherlands 2 | Denmark 1<br>Denmark 2<br>England 1<br>Germany (enterprise) |

*Source:* Case studies, observations.

In the Spanish case study, learning outcomes were communicated through the representatives of the working teams, rather than to the class as whole (Box 8). Learning outcomes figure in assessment and are reinforced through work experience. This approach may have helped to reconcile a 'formalistic' requirement with the realistic work-related culture.

Box 8. **Communicating learning outcomes to learners in Spain**

At the beginning of the lesson, the teacher met with representatives of each group (the class is organised into groups corresponding to the different functional departments of a business) to communicate the tasks and learning outcomes for the session. Representatives then passed on the information to their group members. From time to time, throughout the lesson, teachers reminded learners about the learning outcomes and what was expected of them.

Teachers interviewed affirmed that learners understand the intended learning outcomes. Students are said to develop their understanding of the learning outcomes as they go through the course and the assessment. Understanding is complemented by pride in achievement. Each student is individually assessed by each teacher in relation to each of the seven transversal learning outcomes. They self-evaluate and they evaluate their team mates. They discuss how transversal learning outcomes have been developed and how conflicts have been managed. There are some rules for deciding in case of disagreement. Finally each student meets his or her tutor, to receive personal feedback about their development and to agree which competences must be improved to achieve the desired professional profile. Teachers monitor the development of students from the beginning to the end of the course.

*Source*: Spanish country report.

In the English and Danish case studies, the students and teachers agreed that lessons are more understandable when described in terms of activities – what is going to be done – rather than in terms of learning outcomes, which are not used in their daily communication. For example, in DKC 1, students

experience each lesson as a sequence of activities which they select according to their learning needs. There is a class review session at the end of each day but it is not systematic and is not conducted in terms of learning outcomes. According to teachers, learners find it difficult to reflect on learning outcomes, although the use of log books, where they record their learning and written feedback, was said to help. However, learning outcomes are addressed as part of planning at the beginning of a learning period, for example, at the start of the 10 week phase of active learning. This is when they receive a plan showing which tasks they must accomplish to achieve the required learning outcomes.

In UKC 2, assessment criteria were used explicitly and consistently when setting the assessment briefing document that structured most of the learning. These criteria were translated by the teacher (who designs the briefing document) and by the student (who designs his/her own response to the briefing document) into particular activities and products. In the lesson, the teacher had designed a briefing document that was intended to stimulate the learner to achieve a particular learning outcome: 'use small scale working and production technology, equipment and processes safely' (UKC 2). The student conceived the learning as doing 'a flat-pack design cut on the laser cutter' (student in focus group, UKC 2, p. 13). Neither learning outcomes nor assessment criteria were explicitly discussed in the lesson; they had been operationalised as an individual design project.

In most case studies, learning outcomes in the course of the lessons are understood in terms of tasks and activities rather than in terms of expected learning outcomes. Learning outcomes are more likely to feature at the start of a project or during discussion of assessment. In most practice observed for this study, learning outcomes do not have a direct impact on teaching and learning methods to be applied, but their influence is mediated and qualified by teachers' experience.

## 6.2. School culture and teachers' beliefs

While the curriculum standard may define learning requirements in terms of a large number of discrete learning outcomes, and further specify the performances to be taken as evidence of such learning, there are individual and cultural factors which affect the way that teachers and trainers interpret this requirement.

Information from Slovenia suggested that a crucial obstacle is school culture. There is a tradition in the education system of class teaching where the pace and focus of learning is directly controlled by the teacher; teachers are able to adjust

the pace and the level of complexity to different students, but they retain control of the process and do not take students' career interests enough into account (Slovenian country report, p. 13). In Hungary, according to a recent survey, many teachers do not like change and reform: they are not motivated to change their previous pedagogical practice and most teach using similar methods to those they were taught themselves. According vocational trainers, frontal teaching and demonstration dominates in vocational practical lessons, followed by practice of techniques demonstrated. Game-based learning, project methods and computer-supported elaboration of teaching material are rarely used (Hungarian country report).

In Romania, 'a number of teachers do not understand and accept a lot of changes introduced in curriculum and in the assessment of students, and […] a still important obstacle is represented by teacher's mentality' (Romanian country report, p. 15). In Germany, the professional 'culture' of teachers, especially for experienced teachers, sometimes leads to resistance to methodological innovation. Resistance prevails, particularly with older teachers who often think in terms of disciplines or subjects rather than work processes or learning and are more likely to deploy traditional pedagogies. This was found in the cases of Germany, Ireland, Lithuania, Malta and Slovenia. Younger teachers tend to be more open to new ideas (Slovenia). Some respondents believed that teachers or trainers who entered teaching after a professional career, as opposed to those who entered directly from university, were more likely to use 'old-fashioned' pedagogy which emphasises the imparting of information: this was the case in Germany, Ireland and Malta. However, in France, the opposite was reported.

Teachers are being challenged in many countries to make major changes in their behaviour. In Malta, it is reported that experience of alternative pedagogies changes teachers' attitudes: 'once teachers focus on the student and upon feedback, they are willing to try different methods and they do move on' (Maltese country report, p. 10). The challenge of changing behaviour, even when teachers are willing and understand new concepts, is illustrated by a Dutch study of how 109 IVET teachers perceive their coaching role, guiding students in the learning process (Ketelaar et al., 2012). The study revealed that the overwhelming majority of teachers had a conception of coaching very close to what could be derived from literature. However, this did not translate directly into corresponding practices, although the author considers it as a good starting point for continuing reform processes (Netherlands country report).

Despite the willingness of teachers, according to respondents, the multiple barriers they face have often led them to develop a negative attitude to employing learner-centred approaches or other innovative pedagogies. These

obstacles include pressure of work, difficult students, assessment inspection and demands, multiple reforms, pressure to improve productivity, and peer group pressure. All of these findings, although based on personal opinions and experiences rather than scientific research, are confirmed by OECD's TALIS research which emphasised the extent to which teacher culture and beliefs impacted on their teaching behaviours (OECD, 2009).

## 6.3. Teacher autonomy

The degree of institutional and teacher autonomy should be considered alongside the other factors influencing pedagogies and determining the manner and extent of learner-centredness.

In all countries examined, schools and teachers have considerable autonomy over pedagogy, although how this is exercised varies. Only France and Sweden have strongly centralised, detailed nationally defined VET curricula. Hungary, Lithuania, Romania and Slovenia have devolved some degree of autonomy to schools in terms of curriculum implementation so that they can take into account the needs of the local labour market. Schools have discretion over approximately 20% of the curriculum while, mainly through donor-driven and European projects, they introduced innovations in teaching and learning, including more learner-centred pedagogies. In Lithuania and Slovenia, schools have some autonomy over VET programmes but they have limited potential to make changes because they lack appropriate resources or because of the constraint of rigid procedures they must follow (Lithuanian country report, p. 14; Slovenian country report, p. 13).

Table 13 suggests that policies for learner-centred pedagogy are more advanced in countries where some autonomy has been given to schools in curriculum design and development. In Denmark, Malta, the Netherlands, Slovenia, Finland and the UK-England, school autonomy has supported changes in pedagogy, including the introduction of learner-centred pedagogies, because they permit schools to reorganise their resources, design their own curricula and set their own objectives. The study found a broad association between the degree of decentralisation and the level of policy development in learner-centred pedagogies. It is difficult to say how far VET governance reforms have been conducive to the development of policy with respect to learner-centred pedagogies, rather than being parallel reforms. However, in some countries, such as Denmark, the Netherlands, Finland and the UK-England, a strategy of decentralisation has been explicitly linked to improving teaching and learning methods: it is argued that improvements in pedagogy can only be brought about

if schools have a greater autonomy, although this is combined with improved systems of accountability.

Table 13. **Governance of IVET and development of policy for learner-centred pedagogies**

| | **Strongly centralised – nationally detailed curricula** | **Partially decentralised – nationally defined, with some local/regional discretion** | **Strongly decentralised – broad nationally defined learning outcomes, but local/regional providers write the curricula** |
|---|---|---|---|
| **Policies relating to learner-centred pedagogies are well-established** | | England<br>The Netherlands | Denmark<br>Italy (*) |
| **Policies relating to learner-centred pedagogies are more recently established** | | Malta<br>Hungary<br>Lithuania<br>Romania<br>Slovenia | Finland<br>Spain (Basque region) |
| **Currently there is not a well-developed explicit policy with respect to learner-centred pedagogies** | France | Germany<br>Ireland<br>Sweden | |

(*) Inconclusive evidence.

Implementation of policies for learner-centred pedagogy requires both bottom-up activities and top-down directives. There appear to be a variety of ways that top-down messages can be communicated (vocational development agencies ([13]), EC pilot projects, inspection frameworks) and also a variety of ways that bottom-up innovations are encouraged (institutional leadership, collaboration, experimental projects). However, autonomy needs to be accompanied by clear messages from the government. In France, respondents report, that school autonomy is seen as problematic because directives from the

([13]) NBE in Finland, FAS in Ireland, TKNIKA in the Basque region, Cerpet in France, MCAST in Malta, the Centre for development of VET and qualifications in Lithuania, ISFOL in Italy, National institute for VET in Slovenia (CPI).

ministry are sometimes vague and schools lack resources and time to develop their own understanding of reform and translate it into practice.

Decentralisation in cases where regions have a strong role in governance, as in Spain or in Italy, has set up highly heterogeneous IVET systems (Frontini and Psifidou, 2015). The Basque region in Spain plays a key role in reforming vocational pedagogy, including developing more learner-centred pedagogies. In Italy, the Active training internships were implemented in different ways by the different regional scholastic offices and universities, which led to different time schedules in planning and implementation.

Policy development for decentralisation and learner-centred pedagogy often go together. Higher levels of decentralisation, in terms of management and control over the curriculum, can support effective implementation of learner-centred and other innovative pedagogies in IVET. Vocational pedagogy is most likely to develop successfully where top-down and bottom-up initiatives are combined and well-coordinated.

## 6.4. Teacher and trainer professional development

According to the evidence collected in this study, professional development of teachers and trainers, and in particular their initial training, has received only limited attention from policy-makers in relation to implementation of pedagogical innovation and learner-centred pedagogies. However, recent initiatives in many countries suggest that awareness of the importance of professional development as a tool for pedagogical change has been growing. A possible indicator of the priority given to vocational pedagogy in the development of teacher training may be seen in the links set up with pedagogical research. Respondents in Finland considered teacher education to have a vital role in putting research results into practice, and in changing the pedagogical thinking and practices of teachers and schools. This is clearly the case in Slovenia and also in the UK-England, where the national literature focusing on vocational pedagogy has expanded considerably in recent years. In the Netherlands and Slovenia, some schools work closely with researchers to develop and test pedagogies aimed at making schools more competence-based.

### 6.4.1. Initial teacher training

Only a few countries were found to place emphasis on learner-centred pedagogies as part of initial teacher training (ITT) for VET. In Finland, learner-centred pedagogy is explicitly required within all vocational teacher education programmes (Box 9). Vocational teachers are expected to have occupational

qualifications and at least three years' experience working in the vocational sector for which they are training: it follows that their preparation for vocational training includes first-hand experience of both work-based training and of learner-centred approaches.

Box 9. **Curriculum for teacher education in Finland**

In Finland, the curriculum for vocational teacher education specifies that teachers should have:

- knowledge and understanding about learning, which refers to the teacher's awareness of learning from the theoretical and philosophical perspective;
- knowledge and understanding about learners, meaning the teacher's awareness of the diversity of learners;
- teaching and facilitating learning and assessment skills, which means the teacher's ability and willingness to account for the individual characteristics of the students in the planning and implementation of teaching; and in the guidance and assessment of learning; and his or her capacity to engage in positive interaction with different learners and skills to develop and renew teaching and learning environments in cooperation with other parties;
- new technology skills, which means the skills and motivation of the teacher to use new technologies in developing learning environments and in learning.

*Source*: Finnish country report.

In Denmark, teachers employed by colleges must, within four years of hiring, complete a pedagogical diploma at EQF level 6 which focuses on the philosophy and practice of learner-centred pedagogy. In Lithuania, several higher education institutions have programmes for ITT that provide know-how and skills for learner-centred and other innovative pedagogies. In UK-England, ITT for IVET is usually an in-service rather than a pre-service qualification; however, this may mean that it has a learner-centred emphasis, as for example, in one of the UK case studies carried out for this research.

In other countries, learner-centred pedagogy is present in initial teacher training but with some limitations. In Ireland, there is a shared perception that the bachelor degree in education has been more encouraging of learner-centred pedagogies than the postgraduate diploma route into teaching. In Slovenia, learner-centred pedagogy forms part of the ITT for teachers of general subjects but not for teachers of vocational modules ([14]). In Romania, ITT encourages learner-centred approaches but it does not offer many opportunities for

([14]) They are required to take a shorter initial teacher training course at the outset of their teaching career.

developing practice. In Germany, pedagogy is said to form only a small part of ITT in contrast to the development of subject and technical knowledge. In France, competence standards defined for teachers in 2010 include a few references to learner-centred pedagogy, but the recruitment competitive exam (*concours*) does not refer to the standards.

### 6.4.2. Continuous teacher professional development

The country reports suggest that continuous professional development (CPD) plays a more important role in promoting pedagogic reform and learner-centred pedagogies than ITT. This has been confirmed by other authors (Psifidou, 2014). CPD is particularly crucial for older teachers who did not benefit from new approaches during initial training.

Most countries have some CPD provision addressing learner-centred pedagogies for teachers and trainers who work in initial VET, either through national programmes or through local initiatives in schools or training centres. Take-up is often voluntary or dependent on senior management decisions. CPD activities often lack a national strategy for upgrading teachers' qualifications (as in Germany, France, UK-England) and are often prevented by a lack of time (as in Germany) or resources (France, Sweden). They are also more likely to focus on occupational updating or assessment than on vocational pedagogy ([15]).

Local initiatives are generally thought more effective since they bring together teachers who work together on a daily basis and also address some of the cultural and attitudinal issues that affect innovation. Success depends on the engagement of the school leader. Initiatives focusing on innovative and learner-centred pedagogies have also been supported through EU grant-funded projects and contribute to exchanges and networking about innovative pedagogies and practices (as in France, Lithuania, Hungary, Romania and Slovenia).

In Finland, the National Board of Education (NBE) provides annual funding for in-service training of IVET teachers, with a focus on learner-centred pedagogies during recent years. In the Basque Region, TKNIKA (the Basque centre for innovation in VET) plays a key role in developing learner-centred pedagogies through CPD and by developing projects. Learning from experience, TKNIKA has found that CPD is more effective at developing learner-centred practice if groups of teachers (*ikasgune*), rather than individuals, from participating schools are trained together and if teachers receive continuing support from their own institutions as well as from TKNIKA. In Slovenia, the

([15]) In Denmark, 90% of continuous teacher training is focused on technical matters to update professional competences; only a small amount deals with pedagogy.

National VET Institute provides workshops and seminars and organises meetings for teachers, as do the Centre for Vocational Education and Research and the Centre for the Development of Education in Lithuania. In Hungary, there are short-term teacher upgrade courses designed to develop learner-centred and other vocational pedagogical methodologies. In Malta, the vocational teacher training unit at MCAST provides in-service training to its staff, with a focus on learner-centred pedagogies, as well as offering training for teachers at other Maltese institutions. All new recruits are required to obtain a diploma in teaching. MCAST is also developing quality assurance systems in conjunction with this training.

There is a general consensus in all countries examined that local conditions at VET institution level are the most important drivers for learner-centred pedagogies. The first factor is the motivation of teachers in relation to the level of support they receive through ITT and CPD but also through specific school-based initiatives and incentives aimed at the development of learner-centred pedagogies and other innovative vocational pedagogies. The second is the stance of the school leader and other school managers: school leadership has been a key factor in the flourishing of innovative pedagogies including learner-centred pedagogies in some schools in a number of countries. The third factor is the capacity for networking and peer learning among teachers, schools, university and research centres, and particularly through EU projects. The local context can also offer incentives, given for instance by local employers and other institutions engaged in supporting IVET (e.g. local VET development agencies).

CHAPTER 7.

# The role of learning environments

This chapter explores the ways in which various learning environments are used to support and improve learner-centred approaches and other dimensions of vocational pedagogy in European IVET. Building on the argument in previous chapters, it has been found to be theoretically sounder and methodologically more practical to take the multidimensional concept of learner-centred vocational pedagogy, set out in the introduction, as a frame for the diversity of learner-centred approaches. The data and evidence collected in the literature review, country reports and case studies are used to analyse the connections made between the main dimensions of learner-centred pedagogy and the different environments or settings in which teaching and learning take place.

Section 7.1 applies the multidimensional concept of vocational pedagogy for understanding how different environments contribute to teaching and learning. Section 7.2 provides a typology of different learning environments examined and employs this to map the extent to which different environments are being used across the 10 case studies. Section 7.3 discusses the obstacles for the organisation and use of effective learning environments which support learner-centred pedagogies. It is concluded that the learning environments are not fixed constraints or conditions, but the way in which they are developed and utilised is an active ingredient in realising innovations in pedagogy.

## 7.1. Learning environments and the multidimensional framework of learner-centred pedagogies

The quality and character of the learning environment is reported as critical in terms of supporting learner-centred pedagogies and successfully delivering the written curriculum (OECD, 2009, Cedefop 2010 and 2012). However, the interaction between different learning environments and IVET teaching and learning has not been the subject of much research to date (country reports from France and Sweden). To aid learner-centredness in VET, European VET policy documents and international authors emphasise the need to shift from traditional teaching classrooms and support learning in different learning environments, including the workplace (Smith and Blake, 2006).

Cedefop and others have already begun to dig more purposefully into this terrain; some of the conclusions reached so far can be summarised as follows:

(a) VET can be delivered in a number of distinct learning environments, for example workplace settings and/or vocational schools with learning spaces such as classrooms, workshops and laboratories. VET programmes may sometimes be taught in hybrid learning environments, for example, centres of practical education on the same site, but separate from the rest of the school (Cedefop 2012, p. 126);
(b) learning outcomes associated with coping with the realities of working conditions or dealing with real clients require a real working environment (Cedefop 2012, p. 127), although the use of technology now allows simulation of workplace environments;
(c) the use of virtual learning environments (VLEs) is becoming widespread across Europe, providing opportunities for people to download resources, follow links to websites, discuss their work and ideas through discussion boards, add to their ideas through wikis, and socialise through chat rooms and blogs (Hillier, 2009, p. 19);
(d) digital media have the potential to transform learning environments, permitting intensive networking and access anywhere and at any time (Dumont et al., 2010). Social computing applications can be used as 'a means of integrating learning into a wider community, reaching out to virtually meet people from other age groups and sociocultural backgrounds, linking to experts, researchers or practitioners in a certain field of study and thus opening up alternative channels for gaining knowledge and enhancing skills…' (Redecker et al, 2009).

A shift of teaching in the classroom away from the traditional emphasis on teacher, textbook and blackboard, the growing use of hybrid environments, recognition of the different ways in which workplace learning can be used in IVET, and growing understanding of the possibilities of ICT and virtual environments are much in evidence in the country reports and case studies. The case studies show how teachers deploy a variety of teaching and learning methods that serve different pedagogical dimensions, even during the course of a single learning session. Two examples illustrate how the classroom and workshop are used in a learner-centred approach and how the emergence and use of hybrid environment support learner-centredness (Boxes 10 and 11).

The first example is drawn from a Slovenian VET school training electricians. It shows how linking the environments of classroom and workshop can support vocational pedagogy across a wide range of dimensions from the multidimensional framework on learner-centred approaches applied for this research.

Box 10. **Slovenian VET school training electricians**

The session began with the instruction phase in a classroom (1 lesson, 75 minutes), followed by practical work in a laboratory (2 lessons). During the lesson in the classroom students concentrated and worked as required by the teacher. The teacher explained goals, methods and basic theoretical concepts, then demonstrated the functioning of a motor control and corresponding circuits using Powerpoint presentations, authentic electric instruments and video clip. The environment for the second part of the lesson was the laboratory: the teacher provided students with instructions and guidelines for their work, constructing electronic motor controls for a greenhouse. He monitored each student's progress, placing emphasis on safety.

The following learner-centred pedagogic dimensions were present in the classroom activity:

- developing vocational identity: while explaining, the teacher several times used the expression 'we, electricians';
- authenticity: explanation was closely connected with the real task;
- reconciliation: during explanations of theoretical concepts the teacher repeatedly made a connection to real-work tasks.

The following pedagogic dimensions were evident in the workshop activity:

- authenticity: students were working on realistic vocational tasks; they were using authentic electrical tools;
- reconciliation: the tasks required them to integrate knowledge with practical application;
- adaptive instruction: since students were working individually, the teacher could provide help to each of them as needed; pace and degree of the teacher's support varied;
- coaching: laboratory work was designed for the teacher to be able to directly support the performance of each student;
- developing self-regulation: students were asked to complete assignments in a given time, but they could choose the order and pace of activity;
- developing reflection: students were asked to self-evaluate how well they performed the tasks.

The students reported that they liked the practical learning the most. They prefer learning in the workshops and labs and they especially like on-the-job learning ([16]). They do not use textbooks a lot. They appreciate using learning materials that teachers upload to e-classrooms. They work with different computer software (such as programmes for drawing electrical circuits), and they look for information on the internet, also on their own initiative.

*Source*: Adapted from the Slovenian case study 2 (SIC 2).

A second example is drawn from a vocational college in Denmark, illustrating how learning environments can be designed and distributed so that learners have a choice about which learning environment to visit. In this way, the

([16]) 24 weeks in most vocational programmes in Slovenia.

learning environments can be closely connected to different working situations. The college calls this ‘waterhole’ pedagogy (WP).

Box 11. **Waterhole pedagogy in a vocational college in Denmark**

Teachers establish a number of work situations that the students visit so as to develop learning, knowledge and skills. The students themselves decide the order and pace of visits. The teachers function as guides and ‘waterhole’ managers. In the programme observed, waterhole pedagogy (WP), is mainly practised during the project days in a kind of open workshop that includes three to four teachers and 60 to 80 students.

Differentiation is supported by the way that the programme is organised and through student use of tasks, tests and logbook. Organisation of learning depends on the students’ own planning of their activities; the teacher structures the environment and tasks and guides the students. A teacher explained that the WP approach normally follows a learning cycle: first the students will do some introductory reading, then the teacher will show a video or a PowerPoint giving information and practical guidance for the learning, then the students take part in practical activities and learning tasks. In this approach, there is some theory learning in the classroom but there is an emphasis on learning theory in practice by addressing theoretical knowledge while solving work tasks in the workplace.

The waterhole method is illustrated in a day-long lesson that starts in the classroom then moves to a hybrid environment, which is a realistic farming environment that includes teaching spaces on part of the college’s premises. Different kinds of learning are spatially distributed across this environment and the learners choose their own sequence.

The teachers plan each of the waterholes and prepare guidelines for the students in advance so that they know what they should accomplish during the all-day lesson. In the activity stage, the students select various tasks (construction) so that, following their own pathway, they gradually achieve the learning objectives/learning outcomes of the basic course (self-regulation). One waterhole is an introduction to the seeding machine. The waterhole session takes place in the machine house (authenticity), where the teacher demonstrates the seeding machine to the students (modelling). He asks them to calculate how much seed they need to pour into the machine; he lets them try to fill the machine (authenticity). Using a blackboard, he teaches them the theory needed for the calculation of the required volume of seeds and the necessary knowledge to adjust the machine (reconciliation). Over the day, the students solve various practical tasks in groups (construction).

The teachers visit all their allocated groups, assisting them (coaching), asking them questions and checking their knowledge (adaptive instruction/reflection). All students carry walkie-talkies so that they can call the teacher when they need assistance. At the end of the morning session the teachers evaluate the achievements of each group, telling them what they still need to concentrate on in terms of both knowledge and practice. At the end of the day the students and teachers meet in the classroom to achieve a formative assessment of the day’s progress, exchange any problems and plan the next day (reflection). The students are asked to make a self-evaluation of how they have performed in the different tasks (self-regulation).

*Source*: Case study DKC 2.

Each of the 10 case studies illustrates how specific environments are harnessed to progress different pedagogical approaches. Table 14 summarises the findings in terms of those dimensions of vocational pedagogy the teachers interviewed consider as most relevant in their case; and the way that learning environments are brought to bear on achieving the main intended dimensions of pedagogy.

Findings from the field research, emphasise the frequency with which priority is given to authenticity of tasks, adaptive instruction and modelling and, in particular, coaching. They also make the point that some specialisations, particularly in commercial subjects, are better suited to greater classroom-based pedagogy than is the case, for example, in programmes such as crafts, design and technical specialisations.

The case studies, such as the example of waterhole pedagogy in Denmark, emphasise that it is not only the physical aspects of the learning environment that matter, but also the social aspects of how it is organised and the technical and investment aspects of how it is equipped. It is important to have appropriate learning environments for effective learner-centred pedagogy, but what also matters is the way in which the learning environments are used and the combination of environments that teachers and trainers can exploit as they plan and execute teaching and learning programmes.

## 7.2. Models of learning environments: opportunities and barriers to their use

From the evidence gathered, a typology of the different models of learning environment can be constructed, using the following categories: classrooms, workshops in schools, polyvalent workshops, hybrid environments, workplace learning environments, and virtual learning environments. These are useful though not completely water-tight categories, and there is an inevitable degree of overlap and ambiguity in particular cases.

Table 14. **Linking the main identified dimensions of vocational pedagogy with the operating learning environments**

| Case study | Pedagogic dimensions (*) | Linkage between dimensions and learning environments |
|---|---|---|
| DEC | Adaptive<br>Coaching<br>Self-regulation<br>Reflection | School environments: classrooms, labs and workshops.<br>In-company: complete or holistic professional activity as a guiding principle. Stepped learning can take place through use of in-firm training facilities, apprentice training workshops, sequenced placements throughout work process for better understanding techniques and processes. |
| ESC | Coaching<br>Self-regulation<br>Reflection | A variety of environments are used: classrooms, rooms for teamwork, computer labs, visiting/placement in workplaces. Tasks designed to make environments authentic, e.g. marketing of college. Increasing use of virtual environments and more relaxed regulations that give students more freedom to use different environments. |
| NLC 1 | Reconciliation<br>Coaching | Opportunities to work on realistic or real life projects and tasks through visits and placements.<br>Multifunctional workspaces and classrooms, rooms for small groups. All spaces offer use of ICT and web resources. |
| NLC 2 | Construction<br>Coaching | Classrooms and work spaces in the school are multifunctional for theory and skills. Students use internet and school intranet; Wi-Fi is available everywhere. Small breakout rooms and large 'learning courts'. |
| SIC 1 | Adaptive<br>Coaching | 50% of teaching is in classrooms and 50% in other learning environments: labs, computer labs, the local environment and workplaces. Use of e-classrooms. |
| SIC 2 | Identity<br>Adaptive<br>Coaching | Classrooms, different kinds of labs and workshops are used; the school is technically well equipped. On-the-job learning is a key environment, but not all work placements are up to standard. |
| UKC 1 | Construction<br>Adaptive<br>Coaching<br>Reflection | Classrooms adapted to be fit-for-purpose, workshops designed to simulate real working environments; limited use of workplace for work placement. |
| UKC 2 | Authenticity<br>Adaptive | As well as classrooms, the college has a series of state-of the-art workshops and studios where students can work in technically advanced spaces for different branches of art and design. The college has its own learning channel, as a virtual environment. |
| DKC 1 | Authenticity<br>Adaptive | All teachers use classrooms, somewhat adapted for the purpose, seen as appropriate for a commercial programme, supplemented by visits to workplaces. This is the basic course: students will have far greater exposure to workplaces as a learning environment once they have specialised. |
| DKC 2 | Authenticity<br>Coaching | Classrooms, a variety of workshops, work visits and placements. The school has a particularly rich outdoor environment, previously a working farm, which helps to stage authentic learning activities and facilities, permitting coaching. |

(*) Main dimensions of vocational pedagogy identified by the teachers in each case study.

*Source*: 10 case studies.

Table 15. **Typology of learning environments for vocational pedagogy**

| |
|---|
| Classrooms |
| • 'Traditional' VET classroom: teacher, instructing with textbook and blackboard, rows of learners<br>• 'State-of-the art' classroom, adapted for group work or other alternative uses, full Wi-Fi facilities<br>• 'Learning corners', breakout and seminar rooms, informal learning spaces |
| Specialist or traditional workshops |
| • Traditional, specialist workshop designed for demonstration and practice of basic techniques, for example, with individual work benches<br>• Modern workshop or studio, with variety of technology that students can use as needed in the course of projects<br>• Workshop or studio in which a range of allied vocational specialisms are taught/learned |
| Shared workshops |
| • Regional workshops, shared by different schools and training centres<br>• Sectoral workshops, shared by different schools and training centres<br>• Workplace learning environments that are shared by enterprises |
| Hybrid environments |
| • Training companies located in schools or colleges<br>• Simulated work environments or 'realistic' learning environments<br>• Student-driven enterprises where learning is related to the market |
| Workplace learning environments |
| • Training centre or workshop for basic applied/generic skills and workplace simulation<br>• Application workshop for learning state-of-the-art skills<br>• Workplace and work groups for gaining competence within the production process |
| Virtual learning environments |
| • E-classroom<br>• Intranet, local VLEs<br>• Personalised or just-in-time use of the web as a diffuse learning environment |

*Source*: Country reports and case studies.

Country reports brought evidence that teachers combine a range of environments to support learning in IVET. The Hungarian country report indicates that, typically, there are three learning environments (*tanulási környezet*): the classroom (*osztályterem*), the in-school training workshop (*iskolai tanműhely*) and the external company-based practical training place. The functions of each are relatively clear and distinctive; learning environments can be mutually supportive. Vocational theory is best taught in the classroom. Basic vocational skills can be learned in the school-based training workshop, while more specialised skills and work ethics are most effectively acquired in the workplace, although there may be differences by vocational qualification.

In Lithuania, classrooms provide the theoretical training: students acquire general education and vocational theory. Workshops provide practical training and basic practical skills. A historical core weakness was outdated equipment and technologies, though many schools have now been modernised. Further, sectoral training centres have provided practical training facilities with modern equipment, designed to serve multiple initial and continuing training needs. Enterprises become the learning environment during the practice period, for about three months in the final year.

Learning environments are being elaborated to include a growing variety of hybrid models: simulation companies in Denmark; sophisticated state-of-the art design workshops in UK-England; modern workshops and facilities in Finnish trade schools where, for example, goods and services may be sold to the public; integrated, multifunctional workshops in German training schools (*integrierter Fachräume*); integrated regional vocational training centres in Hungary; simulated workplaces in Ireland and simulated training companies in Italy; sectoral training centres in Lithuania; fully equipped and functioning studios in Malta with links to the media industry; *aula-talleres* ([17]) in Spain, training firms in Romania and a the range of hybrid environments developed in the Netherlands, including teams working on real-world problems from external customers, teams of learners as 'shadow-crew' to authentic workers.

Finnish programmes offer a combination of traditional classrooms, specialised workshops, on-the-job and web-based learning. There have been attempts in Hungary, Slovenia, Finland, Sweden and UK-England to increase the importance of either the work-based route or of the share of work-based time within a dual system. There is also a concern to improve interaction and learning between workplace and school-based environments, as in Finland.

Organising learning around student enterprises was reported in Spain, the Netherlands and UK-England. This hybrid approach is particularly market-oriented and is well suited to learner-centred approaches.

In-company training for IVET has also become, in some cases, more elaborated as different strands of learning have been identified. The German country report distinguishes between several different environments that firms (mainly larger firms) may use. The training workshop (*Lehrwerkstatt*) is used for basic vocational skills: apprentices carry out real-life work assignments in the application workshop (*Anwendungswerkstatt/Lernfabrik*). Work groups within the production process are also identified as a distinctive and varied set of learning environments in the workplace (Germany country report). Inter-company training centres (*überbetriebliche Ausbildungsstätten*) represent a blend of two environments: classroom and workplace. Such centres are well established in Germany and have received public support in Slovenia.

At the same time as the developments described above have been occurring, a new environment for IVET teaching and learning has emerged as a result of the development of ICTs. This is the virtual classroom, workshop or company. Web-based approaches provide tools and equipment that can be used

([17]) A blend between lecture theatre and seminar (Spanish country report).

to support innovations in pedagogy (though this cannot be assumed). Virtual environments are mentioned, for example, in country reports describing arrangements in France, Finland and UK-England, while the practice companies mentioned in Denmark, Italy and other countries rely heavily on web based learning. The case studies also reveal the growing importance of web based learning environments. One of the English case studies mentions that the college has its own learning channel, as a virtual environment, while a Slovenian case study refers to the use of an e-classroom. Several mention students making free use of search engines or social media, as part of their learning.

Findings show how learning environments can support the different dimensions of vocational pedagogy (Section 7.1). However, any given learning environment that is not properly designed may also constrain teaching and learning. Environments may be deficient physically, as in limited access to power sources for laptops, or socially, as in lack of access to customers or working life. Barriers identified in the case studies can be grouped as follows:

(a) cost: the cost of purchasing and then keeping up to date the expensive facilities and equipment needed in a complex, state-of-the-art learning environment is high, particularly for areas such as engineering, multi-technical and multimedia disciplines. This may be beyond the reach of IVET providers, both schools and enterprises;
(b) scale: it may be difficult for a school to provide a specialist technical environment, such as for aircraft manufacture, on the scale needed to be really useful, or to find sufficient internships or work experience placements to meet demand;
(c) inertia: trainers, both in schools and enterprises, may prefer to continue with older ways, such as extensive dependence on textbooks and more traditional classrooms and workshops, or at least not to make major changes to teaching and learning;
(d) lack of clear vision: in some countries, whether at national or local level, what is being aimed for in terms of pedagogy is not clearly identified or understood, so much is left to chance;
(e) lack of leadership at national or local level: the vision may be clear, but there may be serious gaps in the capability of school, local and national leaders;
(f) unproductive relations between school/VET system and employers/labour market: if the partnership between educators and social partners is not well developed, it is difficult to organise hybrid, connected and alternating environments;

(g) lack of training for the teachers: initial education and continuing training of the teaching workforce in the creative use of learning environments is often ignored;
(h) piecemeal change that is unsustainable: investment in learning environments is likely to require a long-term commitment, which short-term policy approaches may inhibit.

Conclusions of the study show that the social aspects of how environments are organised also matter. Innovation arises through both the innovative use of familiar IVET learning environments in school and at work, through the emergence of more specialised environments within schools and workplaces, and through the creation of new, often hybrid, environments that can bridge the two types. ICTs and virtual learning environments are making an increasingly important contribution to the use of learner-centred pedagogies.

CHAPTER 8.

# The role of learning materials

The design and use of learning materials are critical elements of teaching and learning. Adequate provision of learning materials is positively associated with high levels of attentiveness by learners. The learner survey conducted for this research revealed that 91.3% of those learners who reported that they frequently gave all their attention to the tasks in lessons agreed that their school offers enough learning and training material, compared with 8.7% of those who reported that they seldom gave all their attention to learning tasks in lessons ([18]).

The purpose of this chapter is to illustrate the range of materials being used in vocational education and training and to show how learning materials connect to a multidimensional account of vocational pedagogy. The focus is on learning materials used in the 'taught' curriculum, as opposed to those documents which set out policy or those that set out the 'official' or 'written' curriculum.

The chapter begins by looking at the different types of learning materials and influences that shape their design, before considering how existing materials can be understood as supporting vocational pedagogy in general and, more particularly, as contributing to the different dimensions of learner-centred approaches. The chapter also considers barriers to the effective development and use of learning materials.

## 8.1. Curriculum reform and learning materials

There is evidence that a focus on learning outcomes in written curricula is feeding through to the design of learning materials, though this is working in a diversity of ways: assignment briefs, teacher produced materials, and authentic materials. This relationship is complicated by factors including legislation, authority and budgets to select and purchase materials, and the manner in which materials are used.

Learning materials are sometimes produced by the same organisations that publish curriculum standards or by those that design and operate assessment. In these cases, the learning materials are likely to coordinate well with learning outcomes. However, commercial and specialist educational publishers,

([18]) N = 382.

universities, providers of professional development, sectoral organisations, vocational development organisations and teachers and trainers may all contribute to the production of learning materials in IVET. Different authors will have different levels and types of expertise, personal experiences, understandings of learning and intentions. This means that learning materials can communicate a broader or alternative understanding of what learning outcomes are required by a sector, than the requirements stated in the curriculum standard.

Legislation about the provision of learning materials varies between countries. In England, for example, there is a competitive commercial market. However, publishers often enter into agreements with the organisations that define curriculum standards and control assessment (awarding organisations) so that their publications are designed to be used for a particular programme. Such textbooks are widely used, but teachers and students are free to buy alternatives or to do without.

In Romania, by contrast, the development of manuals follows a set procedure monitored by the Ministry of Education to meet a number of criteria; they are assessed and approved. In Hungary, all schools are expected to make use of formally prescribed learning materials that conform to the learning outcomes orientation of the curriculum. Within the ICT management course, for instance, open educational resources (OER) have been worked out in 'course units' that are connected to certain core tasks. Electronic materials based on competence descriptions are available for downloading and printing. They each have the same structure: case study, from a work situation; vocational content; student guide; self-tests and answer keys; references and recommended reading (Hungarian country report).

The introduction of an outcome-oriented curriculum can lead to updating of textbooks or create new demand for them. However, whether a book is commissioned will often depend on whether a publisher thinks that it is commercially viable. Even if a book is commissioned, there may be some delay: innovation in curriculum may mean that there is no corresponding textbook yet and that teachers are using a textbook designed for an older programme (UKC 1; Cedefop, 2012).

Where vocational programmes are well-developed, such as in Germany, new and updated textbooks have been produced which support the outcome-orientated curriculum; in other instances, teachers have been able to make use of 'established textbooks which had not been specifically designed for the new written curricula' (Cedefop, 2012, p. 122). In Spain, VET centres tend to rely on old manuals and materials produced by publishing houses. National legislation does not specify who has responsibility for designing and producing learning

materials, although in the Basque region, VET legislation makes reference to the provision of equipment, didactical and technological means for the implementation of vocational education and training (Boletin Oficial del Pais Vasco, 2008).

In other countries and programmes, textbooks are not used at all or very little. But even if they are available, some teachers prefer to produce their own material. Learning sheets have been reported as particularly important because they:

> '…enable teachers to adjust the learning contents to the competence level of a particular student or group of students and enable them to take a specific environment in which the school is located into account [...]' (SIC 1 country report: 9).

In 'creating their own materials and making use of authentic materials teachers can "generate up-to-date materials" and work with employers to keep pace with change' (Cedefop, 2012, p. 122).

In company-based, practical training, the use of textbooks is said to be 'out of the question' as the focus of learning is demonstration and trial in practice, so trainers use materials that relate to the company (Hungarian country report). Textbooks are rarely used where teachers organise learning around assignments that they design, for example, in 3D design (UKC 2). In contrast, 'real life' materials such as artefacts, tools and equipment are used by teachers. These support learning of methods, for example: to show how to create a mould of a BMX cycle handlebar end using Geliflex, and then how to make a Perspex model using the mould (English case study 2). Such materials also aid knowledge development, for example, to demonstrate the functioning of a motor control using an electric model (SIC 2). Interaction with materials and tools is essential to skill development and to understanding how materials behave and can be mastered (Sennett, 2009). Authentic learning materials also play a part in reinforcing the teacher's status as a member of the particular vocational community of practice. For example, a teacher planned to plumb in a central heating system onto the wall of his classroom to:

(a) function as a visual tool to explain central heating;
(b) demonstrate to his students that he is a plumber as well as a teacher (UKC 1).

Using real materials and equipment is reported as 'very helpful for students […] for developing real occupational competences' (Spanish country report): it supports formation of vocational identity by signalling that learning activities are like workplace practices. Wearing clothes appropriate to the occupation, such as uniforms, office wear or health and safety clothing, confirms legitimate peripheral

participation (Lave and Wenger, 1991; UKC 1; NLC 1, Irish country report; Slovenian country report).

Media such as video, photographs and trade magazines are also used to illustrate authentic tasks and provide an insight into a particular occupation. For example, in a level 3 art and design course, a website is used to access design-oriented videos of expert practitioners who talk through their products, methods and approaches to design (UKC 2). Several case studies show that teachers are involved in preparing their own materials and then making them available online or through an e-classroom. There is some evidence to suggest that 'increasing use of the internet as a support for teaching and learning appears to be weakening the dominance of textbooks…' (Cedefop, 2012, p. 123). In UK-England, the literature (e.g. Mullin, 2013; Laurillard, 2013; Selwyn in Walford, 2010) and respondents confirm that new technologies enable the vocational education sector to adapt to meet the demands of continual change in the workplace and to develop and sustain a highly skilled workforce.

## 8.2. How learning materials shape pedagogy

The use of textbooks has long been associated with traditional methods of teaching: school-based learning of specific subjects where the focus is on transmission of knowledge, rather than action-oriented learning prevalent in work-based contexts. Textbooks are associated with the more academic and theoretical parts of VET, such as technical knowledge and language learning. In EU policy documents, it has been argued that electronic and interactive materials encourage a shift to more learner-centred approaches; for example: the availability of Open Educational Resources (OER) can 'change the nature of the teaching activity itself, with self-directed learners able to take more control over their learning' (European Commission, 2012, p. 22).

However, it is not always a clear-cut case that some types of materials will automatically support learner-centred approaches and some will not. For example, while teacher-generated material is more likely to support learner-centred approaches in having the flexibility to meet individual needs, interests and abilities – for example, to scaffold learning or to propose actual or simulated tasks – textbooks can be used by learners as a source in self-directed study. Some may include practical exercises to complete (to support the reconciliation of subject-orientated and thematic material). In Finland for example, Wright and Rauste-von-Wright are said to have produced 'understandable books' that promote guidelines of how to bring constructivism into everyday teacher practices. Conversely, ICT tools can be used in a traditional way: use of the

internet for traditional fact-finding (Swedish country report); use of a whiteboard by the teacher at the front of the class to transmit knowledge, pose questions and invite responses (case study UKC 1); use of a digital smart board in a theory lesson to guide students through the teaching material step by step in a PowerPoint presentation (case study NLC 1).

Lessons observation in the selected case studies brings evidence of how different learning materials provide support for different dimensions of vocational pedagogy including but not limited to learner-centred elements (Table 16).

In some case studies, teachers have adopted particular learning materials because they appear to deliver specific pedagogical dimensions. In the Netherlands, software companies have developed learning materials to support their vendor qualifications:

> 'Dutch teachers adopted these materials because thy support authenticity in their pedagogy – particularly in the sense of being up to date' (case study NLC 1).

A comprehensive package of learning materials is offered for sale by a UK-based company, which has developed curriculum standards and assessment processes for BTEC ([19]) qualifications. A teacher using them can be confident of having a set of learning and assessment activities appropriate for the learning outcomes in the relevant curriculum standard. The package includes a student textbook containing assignments and other work materials that support learner-centred learning. It is possible to identify the particular pedagogic dimensions supported by these learning materials. In the Dutch case study, the learning method is strongly geared to the application and integration of different kinds of knowledge and skills through practical, authentic assignments (to support authenticity and reconciliation) and to learning by doing (to support construction). The materials are designed to support differentiation and customised learning (adaptive instruction). The assignments offer in-depth materials which give students the opportunity to broaden their knowledge and understanding of certain subjects, based on individual student abilities and ambitions (Dutch case study 2, p. 18-19).

([19]) BTEC is an IVET qualification. Learn more at: http://www.edexcel.com/quals/nat/Pages/default.aspx [accessed 11.8.2015].

Table 16. **Learning materials and dimensions of learner-centred pedagogy by case study**

| **Germany** | **Denmark, case study 1** |
|---|---|
| As part of a 'project management' unit, students worked in teams using material for an assignment that had already started. While some teams stayed in the classroom to work on the theoretical and conceptual part of the assignment, others moved to the adjacent laboratory to use hardware components to build a demonstrator model. Reconciling theory and practice, teams had to solve problems in planning and setting up a numerical control system (reconciliation, authenticity of task, construction). | The teacher issued task sheets to enable students to plan their outdoor activities for the day and estimate how they might perform (self-regulation skills). They then worked in groups on various practical tasks, such as feeding rats, separating male and female mice, mucking out the pigsty (authenticity of task), reconciling their skills and knowledge to meet their learning objectives and achieve the course learning outcomes. |
| **The Netherlands, case study 1** | **Netherlands, case study 2** |
| After each teaching period of eight weeks, students drew up a personal development plan (reflection, self-regulation skills), before engaging in team project assignments. The projects are often real-life cases and the students visit companies and maintain business relationships with them (authenticity of task). The learning content of assignments was phased from simple to multi-complex (adaptive instruction) and was put together so students have to use their organisational skills and apply different kinds of knowledge, skills, behaviours (reconciliation). They have to find solutions for real-life problems (construction). | Under their coach's guidance as part of a study career guidance session, students looked back at their learning process and progress to date in their entire course programme, and drew up POPs (personal development plans) containing learning and developmental goals for the period to come (vocational identity, coaching and reflection,). In an observed lesson, the teacher gave feedback on the previous assignment and students were invited to ask questions about this week's assignment. using the assignment material, they had to come up with learning queries themselves (development of self-regulation; reflection). |
| **Denmark, case study 2** | **England, case study 1** |
| In a lesson for clerks, the teacher used a blackboard to help students learn terms in a text before they discussed the text material in groups and then used role-play material in learning about the different roles in a courtroom trial. All of these activities were associated with adaptive instruction, using equipment and materials to reduce progressively support from the teacher. | A theory session involved researching and writing up information about health and safety gathered from different sources, including students' own notes and textbooks (if they had one). Vocational identity was supported by wearing hard shoes and high visibility clothing. |

| Slovenia, case study 1 | England, case study 2 |
|---|---|
| Students learn using natural materials found in the gardens, fields and forests in which they work (vocational identity). In the classroom, students used material provided by the teacher to understand and act-out different roles of various interested parties in tackling a realistic environmental problem: a plan to build a hydroelectric power station. This task had authenticity and also involved them in constructing their own solutions within given parameters (construction). | Students used the briefing materials to review and critique each other's design plans (reflection) before starting to develop test models using, for example, materials, such as MDF or Perspex, and equipment such as a laser cutter, band saw, vacuum form (authenticity of task). One student used his smart phone to find a suitable material for his product, watching online demonstrations of the properties of polymorph plastic. With support from the tutor, students had to connect together theory and practice (reconciliation) in choosing appropriate materials and developing their test models. |
| **Slovenia, case study 1** | **Spain** |
| During explanation of theoretical concepts, the teacher made connections to real-life equipment (how to use knowledge of logical circuits when constructing motor controls). In the follow-up session students used written material produced by the teacher to guide their own laboratory work (to support the reconciliation of subject-oriented and thematic material and reinforce authenticity). Learning assignments were structured carefully to help students to progress at their own pace and were modified if appropriate (adaptive instruction). | Teachers referred to the tools real professionals use (developing vocational identity, reinforcing authenticity of task) and demonstrated imaging software (adaptive instruction and modelling) as part of a marketing and publicity campaign. In the group activities, students were engaged in authentic tasks (e.g. doing a mailshot for the college). Objectives sheets and information on assessment criteria pinned to a noticeboard supported development of self-regulation skills, and reflection on learning. |

*Source*: Case studies.

The BTEC programmes in 3D design (case study UKC 2) are characterised by extensive continuous assessment: learning materials typically take the form of 'authentic briefs' which are designed to provide opportunities to generate evidence meeting the published assessment criteria. Continuous assessment takes up most learning time so that learning and assessment are blurred. Learning materials are assignments, designed by teachers, which set a series of tasks of enquiry, production or action during the course of which learners have the opportunity to develop the learning outcomes specified in the curriculum. This approach helps to ensure that there is emphasis on the dimension of construction (usually involving a great deal of independent enquiry) and that knowledge is employed to solve problems (reconciliation) rather than simply transmitted. An observed lesson from the Dutch case study NLC 2 made use of a hybrid approach, comprising two distinct sessions: frontal theoretical teaching followed

by learner-centred assignment work supported by BTEC materials. Elsewhere, although the amount of course time given over to continuous assessment is much more limited, teachers have collaborated to produce learning materials to support it (in France and Finland).

The use of 'authentic' working materials was apparent in many of the case studies, particularly where effort was made to provide a realistic work-like environment for learning (as in the Danish case studies). 'Real-life' materials were selected to address particular learning outcomes in an authentic manner. They were frequently used by the teacher for modelling purposes, for example to show how theory related to practice, and by the learner in reconciling knowledge with the application of skills.

A clear message coming through from respondents in Denmark, Germany, France, Lithuania, Hungary, Slovenia and UK-England is the importance of having available a variety of learning materials from which to select those appropriate to supporting vocational pedagogy, and to meeting learner needs and interests. There was evidence from the observed lessons to suggest that different types of learning materials used in combination can support all eight dimensions of vocational pedagogy (Table 16). There was also evidence that teachers used different types of material, including assignment briefs and role-play materials, in gradually reducing support to students as their learning progressed (adaptive instruction), including those that encouraged the development of self-regulation skills. Some materials, particularly those used for project work, involving tackling real problems, supported the construction dimension; others, such as personal development plans, encouraged reflection.

Teachers in the example below report that the type of learning material, in their view, influences the pedagogical approach.

> Variation in learning materials is a central part of the pedagogical approach; various learning materials support practice-related and holistic teaching and learning, because the students try out theory in practice. The varied use of materials is also a way of differentiating in accordance with the students' learning styles and cognitive capacity. It is easier to learn to operate a machine at the machine than through written instructions […]. Students with special needs are more motivated and they remember much better if they anatomise a dead animal and combine this with pictures of the animals and theory about the animals than if they only learn through pictures and theory […]. It is very important for the students that written material alternates with real life material […] to help them to understand the theory. The ICT tools help to visualise things for the students and make possible that the students can revisit, e.g. machine instructions (case study DKC 1, p. 8).

The Dutch teachers placed value on using multiple learning materials ranging from study guides, books, readers, worksheets, assignments, instruction materials and manuals to demonstration materials and films, simulation programmes, and games:

> Students can now download almost everything from the school's intranet and the world-wide-web on to their laptops. Offering and using learning materials in this way is very suitable for the vocational nature of the course and the way students learn. Students said that they found the mixture of materials – textbooks, PowerPoint hand-outs, the internet and films – useful, functional and up-to-date (case study NLC 1, p. 19)

In Germany textbooks, work sheets and presentations are used in vocational schools; in enterprise-based learning, learning materials are tailored to the work process:

> In the enterprise, the 'Leittext method' (method of guidance scripts) is used, which is a method for in-company work instruction that emphasises the active role of the apprentice and builds on the concept of complete professional or work activity […]. A guidance script usually includes guiding questions for information, a work plan and a checklist […]. (German case study, DEC, p. 7-8)

Teachers tended to agree that certain kinds of pedagogy were associated with certain kinds of learning materials. Teachers in some case studies emphasised their own agency in selecting the learning materials to match their intended pedagogies. In the example below, the learning activity was teacher-led and the materials were chosen to be appropriate for the specific purpose of transmitting information.

> In reviewing key elements of a cold water system, the teacher chose material and tools, such as textbooks, wall displays and an interactive whiteboard, to support a question and answer session as a frame to transmit large amounts of information (case study UKC 1, p. 3).

In the following example, the teacher chose to follow-up the teacher-led activity through use of a brief that facilitated learner-centred activity:

> The theoretical module (titled Network Addressing) was on some students' laptops, other students carried hard copies […]. The PowerPoint on the smart board that the teacher used during the class instruction guided students through the material step by step and gave them an overview of the goals and main topics in the content, all of it illustrated with typical examples. In the second hour students received an assignment that was customised for them to internalise and apply the theory (Dutch case study, p. 19).

It was observed that the learning materials were chosen by the teacher to support several vocational dimensions (in particular, authenticity of task and reconciliation of subject-orientated and thematic material).

Teachers in UK-England described how, during lessons, both teachers and students make regular use of smart phones for accessing online resources such as YouTube clips of how products work, how much items cost, unusual design features or demonstrations illustrating the properties of materials. One college was making use of its virtual learning environment (VLE) as a repository of material.

The VLE materials included:

> […] background information linked to relevant websites and apps; a step-by-step guide to a practical process, for example, following a practical demonstration; a comic strip interpretation of an historical style (e.g. for Art Deco and Art Nouveau). Various styles are adopted to suit the differing needs of students, including those with dyslexia. Students can revisit in their own time the topics addressed during lessons. Staff can upload additional materials such as video demonstrations, PowerPoint slides, links to materials produced elsewhere such as the Design Museum, and assignment briefs or supplementary research tasks. This is a particularly useful means of stretching the students: 'Once they've got a starting-point they can push that as far as they want to go' (case study UKC 2, p. 13).

Learner produced materials were also uploaded to the VLE, blurring between learning materials and the outcomes of student learning.

Spanish respondents also suggested that 'the use of software, cameras…, seemed to engage learners and demanded different interactions from teachers; they needed to be more of facilitators than actual instructors' (case study ESC, p. 12).

Electronic (and non-electronic) portfolios and tools to monitor progress in terms of outcomes or competences are seen by some as a means to 'empower learners […] by giving them the flexibility they need in terms of place, time, pace and method' (Cedefop, 2009, p. 54). In Italy, for example, a portfolio is being used to realise, with the student, a reflection on progress and the means to distinguish between objectives of all students and those of a particular individual (La Marca, 2007 and La Prova, 2008).

Slovenian teachers report that each student prepares his or her own portfolio, compiling various learning achievements; students are encouraged to take responsibility for their own learning, to develop their interest and deepen knowledge on specific areas of interest. Teachers emphasise the importance of students becoming aware of the learning outcomes achieved in different contexts. Students have also expressed positive attitudes regarding portfolios which they use for compiling written appraisals, certificates, and Europass. In Hungarian IVET, mechanisms to stimulate individualisation include portfolios, individual education plans, and elective modules (Justinek et al, 2010 and Rutar et al, 2012).

In UK-England, there has been a long history of using personal development plans and portfolios in IVET programmes. Personal development plans (PDPs) or 'learning contracts' are used as a means of recording an individual's learning or development needs, reflecting established, work-based practice (Charlton, 2009). They can form the basis of a portfolio or education diary where, through discussion with a tutor or mentor, the learner's progress is monitored over time. In the wake of recent reform, respondents in France have also mentioned the development of new software used to monitor the learning of each student based on learning situations, including tasks and learning outcomes. The Dutch case study (case study NLC 1) describes the use of a digital student tracking system available on the intranet for each teacher and student (and their parents) to see. This system makes use of initial assessment on intake to colour code the support profile which applies. An extra support profile is added to help students with social, emotional, cognitive or behavioural disorders.

The research showed how teachers deployed a range of learning materials to sustain all eight dimensions of vocational pedagogy and that it is important that teachers draw on a variety of learning materials to address learners' needs, interests and preferred ways of learning, as well as the demands of vocational content and context. Wider use of ICTs is giving teachers and learners access to authentic and diverse materials, encouraging the creation of new materials and reducing dependence on textbooks.

## 8.3. Barriers to using learning materials for learner-centred pedagogies

The research identified a number of barriers to the development and use of learning materials that fully supported all dimensions of vocational pedagogy. Lack of national steer at policy level can have an effect on the extent to which school/training centre managers are prepared to take risks and provide the

necessary resources to support learner-centred approaches, including staff development and time for teachers to develop their own material. Learner-centred approaches in initial VET have generally not enjoyed a very high profile in policy-making across Europe (Section 3.1). 'Making better use of ICT-supported resources has featured in the Copenhagen process, but not in a prominent manner […] It is only with the strategy document Rethinking education (European Commission, 2012) that clear priority has been identified for Member States to scale up the use of ICT supported learning and ensure access to high quality open educational resources.' (Pavlin and Stanley, 2012, p. 29).

The pace of change and shortage of time make planning and providing appropriate materials demanding for both managers and teachers/trainers. In some institutions, teachers work in relative isolation which increases the burden and reduces the support available to develop tailored learning materials (for example, in the case study DEC).

The development of learning materials can spur teachers to work together and learn from each other about what works. To help practitioners fully engage in innovative pedagogical practice, there is a need for 'ways to test out new resources and pedagogies in a culture of active experimentation' (Hiller, 2009, p. 30), although this also has time and cost implications. In Sweden, for example, the reason that very little learning material has been produced for IVET has been partly attributed to the fact that 'learning materials are not subsidised' (Swedish interviewee).

Teacher confidence is a significant factor in the effective use of learning materials to support innovation in pedagogy. As teachers become more confident and experienced, they change their teaching style: teachers 'shorten the speeches at the blackboard […] they give the students more room without losing authority (case study DKC 1, p. 5). Participation in EU supported projects, some of which involved travelling to other countries, has helped some teachers to develop this confidence (case study SIC 2, p. 7).

Web-based learning materials are seen in Sweden as a tool for more personalised learning opportunities and support. ICT opens up potential for preparing/storing and sharing in an open environment a variety of teaching and learning materials. However, this raises challenges relating to teachers' skills and competences (Ilomäki, 2012; Haverila et al., 2009; Ihanainen and Rikkinen, 2006; Leinonen, 2006; Finnish country report, p. 11).

Use of e-learning materials depends on both the skills and expertise of teachers and availability of up-to-date IT equipment. For example, a study conducted by the National VET Institute in Slovenia, suggests that better IT equipment at schools encourages more frequent use of e-materials (Stefanc and

Mazgon, 2011), but even where the equipment is available, there is no guarantee that it can be used effectively as a learning resource without training. This is true for many European countries, as earlier studies has shown, across Europe, there are ‘problems with the availability of up-to-date technical equipment, teaching materials and infrastructures’ (Pavlin and Stanley, 2012, p. 29), as well as issues with continuing professional development for teachers and trainers on how to use new learning materials effectively (case study DEC, p. 1).

CHAPTER 9.

# Implications for policy-making and further research

The first – and perhaps the most important – conclusion of the research and analysis is that while learner-centred pedagogy has been an influential idea, for example in championing some aspects of renewal in teaching and learning, a well formulated conceptualisation of multidimensional vocational pedagogy provides a clearer and more powerful vehicle for researching and developing teaching and learning in IVET in Europe.

Policy-makers, researchers, teacher trainers and practitioners may wish to use ideas about learner-centred pedagogy, but these can be more coherent if they are understood as part of a comprehensive account of what makes vocational teaching and learning successful. The same applies to notions such as competence-based or demand-led approaches to teaching and learning and to understanding what is implied by implementing a learning outcomes or competence approach to IVET: all of this requires an adequate and scientific account of teaching and learning practice.

There is a rich tradition of theorising about learning which has occasionally influenced policy-making (as in the introduction of 'learning areas' in Germany) and practice (the take up of active and inductive learning has been encouraged by the spread of theories of cognitive learning). Constructivist approaches have been influential and were associated with learner-centred pedagogies in the UK and the Netherlands. However, over the last 10 years, cognitivist and inductivist accounts of learning have been supplemented by a number of other theoretical approaches, such as those that emphasise the importance of social, physical or cultural environments and those that focus on connections or transfer between different learning contexts. This plurality of theories of learning has encouraged the development and exploration of multidimensional accounts of vocational pedagogy that can do justice to the diversity of contexts and practice found within vocational education and training.

Multidimensional or synthetic models for vocational pedagogy have emerged in several countries: Denmark, the Netherlands, Finland and the UK. In Finland, the ideas of Piaget, Dewey, Vygotsky, Leontjev and the expansive learning theory by Engeström and others (Engeström et al., 1995), have been drawn together with ideas from later constructivist and socio-constructivist authors to contribute to the development of vocational pedagogy where the focus is on

learning of work. This has led to emphasis on the changes demanded by the new understanding of learning and teaching, in terms of both vocational pedagogy and vocational teacher education. Policy-makers, researchers and VET practitioners are working together to link theoretical knowledge, practical skills and self-regulative skills into a more integrative pedagogy that bridges the two environments of school and workplace.

Researchers in the Netherlands have explicitly sought to build on diverse empirical and theoretical research into teaching and learning and to develop a framework which will support the implementation of competence-based education (de Bruijn and Leeman, 2011). The conceptual framework has been refined and extensively tested through studies in many Dutch schools. This framework was deployed as a foundation in the research and it has been effective. It has been possible to identify how particular methods, materials and environments serve to enhance particular dimensions, such as vocational identity or authenticity of task. However, it has also been possible to show that successful teaching and learning depends on the appropriate balance of these dimensions.

This study has shown that this multidimensional account of vocational pedagogy can be used to research teaching and learning across Europe and to address key questions about the manner in which learning outcomes-based curricula are implemented. The framework offers an improvement on the concept of learner-centred pedagogy because it takes account of constructivist ideas but also assimilates findings from other research, such as studies of coaching and of the importance of vocational identity. The multidimensional framework makes it possible to design appropriate research to identify which methods teachers are using and what impact these methods are having; however, this research has only been able to make a start with respect to measuring impact.

Despite the limited focus and resources of the research, quite rich evidence has been collected to allow the formulation of policy considerations for strengthening the use of learner-centred vocational pedagogies in initial VET. These are summarised in the following points:

1. Vocational pedagogy needs to be better integrated into IVET policies including curriculum development, allocation of funding, professional status of teachers, quality assurance and stakeholder involvement.

International development bodies, such as Cedefop, the European Commission, the OECD, ETF, Unesco and the World Bank should collaborate to ensure that vocational pedagogy is included as a theme in developing IVET policy. National VET authorities should consider whether they give sufficient priority and visibility to vocational pedagogy in their range of policy developments for improving IVET, and whether the cycle of policy development and implementation is effective in this respect, in their country context. Policy-makers, practitioners and stakeholders should, when developing IVET policy, on issues such as curriculum, work-based learning and assessment, consider how such policies depend or impact on vocational pedagogy. For the policy process to take account of vocational pedagogy, policy-makers should be better informed about the importance and relevance of learner-centred vocational pedagogy.

2. Top-down and bottom-up drivers of pedagogical change need to be coordinated; for example, curriculum reform and educational investment should be informed by pedagogical opportunities and school-based CPD should be informed by national level research and policy**.**

Decentralisation of appropriate management decisions to the local level seems a prerequisite of implementing learner-centred vocational pedagogy. While there is no single way to coordinate bottom-up and top-down drivers, it is recommended that national VET authorities, representatives of local leaders, local and regional authorities, professional bodies, trades unions and other stakeholders explore how vocational schools and training providers can be empowered to take responsibility for improving learner-centred vocational pedagogy. Vocational schools may want to consider whether they need to employ mentors trained to observe and support teachers and trainers to help to improve their vocational pedagogy.

### 3. Curricula have to be designed in a manner to support effective vocational pedagogy.

National VET agencies, working in partnership with key stakeholders such as teachers and employers, should review curricula (and, if appropriate, occupational standards) to ensure that they are not so granular as to constrain vocational pedagogy, such as limiting the amount of practical activity or encouraging teachers to dedicate much of the learning time to the transmission of knowledge rather than learning through problem solving and authentic tasks. Consideration should be given to integrating practical, theoretical and transversal/generic skills and knowledge in individual learning outcomes and in units. Transversal/generic skills should be included as they complement other parts of vocational pedagogy, for example, through supporting ability to organise one's own learning.

### 4. Teachers and trainers need support, through professional development programmes, collaboration with their peers and guidance from their managers, to be able to contribute effectively to the design and delivery of local curricula.

Department heads and institution leaders may wish to consider whether more collaborative processes for local curriculum and lesson design could improve learner-centred vocational pedagogy. Stakeholders in enterprises and higher education may consider whether they can contribute to local curriculum design and to the development and sharing of methods of teaching and learning. Networks of teachers and trainers involved with a particular curriculum or a particular vocational sector could be supported so that they can share ideas, methods, lesson plans, teaching materials, and provide encouragement and support. Regional or local VET support agencies might be established as they can provide continuing support to groups of teachers or trainers working together in schools or training centres, providing both the know-how and the sustained relationships necessary to bring about pedagogic change.

National VET agencies could consider whether the entitlement for CPD should be increased and whether there is sufficient focus on vocational pedagogy, as opposed to subject updating or assessment. Providers of CPD and ITT may consider whether the multidimensional framework of learner-centred pedagogies applied in this research can help to inform the CPD and the ITT programmes they provide. Consideration could be given to developing CPD to support skills in coaching and leadership of teaching and learning, so that every vocational school and training provider has in-house capability to develop the pedagogy of their own staff.

5. Multidimensional approaches to learner-centred pedagogy should be supported by further research, through resource development and professional development.

National and international funding bodies could commission research to refine, validate and, if appropriate, improve the multidimensional framework for learner-centred vocational pedagogy developed by de Bruijn and colleagues and applied in this research. More extended observation of teaching and training approaches in IVET need to be carried out to investigate how different teaching and learning activities lead to different kinds of outcome, as with engagement in learning, understanding, and active contribution. Consideration should be given to the use of experimental or quasi-experimental methods which would permit the investigation of causality. Vocational schools and training centres may work together with research organisations and CPD providers to support action research which would equip teachers with the means to evaluate the impact of their own teaching and that of their colleagues.

### 6. Monitoring, evaluation and quality assurance systems are required to guide innovation in pedagogy and professional development at national and institutional levels.

Quality assurance and inspection frameworks have to place priority on teaching and learning methods and require self-improvement plans that address the development of pedagogical skills and competences. Managers in schools and vocational training centres may want to improve their data collection systems so that they can gather data on how vocational pedagogy benefits learners, in order to monitor the effectiveness of pedagogy and of measures designed to improve it. The opinion of learners themselves is of particular importance: they, as well as employers, should have opportunities to help monitor vocational pedagogy and to contribute to its development.

### 7. Innovation, investment and collaboration are required to ensure that learning environments and materials are developed and deployed to support all dimensions of learner-centred vocational pedagogy.

National VET agencies, vocational schools and training centres, and enterprises need to explore how they can collaborate to fund, design and operate shared and hybrid learning environments. Stakeholders in countries that make relatively little use of work-based environments should consider the advantages obtained by those countries that do, with a view to extending the use of work-based environments in IVET. Publishers and e-learning developers, including teachers and trainers, should consider the opportunities for developing new materials that are informed by an understanding of learner-centred vocational pedagogy and which reflect learning outcomes-based curricula.

# List of abbreviations

| | |
|---|---|
| APL | assessment of prior learning |
| BTEC | Business and Technical Council |
| CAP | certificat d'aptitude professionnelle (level EQF3) |
| CBE | competence based education |
| Cerpet | Centre d'études et de ressources pour les professeurs de l'enseignement technique |
| CPD | continuing professional development |
| DEC | German case study |
| DKC 1 | Danish case study 1 |
| DKC 2 | Danish case study 2 |
| EQF | European qualifications framework |
| ESC | Spanish case study |
| EU | European Union |
| FES | further education support (Ireland) |
| ICT | information and communication technology |
| ITT | initial teacher training |
| IVET | initial vocational education and training |
| MCAST | Malta College of Arts, Science and Technology |
| MoE | Ministry of Education |
| NLC 1 | Dutch case study 1 |
| NLC 2 | Dutch case study 2 |
| NQF | national qualifications framework |
| NVQ | national vocational qualification |
| SIC 1 | Slovenian case study 1 |
| SIC 2 | Slovenian case study 1 |
| TVET | technical vocational education and training |
| UKC 1 | English case study 1 |
| UKC 2 | English case study 2 |
| VET | vocational education and training |
| VLE | virtual learning environment |

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# Website

Boletin Oficial del Pais Vasco
https://www.euskadi.eus/r47-bopvapps/es/bopv2/datos/Ultimo.shtml

# Annex 1.
# Interviewees by country

| Country | Names | Role | Organisation |
|---|---|---|---|
| Denmark | Susanne Gottlieb | Head of Department | Metropolitan University College |
| | Elsebeth Pedersen | Consultant | Ministry of Children and Education |
| | Christian Helms Jorgensen | Associate professor | Roskilde University |
| | Bo Bernes | Teacher | JordbrugetsUddannelsesCenter Århus |
| | Brian Fisker | Teacher | JordbrugetsUddannelsesCenter Århus |
| | Annemarie Thomassen | Teacher | JordbrugetsUddannelsesCenter Århus |
| | Jan Christensen | Consultant | Niels Brock School |
| | Paul Hayes | Teacher | Niels Brock School |
| | Henriette Jorgensen | Teacher | Niels Brock School |
| | Martin B Jensen | Teacher | Niels Brock School |
| Finland | Harri Keurulainen | Head of teacher education programme | JAMK University of Applied Sciences, (Vocational) Teacher Education College |
| | Dr Päivi Tynjälä | Professor | Jyväskylä University, Centre for Educational Research |
| | MEd. Aira Rajamäki | Counsellor of education | National Board of Education; Unit of vocational education and training |
| | Minna Taivassalo-Salkosuo | Expert | National Board of Education; Unit of vocational education and training |
| | Sanna Boman | Teacher | Jamsa College |
| France | Prof Fabienne Maillard | Full Professor in education sciences | Université de Picardie (before that: Ministry of Education, Direction General on school education) |
| | Dr Vincent Troger | Senior lecturer at the School of Education (IUFM) | Université de Nantes |
| | Jean-Claude Collignon | Inspecteur Général, sciences and industrial technologies | Inspection générale de l'éducation nationale (within the Ministry of Education) |
| | Jean-Claude Billiet | Inspecteur Général, Director of the Cerpet | Inspection générale de l'éducation nationale (within the Ministry of Education): Cerpet(Resource centre for TVET teachers, within the MoE) |
| | Jacques Perrin | Inspecteur Général | Inspection générale de l'éducation nationale (within the Ministry of Education) |

| Country | Names | Role | Organisation |
|---|---|---|---|
| | Denis Defaux | Inspecteur académique, enseignement professionnel | Inspection générale de l'éducation nationale, Académie de Dijon |
| Germany | Dr Tamara Riehle | Researcher and teacher educator | University of Bremen |
| | Dr Roland Tutschner | Researcher | University of Bremen |
| | Börje Horn | Expert, Unit for school development | Die Senatorin für Bildung und Wissenschaft [Ministry of Education and Science], Bremen |
| | Helmut Ittner | Expert, Unit for school development | Die Senatorin für Bildung und Wissenschaft [Ministry of Education and Science], Bremen |
| | Helmut Klaßen | Head of Unit, in-service training of VET teachers | Landesinstitut für Schule, Bremen |
| | Frank Frauenheim | Teacher | TBZ Mitte |
| | Thomas Jageler | Teacher | TBZ Mitte |
| | Bernhard Schmidt | Teacher | TBZ Mitte |
| | Markus Lege | Teacher | Airbus Operations GmbH Hamburg |
| Ireland | Mary Kett | Former Director | Further education development unit of the Department of Education and Skills |
| | Derek Walsh | Training specialist | FÁS |
| | Siobhan Magee | Further education support officer | Cavan Vocational Education Council |
| | Miriam O'Donoghue | National manager | Further education support service and CDVEC |
| | Pat Mahoney | Adviser | Irish Vocational Education Association |
| Hungary | László Bruckner | Head of Department | National Labour Office Directorate of Vocational Training and Adult Education (professional background institute of the Ministry of National Economy) |
| | Csaba Elek | Director of Department | Director Budapest Chamber of Commerce and Industry Department of Education |
| | Beáta Szebenyiné Csóka | Professional manager | Maintenance centre for public education institutions and '1000 masters' regional integrated training centre |
| Italy | Dr Fabrizio Boldrini | Director | Study centre 'Villa Montesca' |
| | Dr Claudia Montedoro | Head of the 'training systems' | ISFOL |
| | Prof. Rosario Salvato | Teacher | University of Perugia – Department of Human Sciences and Education |
| Lithuania | Dangira Juknevičienė | Expert | Centre for Development of Qualifications and VET |
| | Dr Laimutė Anužienė | Director of the VET centre | VET centre for the service business employees in Kaunas |

| Country | Names | Role | Organisation |
|---|---|---|---|
| | Dr Mečislovas Griškevičius | Head of the Department | Department of VET and Vocational Guidance at the Ministry of Education and Science |
| | Paulius Čepas | Director of the VET school | Kaunas School of Mechanics |
| Malta | Stephen Cachia | Principal and CEO | Maltese College of Arts, Science and Technology |
| | Dr James Calleja<br>Ms Veronica Sultana | Permanent Secretary<br>VTTU coordinator | Ministry of Education and Employment<br>Maltese College of Arts, Science and Technology |
| Netherlands | José van den Berg | Research and development | Expertisecentrum Beroepsonderwijs [Centre for expertise in vocational education and training] |
| | Mieke van de Haan | Research and development | Netherlands association of VET colleges (MBO-Raad) |
| | Prof. Dr Ben Hövels | Research on VET in NL | Kenniscentrum Beroepsonderwijs Arbeidsmarkt (KBA) |
| | Jereon Van Kempen | Teacher | ROC Nijmegen |
| | Karin Sanders | Teacher | ROC Nijmegen |
| | Joris Bovy | Teacher | ROC Nijmegen |
| | Boy Peters | Teacher | ROC Nijmegen |
| | Derya Ozcelik | Teacher | ROC Rijn Ijssel in Arnhem |
| | Yuri Kamies | Teacher | ROC Rijn Ijssel in Arnhem |
| | Caroline Vink | Teacher | ROC Rijn Ijssel in Arnhem |
| | Han Verschuur | Teacher | ROC Rijn Ijssel in Arnhem |
| Romania | Tania Sandu | Director | Ministry of National Education |
| | Dr Magda Balica | Researcher | Institute for Educational Sciences |
| | Gabriela Ciobanu | Director | National Centre for VET Development |
| Slovenia | Dr Zora Rutar Ilc | Senior consultant | Zavod RS za šolstvo |
| | Anica Justinek | Senior consultant | Center RS za poklicno izobraževanje |
| | Helena Žnidar | Head of Department for curriculum development | Center RS za poklicno izobraževanje |
| | Elido Bandelj | Director | Center RS za poklicno izobraževanje |
| | Srecko Podverzen | Teacher | Solski centre Velenje |
| | Janko Cekon | Teacher | Solski centre Velenje |
| | Ivan Skoflek | Teacher | Solski centre Velenje |
| | Boris Kosinc | Teacher | Biotehniski center Naklo |
| | Marjeta Vovk | Teacher | Biotehniski center Naklo |
| | Natasa Kunstew | Teacher | Biotehniski center Naklo |
| | Marjetka Siab | Teacher | Biotehniski center Naklo |

| Country | Names | Role | Organisation |
|---|---|---|---|
| Spain | Ms. Itziar Extebarria Lanborena | Head, Unit for the integration of the VET | Basque employment service (Basque Country)/ Former IVET Inspector |
| | Pilar Díez | Head of youth and enterprise | Innovation centre for VET (Basque Country) |
| | Jose Ramon Gómez | Head of pedagogic innovation | Innovation centre for VET (Basque Country) |
| | Francisca Arvizu Echevarria | Former Director General | National Qualifications Institute |
| | Javier Moratinos | Principal manager | San Jose de Calazanz Ikastetxea |
| | Txaro Ardanza | Teacher | San Jose de Calazanz Ikastetxea |
| | Rafael Pilar | Teacher | San Jose de Calazanz Ikastetxea |
| | Maria Luz Balboa | Teacher | San Jose de Calazanz Ikastetxea |
| Sweden | Christine Engström | University lecturer | University of Gothenburg |
| | Viveca Lindberg | Docent/Associate Professor | University of Stockholm, Institute for pedagogy and didactics |
| | Helene Moquist | Director of education (Undervisningsråd) | Unit for upper secondary school, National Agency for Education |
| | Cecilia Palmqvist | Researcher (Utredare) | Swedish schools inspectorate |
| UK | Dr Kevin Orr | Senior lecturer | University of Huddersfield – School of education and professional development |
| | Professor Prue Huddleston | Professor (Emeritus) | University of Warwick – CEI |
| | Jenny Williams | Head of Commission Secretariat | LSIS (Commission for adult vocational teaching and learning) |
| | Dave Hardcastle | Course manager | Warwickshire College |
| | Michelle Wood | Teacher/Course co-leader | Warwickshire College |
| | Thea Philcox | Teacher/Lead teaching and learning entrepreneur | Warwickshire College |
| | James House | Teacher | Swindon College |
| | Dave Fuller | Teacher | Swindon College |
| | David Jameson | Teacher | Swindon College |
| | Gill Mendham | Curriculum manager | Swindon College |
| | James House | Teacher | Swindon College |

# Vocational pedagogies and benefits for learners: practices and challenges in Europe

This Cedefop research paper aims to inform policy-making through understanding better the impact of learning outcomes approaches on vocational pedagogies. Bringing evidence on the benefits for learners of learner-centred teaching and learning methods from 15 Member States – Denmark, Germany, Ireland, Spain, France, Italy, Lithuania, Hungary, Malta, the Netherlands, Romania, Slovenia, Finland, Sweden and UK-England – the paper delves into existing challenges and barriers to applying such pedagogies successfully in initial vocational education and training (IVET). Ten case studies in seven of these countries produce new empirical evidence on how VET teachers and trainers, existing learning environments, and available learning materials support or hinder pedagogical change towards learner-centredness. The paper concludes by suggesting good practices, policies and initiatives to help overcome the identified obstacles and support pedagogical innovation in Europe.

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