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Key competences in Europe: Opening doors for lifelong learners across the school curriculum and teacher education

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CASE Network Reports

Key Competences in Europe: Opening Doors For Lifelong Learners Across the School Curriculum and Teacher Education

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Executive Summary

This study on cross-curricular key competences in the school curriculum and in teacher education in the 27 Member States was commissioned by the Directorate-General for Education and Culture of the European Commission. The study was undertaken by a consortium composed of the project leader CASE (Center for Social and Economic Research, Poland), working in partnership with: QCA (Qualifications and Curriculum Authority, United Kingdom), EIESP (European Institute for Education and Social Policy, France), the Universitat Autònoma de Barcelona (Spain) and two Hungarian experts from Eötvös Loránd University and Pannonia University.

The aim of the study is to provide a comparative overview of policy and practice concerning the development and implementation of key competences in the education systems of the 27 Member States of the European Union. In particular, the study assesses the implementation of the 8 key competences contained in the European Reference Framework of Key Competences in primary and secondary schools across the EU as well as the extent to which initial and in-service education and training of teachers equips them with the skills and competences necessary to deliver key competences effectively.

The European Reference Framework of Key Competences was defined in the *Recommendation on key competences for lifelong learning*¹ adopted by the Council and the European Parliament in December 2006 as a result of five years of work by experts and government representation collaborating within the Open Method of Coordination. The Recommendation defines 8 key competences:

- Communication in the mother tongue;
- Communication in foreign languages;
- Mathematical competence and basic competences in science and technology;
- Digital competence;
- Learning to learn;
- Social and civic competences;

¹ *Recommendations of the European Parliament and of the Council of 18 December 2006 on Key Competences for Lifelong Learning* (2006/962/EC), Official Journal of the European Union, 30.12.2006.

- Sense of initiative and entrepreneurship; and
- Cultural awareness and expression.

This study covers all the competences, while taking a particular focus on the last five, which are cross-curricular in nature. These key competences are not finite and their development should be supported by transversal skills such as critical thinking, creativity, initiative, problem solving, risk assessment, decision-making and the constructive management of feelings.

The methods used for the study comprise a literature review, the elaboration of country fiches for the 27 Member States and the preparation of six country case studies. The literature review clarifies the major concepts and issues relating to the identification of key competences. The country fiches (which are not included in the final report) provided a useful and reasonably consistent dossier of data for each of the Member States for the analysis, while the six case studies look in more depth at key competence policies and practice in Finland, France, Hungary, Poland, Spain and the United Kingdom.

The study was carried out at a time when the European stakeholders were deliberating on the strategic framework of European cooperation in education and training, relating to the implementation of the revised Lisbon Strategy for the years 2010–2020. The European partners consider that the acquisition of key competences is a decisive factor contributing to the well-being of individual citizens as well as to social cohesion and to the development of the economy. This study confirms the importance of the development of key competences in the education systems of the Member States. This applies both to approaches to developing the school curriculum and to young people's acquisition of key competences as they progress through their countries' systems of mainstream schooling. The study emphasises that the implementation of key competences in school practice is a complex and demanding process. It calls for a new pedagogy of competence development, which can already be seen in innovative aspects of theory and practice in Member States.

The conceptual basis for key competences in the school curriculum

Following the Introduction, the first chapter of the report presents an international review of approaches and research concerning the concept of competences. The aim is to highlight issues around the concepts that we are concerned with in order to provide questions for the analytical chapters that follow. The chapter fo-

cuses on contributions from European and other international research and development work that create a useful framework of issues for this study.

Over the last 20 years, a range of terms such as key or core skills and key or core competences has been used in different European countries and at the European level. Various initiatives implemented within the EU framework of cooperation refer to or use the term key competences, or an equivalent. Besides the set of eight key competences, this includes categories of knowledge, skills and competences in the European Qualification Framework for lifelong learning, the learning outcomes approach being developed in higher education through the Bologna Process and the Tuning Project as well as the Common European Principles for Teacher Competences and Qualifications. There is also the Council of Europe's Common European Framework of Reference for Languages, which is widely used as a basis for systems of validation of language competences. Definitions of competence tend to refer to a complex notion that goes beyond the cognitive aspects and includes attitudes and capacities in addition to a set of skills. Key competences in the EU framework are those that *'all individuals need for personal fulfilment and development, active citizenship, social inclusion and employment'*. Cross-curricular key competences are considered to epitomise integrated learning as they have a focus in all subjects and all activities in a school, are the responsibility of all school staff, represent goals common to the whole curriculum and are mutually complementary.

Recent EU work builds on the significant contributions to the development of the definition of key competences and competence-based education which have been made by other international organisations. UNESCO contributed to the United Nations' programme 'Education for All' by setting up the International Commission on Education for the Twenty-First Century. This led to the 1996 report ***Learning: the Treasure Within***, which stated that learning must contribute to the all-round development of each individual and defined four pillars of education: learning to know, learning to do, learning to live together, and learning to be. The OECD DeSeCo (***Definition and Selection of Competences***) project had quite significant influence on the work on competence frameworks in the EU, both in numerous Member States and in the debates and collaboration at the European level. It defined the aim of key competencies as contributing to a successful life for individuals and a well-functioning society and the project classified key competences in three broad categories (using tools interactively, interacting in heterogeneous groups and acting autonomously).

This chapter raises a number of issues for the analysis which include questions about the different purposes of cross-curricular key competences (contributing to personal development, citizenship, lifelong learning and employability); continuity between school and higher education in terms of how the cross-curricular key

competences are defined; and the alignment, whether in the EU frameworks and/or in frameworks developed in the Member States, between the key competences for students (school and higher education) and those for teachers.

Policy and implementation

This chapter examines the policies that countries have formulated concerning cross-curricular key competences. Making a clear distinction at policy level between what is meant by key competences in general and by cross-curricular key competences is not always obvious. These distinctions can only be observed in the implementation within schools and in teacher training. For the countries that specifically use the term ‘competences’, there is general agreement that it is about the application of knowledge and skills, and includes knowledge, skills and attitudes. The notion of key competences generally refers to subject-independent competences which are seen as providing a core or basic set or a foundation. The terms skills, core skills and key skills are in use in some countries, while another group of countries defines goals and objectives, e.g. those to be achieved and those to strive for. Key competences have been introduced into systems in different ways, through change in the legislation on education, curriculum review and/or by introducing complementary objectives in the legislation and in instructions about the curriculum.

The implementation of policies aiming at developing cross-curricular key competences in Member States depends on many factors and varies not only from one country to another, but also over time, depending on the authorities in charge of the education policy and the priorities on the political agenda. The historic and institutional contexts are major factors and, at a more technical level, differences can be observed in the relative importance given to: 1) a new curriculum, guidelines and teaching/learning documents or textbooks; 2) new assessment tools of learning outcomes and evaluation tools of the results of the ongoing process (including control of quality and the role of the inspectorates where they exist); 3) training schemes for teachers and school-leaders. There are also differences in the methods of introducing and monitoring the process of change.

The study shows that the competence-based paradigm implies new teaching methods, new relationship between all the stakeholders (students, teachers, parents and external partners), relevant use of ICT, new organisation of schools, etc. This requires time for learning by doing and a comprehensive approach of the process of change by the policy-makers at all levels (national, regional, local and individ-

ual school). The chapter presents examples of different approaches and strategies from the Member States and raises issues about developing collaborative work at all levels and for interdisciplinary activities; training programmes for teachers and school-leaders; and the implications for the organisation of school activities and development plans.

Assessment

Assessing learners' key competences is a complicated and challenging task. Based on the fiches and the case studies, four types of assessment models are described:

1. Type 1: Assessing cross-curricular competences explicitly – they are clearly defined and expressed in assessment standards, generally for each contextual subject/area.
2. Type 2: Assessing cross-curricular competences implicitly – to the extent that they are expressed through subjects or areas, they are assessed.
3. Type 3: Assessing subject-specific competences – assessment emphasises subject competences rather than cross-curricular competences.
4. Type 4: Assessing knowledge rather than competences – a 'traditional approach' to assessment, sometimes despite a commitment to the development of key competences.

Key competences are defined as comprising knowledge, skills and attitudes. Many Member States have moved towards the assessment of both knowledge and skills. There are fewer examples of the assessment of attitudes. This seems to result partly from an emphasis on knowledge and skills in policy and partly from technical issues. In addition, competences are always defined by the context in which they could be utilised. This poses a further challenge for assessment because it is often difficult to achieve assessment in 'real life situations' that is both authentic and reliable. The development of instruments for competence assessment requires the breaking down of broadly defined competences into sub-competences or specific skills, so as to relate them to measurable learning outcomes using reliable assessment standards. Such instruments are used for external, standardised tests and for some aspects of assessment by teachers. Portfolio assessment (based on the collection of evidence showing the learner's work and output) is becoming more common, precisely because it can be more readily related to the learning contexts than traditional tests. It is particularly useful for evaluating the outcomes

of individual self-learning that are frequently combined with informal learning contexts.

Teacher Education

The relationship between teacher education and key competences should be considered for at least two dimensions. Firstly, the initial and continuing education of teachers should prepare them to facilitate the student's acquisition of key competences. This perspective raises questions about the methods, practices and beliefs that are most suitable for the purpose and whether or not they are currently included in teacher education. The second perspective is based on the assumption that since key competences are to be acquired by every individual, teachers should also acquire them. The EU Education Ministers have identified specific competences for teachers whilst most Member States have made a substantial effort to define their own sets of teacher competences. Therefore the question is whether teacher education builds up and enhances the key competences of teachers, as well as their capacities to facilitate their acquisition by their students.

The evidence gathered through this study suggests that the shift towards competences is more visible for in-service education for teachers than in their initial education. In-service education in this respect is supported through many small-scale activities, inspired locally or externally, often through non-governmental or non-academic partners. The real change in teaching practice – and beyond that the change in the way teachers function in schools – was observed for this study within complex school development projects targeting several different aspects of school life at the same time.

Taking a lifelong learning perspective means that teachers should possess the same key competences that are defined as learning objectives for students. Teacher education should include the personal development of future and working teachers within those areas. Such training is most common in the area of ICT and languages, but less common in leadership, interpersonal and social skills. It is virtually nonexistent in the area of cultural expression.

In their policies and programmes countries widely recognize the changing role of teachers towards becoming collaborators, facilitators of learning and lifelong learners, but there is still too little debate involving teachers themselves.

Practice

The competence approach therefore requires a change of paradigm from teacher-centred to student-centred learning and necessitates a revision of the traditional methodologies and roles of teachers. The study presents examples of these changes drawn from the data collected. Depending on the countries, it can be observed from the data that, alongside their traditional roles, teachers are increasingly becoming facilitators of learning – for example organising teamwork, ensuring inclusion, managing classroom activity. Examples of school practice suggest that more of their time is likely to be spent supporting individuals and less on whole class teaching. The data shows that teachers are required to develop new methods supporting their new roles. They are expected to promote the acquisition of skills to support key competence development such as decision making, in-depth thinking, and problem solving amongst their students. Furthermore, teachers are being encouraged through pilots and projects carried out in their schools to make learning experiences more relevant and meaningful, encourage active citizenship as well as to create an environment conducive to reflective thinking.

Effective fulfilment of the new roles by teachers depends on the school organisational and pedagogical culture as is demonstrated in some of the examples highlighted in this chapter. This should comprise collaboration among teachers, more developed school leadership, flexibility, strong partnerships with parents and the active involvement of students in school life. Examples show that school autonomy, decentralised responsibility for curriculum development together with professional support and school collaboration networks can create an environment that supports the development of competence-based education.

Impact

This study shows that the implementation of the key competences Recommendation is part of the school policy agenda of most Member States, although they differ significantly in how much stress their national policies put on this goal, how much energy and resources they mobilise to achieve it and particularly how elaborated and sophisticated their implementation strategy is. Three years after the adoption of the Recommendation and one year before the end of the ‘Education and Training 2010’ process, the community faces the question of how to go forward. It is clear from the information gathered from the Member States for this study that a strong political commitment is not enough to achieve the goal of ef-

fective competence development. An implementation strategy based on a comprehensive approach is also needed.

The analysis shows that we can expect appropriate policy outcomes, e.g. an increasing number and a critical mass of schools that are successful in the development of cross-curricular key competences, if a strong national political commitment is combined with appropriate implementation capacities. It is important to stress that political commitment in itself is not enough if it is not accompanied by well elaborated and well orchestrated implementation strategies.

The greatest challenge countries seem to face is how to align all the relevant elements of school policy so that they can effectively enhance competence development. This also implies developing and sustaining effective national educational innovation systems supporting the emergence and spreading of school level innovations. Effective implementation also establishes flexible regulatory environments that allow and encourage schools to innovate, while ensuring that the accountability systems do not draw back innovation energies and endeavours. Links between the policy of competence development in schools, with similar policy developments in other sectors (e.g. vocational training and higher education) are also important.

The countries that seem to be particularly successful in implementing policies of cross-curricular key competences in their school systems efficiently use the following instruments:

- Setting appropriate curriculum goals and standards;
- Developing teacher competences;
- Shaping school practices:
 - Innovation support;
 - School development;
 - Leadership.
- Giving appropriate feedback through assessment and evaluation.

The application of effective competence development oriented pedagogies in schools also needs appropriate resources. The pedagogy of competence development with its innovative learning environments, intensive use of ICT facilities, frequent and meaningful project work and teamwork, new assessment methods and various individualised techniques of organising learning is resource-demanding. Countries committed to improving the development of key competences also have to think about where to find the necessary resources and how to use them efficiently.

Recommendations

The report concludes with recommendations addressed to specific partners and stakeholders: the European Commission, Member States, regional and local authorities, the research community and professionals responsible for teacher education and teachers and school leaders.

The European Commission and its agencies

1. The European Commission should base its future action in school education on the acknowledgement of the fact that Member States have reached advanced policy positions in the area of key competences. The Commission should help and support Member States in their complex project of implementing their key competences policies using the EU peer learning processes within the Education and Training 2020 strategic programme, as well as Lifelong Learning Programme and utilising European Social Fund resources where possible.

2. The European Commission should explore the possibilities of a more explicit link between the different existing formulations of competence-based approaches. This includes the eight key competences defined by the Recommendation, and the EQF frameworks, the Council of Europe's framework of reference for languages, as well as learning outcomes-based approaches to higher education and VET.

3. The European Commission should encourage wide-ranging and interdisciplinary research to bring more coherence to scientific knowledge concerning the theory and practice of teaching and learning for key competence acquisition. The lifelong learning research strands provide a suitable vehicle to build on work already being developed by international organisations such as OECD. It should now be possible to for the Commission to build on the results of this study to launch an impact analysis across several member states that could contribute to evidence informed policy.

4. The European Commission should maximise opportunities for European countries and stakeholders to develop their own peer-learning as concerns the implementation of key competence policies. The study has provided ample evidence of an extensive fabric of bottom-up developments as well as more systematic key competence developments at national level. The Commission should bring several levels of activity to bear: the peer learning process in which Member States engage on particular priority themes, maximising appropriate European inter-school links

through the Lifelong Learning Programme and supporting the activity of various thematic networks in this area.

5. The implementation of key competences in the school curriculum, in teacher education and teacher professional development, in assessment and evaluation mechanisms and in school development and innovation policies should be subject to regular reporting (and benchmarking) alongside the other priorities in the Open Method of Coordination for education and training 2020.

Member States

6. Member States should consider how to strengthen the links between their sub-sectors of education and training – higher education, VET, schools and adult education and to use their national qualifications framework (NQF) reforms to this end. Assessment, quality assurance and evaluation policies should be used to enrich the perspective of competence development.

7. Member States should strengthen linkages and alignment between the different facets of school development: innovations in school organisation and leadership, curriculum innovation and strategies aimed at meeting the needs of all learners, including those who have special educational needs, teacher education and assessment methods and practices. This calls for a well-developed evidence base for policy and practice, for which countries may need to draw on international as well as national research. Quality assurance mechanisms should take into account key competence development.

8. Governments as part of their strategic approach should revise the frameworks for initial and continuing teacher education in the perspective of competence development.

9. Member States should generate effective strategies and actions for implementing key competences in the school curriculum. It is not sufficient to develop legislation on key competences or to change the curriculum framework – the main effort has to be on implementation as a part of school innovation policies.

10. Member States should review and renew their approaches to the assessment of subject-based and cross-curricular key competences. Some countries have developed successful initiatives in this respect (portfolio assessment, for example, is a promising tool) and this should be the subject of peer learning and further development. The assessment of key competences is an aspect that in itself merits more research and evaluation.

11. Regional and local authorities should take a leading role in developing appropriate learning organisations and communities of practice that bring together

diverse players – school leaders, teachers, parents, NGOs, higher education and the administration as well as students whose engagement becomes increasingly important.

The research community

12. The research community should gather and contribute new knowledge and evidence in a number of areas of policy and practice. This includes:

- Understanding how learning can be enhanced through undertaking multi-disciplinary approaches to research;
- Assembling and developing a more coherent research base for key competences, linking such issues as: the relationship between learning for subject knowledge and for key competences, effective subject-based and cross-curricular approaches to competence development, learning styles, assessment that is fit for purpose.
- Change in the organisation of the school and of learning, that a shift to key competences entails.
- Enlarging and deepening the understanding of different learning processes and how children and young people learn.

Teacher education professionals

13. Agencies that are responsible for initial teacher education should be partners in the policies for developing and implementing approaches to key competences, in particular being involved in describing teacher qualifications in terms of learning outcomes.

14. Continuing teacher training professionals should be active partners in the development of curriculum, assessment and qualifications policies, as well as in the implementation of key competence policies.

15. The technologies of assessing complex and cross-curricular competences should become a key element of the professional development of teachers and these technologies should be applied also in initial teacher education, when assessing the competences of teacher students.

16. School development and school leadership development, as well as the initial and continuing education of teachers should be seen as key areas of activities for teacher development agencies.

Teachers and school leaders

17. School leaders should involve teachers and stakeholders in collaborative learning and working to find solutions that engage learners as fully as possible in the acquisition of key competences. This calls for situation of trust and professional responsibility in which teachers are able both to learn and to try out new aims and methods.

18. Through collaboration, school leaders should provide a confident environment in which the school's policies and organisational culture engages teachers and other staff, through procedures such as corporate planning and small-scale action research.

19. In order to promote key competences, teachers should adapt their professional approach to some new and quite complex strategies concerning the school curriculum, teaching and learning methods, and assessment. This is best achieved through collaborative learning approaches and a full involvement in the development of the school as a learning community. The use of evidence and research to stimulate teachers' reflection on their practice has a key role to play.

20. Teachers should not see the choice as being between subject knowledge/skills and the acquisition of key competences. Rather, it is a matter of achieving the appropriate balance between subject knowledge and skills, and key competences approaches that can effectively meet the needs of different learners.

PART I: Introduction and Conceptualization of Key Competences

1 Introduction

1.1 The assignment

This is the final report of the study commissioned by the European Commission Directorate-General for Education and Culture on ‘Cross-curricular key competences in pedagogic practice and in teacher education’². The study was carried out by a consortium composed of:

- CASE – Center for Social and Economic Research (Poland). An independent scientific foundation, the project leader;
- European Institute of Education and Social Policy: EIESP (France);
- Qualifications and Curriculum Authority: QCA (United Kingdom);
- Universitat Autònoma de Barcelona: UAB (Spain);
- And two individual experts: Gábor Halasz, Eötvös Loránd University, Budapest and Vilmos Vass, University Pannonia, Veszprém (Hungary).

The specific objectives of the contract were as follows:

1. To provide the Commission with a systematic and comparative overview assessing the extent to which the European Reference Framework of Key Competences is implemented as regards cross-curricular key competences in primary and secondary schools in the 27 EU Member States;
2. To provide the Commission with a systematic and comparative overview assessing the extent to which initial and in-service training of teachers equip them with the skills and competences necessary to deliver the European Reference Framework of Key Competences curriculum effectively in the 27 EU Member States;
3. On the basis of these comparative analyses, to draw conclusions on the best policy practices and the most innovative ideas for the introduction of the cross-curricular key competences, as set out in the European Reference Framework, in pedagogic practice at schools and in teacher education.

² The European Commission, under the implementation of Education and Training 2010 Programme, launched the tender in 2007 (EAC/10/207) for three studies (lots):

Lot 1: Cross-curricular key competences in pedagogic practice and in teacher education;

Lot 2: Teacher education curricula in the EU;

Lot 3: Strategies for supporting schools and teachers in order to foster social inclusion.

1.2 Context – the Lisbon Strategy

The Terms of Reference clearly stipulated that the study should contribute to the European Union's economic and social policy agenda set at the Lisbon European Council in March 2000. This agenda calls for creating in Europe by 2010 the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs, as well as greater social cohesion. Education and training systems are at the core of this agenda and should play a leading role in achieving the goal described as well as the need for a quantum shift in policies, provision and attitudes in order to meet the requirements of a knowledge-driven society and economy. However, it has been recognised that meeting the challenge requires major changes in education and training systems to provide citizens with skills to live and work in an information society and economy.

One of the fundamental issues has been to identify competences considered essential for all citizens and to ensure that they can be integrated into the curriculum for all groups of learners within a perspective of lifelong and life-wide learning. The study is being undertaken at a crucial moment for the EU. Significant agenda setting Communications, that have a bearing on this study, were published during 2007 and 2009.

The new social agenda, *Opportunities, access and solidarity: towards a new social vision for 21st century Europe*³, published in 2007, underpins both the Communication specifically on education and training, *Improving Competences for the 21st Century: An Agenda for European Cooperation on Schools*⁴, and the communication focusing on skills and training, *New Skills for New Jobs*⁵. Subsequently, the Council Conclusion of November 2008 about the Updated strategic framework for European cooperation in education and training⁶ reaffirmed that 'school educa-

³ *Opportunities, access and solidarity: towards a new social vision for 21st century Europe*, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of Regions, Brussels, COM(2007) 726 final.

⁴ *Improving Competences for the 21st Century: An Agenda for European Cooperation on Schools*, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of Regions, Brussels, COM(2008) 425 {SEC(2008) 2177}.

⁵ *New Skills for New Jobs Communication* from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of Regions, Brussels, COM(2008) 868 final {SEC(2008) 3058}.

⁶ *An updated strategic framework for European cooperation in education and training*, Communication from the Commission to the European Parliament, the Council, the Euro-

tion – including all forms of school education up to the end of secondary – lays the foundation for lifelong learning by enabling pupils to acquire the key competences which they will need and which will help to guide them throughout their personal and professional lives’ and that furthermore ‘school education not only represents an important means of socialising individuals and passing on the values, skills, knowledge and attitudes required for democracy, citizenship, intercultural dialogue and personal development, but also plays an essential role in the acquisition of the key competences needed for successful integration into economic life’. The Conclusion emphasised the need for ‘a coherent approach to competence development, based on the European reference framework of key competences for lifelong learning ... more personalised approaches to learning that respond to the unique needs of each pupil, that involve suitable forms of assessment and that lead to better motivation for learning’. These texts inform this final report of the study, providing the baseline of the major issues explored in the data collection and analysis. The Council Conclusions on a strategic framework for European cooperation in education and training (‘ET 2020’) adopted on 12 May 2009⁷, reaffirms that a major challenge for the coming period is to support the acquisition of transversal key competences by all citizens as a priority area for the first cycle (2009 – 2011).

Since 2001, within the framework of the Education and Training 2010 Programme, the working group on key competences has developed a reference framework to identify key competences that are necessary for successful functioning in the knowledge society and economy. Subsequently, in December 2006, the Council and the European Parliament approved the ***Recommendation on key competences for lifelong learning***⁸, constituting the milestone in the process of enhancing the importance of the issue. The Recommendation defines 8 key competences:

1. Communication in the mother tongue;
2. Communication in foreign languages;
3. Mathematical competence and basic competences in science and technology;

pean Economic and Social Committee and the Committee of Regions, Brussels, COM(2008) 865 final {SEC(2008) 3047} & {SEC(2008) 3048}.

⁷ Council Conclusions on a strategic framework for European cooperation in ***education*** and training (“ET 2020”), 2941th EDUCATION, YOUTH AND CULTURE Council meeting, Brussels, 12 May 2009.

⁸ See: ***Recommendation of the European Parliament and of the Council of 18 December 2006 on key competences for lifelong learning*** (2006/962/EC), Official Journal of the European Union, 30.12.2006.

4. Digital competence;
5. Learning to learn;
6. Social and civic competences;
7. Sense of initiative and entrepreneurship; and
8. Cultural awareness and expression.

The first three competences of the above list (communication in the mother tongue, literacy and mathematical competence, basic competence in science and technology and communication in foreign languages) are linked with traditional school subjects and can be integrated within the traditional national and school curricula. The study focused on the second group of competences, which are cross-curricular in nature. These should be supported by transversal capabilities and skills such as critical thinking, creativity, sense of initiative, problem solving, risk assessment, decision-making and constructive management of feelings. It was generally agreed that the successful promotion of the cross-curricular key competences, transversal skills and attitudes required a different, non-traditional pedagogic approach and changes in school organisation and management culture. Teacher competences have been declared equally important. That is why the study focused on school practice and teacher training.

School practice has a pivotal role in promoting cross-curricular key competences. It should be seen in the broader context of educational policy, implementation efforts undertaken such as a communication strategy, curriculum development, quality assurance and inspection, governance and school autonomy. Among these measures, assessment seems to be the most critical and – at the same time – the biggest challenge.

1.3 The methodology

The methodology designed for the study was based on a literature review, data collection on the 27 Member States through the elaboration of country ‘fiches’, the preparation of six country case studies and the identification of thematic and valuable examples of school practice.

The literature review was designated to:

- Obtain a clear understanding of the major issues underpinning the formulation and implementation of key competences in policy and in classroom practice and in teacher training;

- Understand the choices and uses of cross-curricular key competences in the EU and in the Member States;
- Provide a conceptual framework for the analysis of the data collected for this study.

Country ‘fiches’ were developed for each of the 27 EU Member States in order to collect information on national policies and implementation, school practice aimed at the provision of cross-curricular key competences in the classroom, assessment policies and practice, as well as teacher training.

They were elaborated using a three-stage iteration process. Initially, the enlarged research team produced the first version of the fiches using a common model agreed by the team members and based on available sources of information (e.g. national sources, Eurydice publications and Peer Learning Cluster reports, data-base search, relevant websites, etc.). Following this, the appropriate officials in the ministry of education or related agencies of each country were contacted in order to ask them to review, correct and supplement the fiche with additional information, particularly derived from sources that are not publicly available and are not published in widely-spoken foreign languages. At the third stage of the fiche drafting process the authors identified, wherever possible, independent experts to review the fiches and supplement information particularly on innovative projects and local initiatives. The team is grateful to all the experts, among them the members of the Peer Learning Cluster on Key Competences, for their valuable comments and advice.

Additionally, six country case studies were drafted, building on the country fiches and a range of other sources. They provided a more detailed and deeper analysis of the policy formulation, implementation, practice and impact of cross-curricular competences. The case studies were on the following countries: Finland, France, Hungary, Poland, Spain and the United Kingdom.

Interesting and useful information was also collected during the meetings in which the team members participated during the period of implementation. The first results of the study concerning the case studies were presented at the CIDREE General Assembly in Slovenia, as well as at the meeting of Peer Learning Cluster in Brussels (also for the draft assessment chapter). There was also a meeting in the Ministry of National Education in Warsaw in March 2009, when an interesting debate took place based on the presentation of the completed country case studies.

1.4 The report

Chapter 2 is based on an analysis of selected literature, projects and instruments. The aim is to highlight issues around the concepts that we are concerned with in order to provide questions for the analytical chapters that follow on policy, implementation, assessment, teacher education and school practice. The chapter does not seek to be exhaustive, considering the vast landscape, but focuses on contributions from European and other international research and development work that create a framework of issues for this study.

The following chapter, Chapter 3, presents and describes the different types of policies of the Member States aimed at the promotion of key competences in general and of the cross-curricula key competences in particular. It explores the different approaches to policy formulation and implementation.

Probably the most important among the measures supporting the promotion of the key competences is assessment. How assessment is used, the instruments utilised, what is measured and how it is done are described in Chapter 4.

The next chapter, Chapter 5, focuses on the education, training and professional development of teachers. Their role in the promotion of the key competences and the successful implementation of innovative projects could not be overestimated.

Subsequently in Chapter 6, we move to the practice at the school level where – we believe – real promotion and acquisition of the key competences take place. In the chapter we have tried to illustrate as many approaches to the issue as possible. More detailed information on selected countries can be found in the Country case studies contained in Annex 2 at the end of the Report.

The two final chapters firstly summarise the impact of the concept of key competences (Chapter 7) and then Chapter 8 formulates conclusions, challenges and recommendations for further work. The recommendations are targeted at the different actors involved. The recommendations, as required by the contract, aim to support decision-makers at the European level as well as Member State policy makers, employers, learning providers, practitioners and the learners. We have also sought to provide information, analysis and recommendations to effectively support the work undertaken by Member States and to help them as well as the European Commission in programming the work in the period beyond 2010.

2 Conceptualising cross-curricular key competences: a review of approaches and research

2.1 Introduction

This chapter is based on an analysis of selected literature, projects and instruments and makes reference to the country fiches, the main data collection tool used for this study. It takes as its focus key competences in general and cross-curricular key competences in particular. The aim of this chapter is to highlight issues around the concepts that we are concerned with in order to provide questions for the analytical chapters that follow on policy, implementation, assessment, school practice and teacher training. It does not claim to be exhaustive – the landscape is too vast – but rather to focus on contributions from European and other international research and development work that creates a framework of issues for this study.

As outlined in the Introduction, the purpose of this study is to provide the Commission and decision-makers in the Member States with practical information and analysis constituting a broad survey of the situation ‘on the ground’ in Europe concerning the implementation of key competences in primary and secondary schools and in teacher training which can contribute to future policy formulation and implementation. The aim is to be able to draw conclusions about the policy and practices, including for assessment and teacher training, highlighting innovative ideas for the introduction of the cross-curricular key competences as well as the challenges detected through the analysis of the data and recommendations. The study is based on the premise that successful acquisition of the key competences by all young people during their initial education and training is both essential and also requires new approaches for organising learning, in particular as regards the development of cross-curricular competences (as defined by the Recommendations⁹). This poses a particular challenge for collaboration in teaching given that

⁹ *Recommendations of the European Parliament and of the Council of 18 December 2006 on Key Competences for Lifelong Learning* (2006/962/EC), Official Journal of the European Union, 30.12.2006.

traditional learning has tended to be organised predominantly around individual subjects. It was therefore considered useful to clarify at the outset of the study the issues and questions addressed.

The policy and strategic framework within which the study is undertaken is the Education and Training Cooperation Strategy within the Lisbon Agenda. The study is being carried out at the same time as the new strategy for the coming ten years (2010–2020) is being determined. Therefore this review takes account of the major thrusts of the new strategy which are based on the Communications issued in 2007 and 2008, notably *Improving Competences for the 21st Century: An Agenda for European Cooperation on Schools*¹⁰, which is underpinned by *Opportunities, access and solidarity: towards a new social vision for 21st century Europe*¹¹. The *Updated strategic framework for European cooperation in education and training*¹² and *New Skills for New Jobs*¹³ which were both issued in December 2008. After a consultation process and revision, the **Council Conclusions on a strategic framework for European cooperation in education and training (ET 2020)** were published on 12 May 2009 as this study was being finalised¹⁴. It is important to take into consideration the goals and challenges contained in these Communications as reference points to keep the study on track. Firstly, the Conclusion of the Council and of the Representatives of the Governments of the Member States on preparing young people for the 21st Century: an agenda for a European cooperation on schools, published in the OJ reaffirms that ‘*school education – including all forms of school education up to the end of secondary – lays the foundation for lifelong learning by enabling pupils to acquire the key competences which they will need and which will help to guide them throughout their*

¹⁰ *Improving Competences for the 21st Century: An Agenda for European Cooperation on Schools*, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of Regions, Brussels, COM(2008) 425 {SEC(2008) 2177}.

¹¹ *Opportunities, access and solidarity: towards a new social vision for 21st century Europe*, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of Regions, Brussels, COM (2007) 726 final.

¹² *An updated strategic framework for European cooperation in education and training*, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of Regions, Brussels, COM (2008) 865 final {SEC (2008) 3047} & {SEC (2008) 3048}.

¹³ *New Skills for New Jobs* Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of Regions, Brussels, COM (2008) 868 final {SEC (2008) 3058}.

¹⁴ *The Council Conclusions on a strategic framework for European cooperation in education and training (ET 2020)*, 12 May 2009.

*personal and professional lives.*¹⁵ The *Updated strategic framework* defines one of the major challenges of the planning period as ensuring the acquisition of key competences by everyone (children and adult learners alike) based on learning outcomes that are relevant for professional and private life. More specifically, the Communication, *Improving competences for the 21st Century*, states in its introduction that:

‘Young people need a wider range of competences than ever before to flourish, in a globalised economy and in increasingly diverse societies. Many will work in jobs that do not yet exist. Many will need advanced linguistic, intercultural and entrepreneurial capacities. Technology will continue to change the world in ways we cannot imagine. Challenges such as climate change will require radical adaptation. In this increasingly complex world, creativity and the ability to continue to learn and to innovate will count as much as, if not more than, specific areas of knowledge liable to become obsolete. Lifelong learning should be the norm.’

Furthermore, the Commission notes that to advance well-being in the face of the challenges of the 21st century requires a new approach centred on providing citizens with adequate *opportunities* for self-fulfilment, *access* to education, employment, healthcare and social protection in a context of *solidarity*, social cohesion and sustainability. The challenge defined is to strengthen the reform of school systems so that *every* young person can develop his or her full potential through improved access and opportunities, to ensure that every citizen can become an active participant in the emerging knowledge economy, and to reinforce social solidarity. The Communication situates curricular reform to improve competences within a holistic approach to the education of children and young people. It underlines the need to organise learning within and across subjects, to teach competences explicitly, to introduce new teacher training and didactic approaches and, vitally, the importance of fully involving teachers, learners and other actors. It adds that schools should promote the health and well-being of pupils and staff and active citizenship, underlining the fact that every learner’s needs differ and every classroom is a place of diversity (of gender, socioeconomic groups, ability or disability, mother tongues and learning processes).

¹⁵ Conclusions of the Council and of the Representatives of the Governments of the Member States, meeting within the Council of 21 November 2008 on preparing young people for the 21st Century: an agenda for a European cooperation on schools, Official Journal of the European Union, 13.12.2008.

In addition to the benchmarks and indicators¹⁶ that will continue to play an important role in improving outcomes in European education and training systems, the quality agenda is clearly an important consideration. In that, Europe is not alone. It is worth remembering that a recent evaluation of the achievement of the Millennium Development Goals (MDG) for primary education emphasised the need to focus not just on improving the frequency and length of participation in education for boys and girls, but also to pay more and better attention to the learning outcomes which have so far taken a back seat to quantitative improvement¹⁷. The conclusions state that primary education efforts need to focus on improving learning outcomes, particularly among the poor and other disadvantaged children. The evaluators report that the MDG push for universal primary completion, while being a valuable intermediate goal, ‘will not ensure that children achieve the basic literacy and numeracy that are essential to poverty reduction’, which means that ‘improving learning outcomes needs to be a core objective of all support for primary education, with a particular focus on achieving equity in learning outcomes by gender and among the poor or otherwise disadvantaged’. Though the situation is more dramatic and critical in the developing world, the message is essentially the same. The education of today’s children needs to focus on their learning outcomes to equip them to face the pace of change and challenges defined by a high level of unpredictability.

The above EU Communications provide the study with the framework within which the issues to be addressed need to be clarified. They also provide a baseline for examining how key competences are being addressed within national policy (see chapter 3) and practice (at national and local levels for assessment, teacher training and in school practice) – see chapters 4, 5 and 6.

Overall, the chapter will raise underlying questions and frame issues that will help us to understand the policy choices being made and strategies being implemented in European countries for key competences (including the cross-curricular ones) and teacher training. The aims of this chapter are to:

- Obtain a clear and detailed understanding of the major issues underpinning the formulation and implementation of key competences as they affect policy formulation and implementation, school practice, assessment and teacher training.

¹⁶ See discussion in *An updated strategic framework for European cooperation in education and training*, op cit. See also the Commission Staff Working Document, *Impact Assessment*, drafted for the preparation of the Communication (SEC(2008)3047

¹⁷ Independent Evaluation Group, *From Schooling Access to Learning Outcomes: An unfinished Agenda. An Evaluation of the World Bank support to primary education*, World Bank Group, 2006.

- Set the scene for understanding the choices and uses of cross-curricular key competences in the EU and in the 27 countries taken into consideration for this study.
- Provide a conceptual framework for the analysis of the data collected for this study.
- Supplement sources pertaining to the EU and the Member States with additional material where it can usefully contribute to conceptual understanding and the framework of issues.
- Following an initial scan of the literature, a selection has been made for this chapter that sets out to ask the following questions:
- What lies behind the definitions of key competences and in particular cross-curricular key competences in use?
- Do cross-curricula key competences differ according to the uses made of them, that is to say the functions they perform and the contexts in which they are used?
- Can a single approach to cross-curricula key competences work uniformly across the different sub-sectors of education?

Structure of the chapter

Following this introduction, the next section in the chapter looks at some definitions of key competences. This is followed by a section presenting the EU strategies to support competences for the 21st century. The next section then asks the question about what we can learn from other international examples and the final section briefly introduces some further research and approaches of interest to the study. At the end of each section, there are observations for analysis of the data and a short concluding section draws together these observations into a set of questions to take forward.

2.2 What are (cross-curricular) key competences?

It may be useful to start by underlining the importance of the context insofar as any competences or key competences defined by an education and training system reflect choices made at a given period of time, linked to perceived economic and social needs in an intricate and complex relation to the underpinning philosophy of education and prevailing trends and influences (including of international organi-

sations). This dynamic becomes all the more complex when 27 countries are involved. In addition, as Noel Entwistle¹⁸ points out, ‘What we learn depends on how we learn and why we have to learn it’. This study seeks to bring some clarity and understanding in a highly complex and evolving field and one in which there are many intervening factors linked to different types of context that affect the definitions, choices and uses of terminology, the content (explicit or not) behind it and the interpretation into policy and practice.

It has become a truism to say that there are different definitions in use of the terms competence and skills. In some cases they are explicit, while in others they are implicit through the context and utilisation. Over the last 20 years, a range of terms such as key or core skills, key or core competences, etc has been used and, depending on the country and the field of education and training, one or another may be favoured. This is further explored in the policy chapter. For example, in school education, Ireland and the UK tend to use the notion of key skills, whereas France and French-speaking Belgium are developing a ‘*socle*’ (foundation or core) of competences. The first question is whether the terms can be used interchangeably. As is underlined in Key Competences for Lifelong Learning; a European Reference Framework¹⁹, terminology is never neutral, is necessarily linked to the goals and objectives of the policy-makers, and reflects the dominant paradigms in use. Words will take on different connotations in different socio-linguistic environments. This section seeks to gain a better understanding of the issues behind the conceptualisation. In the chapter that follows, the policies formulated by the Member States and the link between the terminology and the main thrust of the policies are analysed.

The notion of cross-curricular approaches is certainly not new. One example from the 1970s that can be cited is the Bullock Report published in the UK²⁰ in 1975 which focused on language acquisition and emphasised that language learning was not the responsibility of the English teachers only, but that schools should have a policy for language across the curriculum involving all the teachers in building pupil’s reading and writing skills. Furthermore, this report recommended

¹⁸ Entwistle N., *Learning and studying; contrasts and influences*, in **Creating the Future: Perspectives on Educational Change**, Compiled and edited by Dee Dickinson, New Horizons for Learning, 1991, http://www.newhorizons.org/future/Creating_the_Future/crfut_frontend.html.

¹⁹ **Key Competences for Lifelong Learning; A European Reference Framework**, November 2002. Implementation of the Education and Training 2010 Work Programme, Working Group B ‘Key Competences’.

²⁰ **The Bullock Report: A language for life**, Report of the Committee of Enquiry appointed by the Secretary of State for Education and Science under the Chairmanship of Sir Alan Bullock FBA, London, Her Majesty's Stationery Office 1975.

that a ‘system of monitoring should be introduced employing new instruments to assess a wider range of attainments than has been attempted in the past and allow new criteria to be established for the definition of literacy’. An interesting aspect is that the report is not recommending just cross-curricular activities, transversal to the different elements of the curriculum, but a whole school policy involving all teaching staff that includes assessment criteria, instruments and purposes. This is at the heart of the current debate on the introduction of cross-curricular key competences into the school curriculum in European countries.

At some risk of over-generalisation, outcomes-based approaches started to make a real impact from the mid-1980s, when they were introduced as part of the reforms intended to improve the employability of young people and the unemployed and to improve the labour market relevance of vocational qualifications. The initial focus was, thus, on VET and the learner was targeted as an individual functioning in the labour market and the workplace. One of the tools used was functional analysis of occupations, with the identification of competences and learning outcomes as key elements of the methodology. This approach was highly developed in the literature of the English-speaking world, but was also present in the approaches to functional analysis used, for example, in Germany and in France. This does not mean that the notion of competence was used in the same way in the different national productions – history, educational policy, learning cultures, work culture, etc. inevitably come into play. The common element was the focus on the outcome (to be measured)²¹. In general, at least in the early phases in Europe, competence was defined as going beyond skills acquisition by putting a focus on what the individual was ‘able to do’ in a real situation. This led to many debates about the comparative merits of knowledge and skills-based or competence-based approaches and the narrow or broad reference to employment fields and/or occupations. This type of debate serves to highlight the importance of the multiple and interconnecting contexts e.g. school-based versus work-based learning as well as the national contexts. In the Maastricht report, Leney *et al* (2004) emphasised the strong national characteristics of provision for vocational education and training and developments in terms of the ‘traditions, circumstances, challenges and aims’²². The insert 2.1 below illustrates some differences for occupational practice.

²¹ Leney T., Gordon J. & Adam S., *The Shift to Learning Outcomes: policies and practices in Europe*, 2008 http://www.cedefop.europa.eu/etv/Information_resources/Bookshop/publication_details.asp?pub_id=494.

²² Leney T. *et al*, *Achieving the Lisbon Goal: The Contribution of VET* Final report to the Commission, November 2004.

Insert 2.1. Some different models of competence in European occupational practice²³

In the first three examples, competence is defined as ‘capacity’ in relation to a broad occupational field. It is a multi-dimensional concept, combining different forms of knowledge and skills, as well as social and personal qualities. It relates to a person’s ability to draw on multiple resources to deal with a given work situation.

Germany

Competence of action-taking or *Handlungskompetenz* is the principal aim of VET in the dual system: to enable the student to take autonomous and responsible action within the workplace. It is a multi-dimensional concept comprising occupational competence (*Fachkompetenz*), social competence (*Sozialkompetenz*), procedural competence (*Methodenkompetenz*) and personal competence (*Selbstkompetenz*). Each of these dimensions relate to particular knowledge, skills and competences. The latter include moral and social attributes such as taking responsibility and showing awareness of the consequences of occupational action.

The Netherlands

Competence is ‘the ability to successfully meet complex demands in a particular context through the mobilisation of psychosocial prerequisites’ (Rychen & Salganic, 2003: 13)²⁴. The Dutch system distinguishes between four types of competences: occupational, career, civic and learning competences. Each of these is defined in terms of knowledge, skills, attitudes and behaviour. The Netherlands has a competence-based qualifications framework. Core competences have been derived from a job content analysis. These serve both as a basis for curriculum development and assessment.

France

The French approach draws on knowledge (*savoir*), skills (*savoir-faire*) and social competences (*savoir-être*). Individual competences relate to each other and are difficult to disassociate from the overall occupational profile. Competences can be understood as dynamic processes of learning, developing and passing on knowledge. France has a competence-based qualifications framework. Competences have been derived from a job content analysis. These serve both as a basis for curriculum development and assessment.

England

In the English model, competence relates not to the overall capacity of the individual but to the individual’s performance of prescribed tasks or skills to a defined standard. This is epitomised in the National Vocational Qualifications (NVQ) system which combines ‘units of competence’ based on occupational standards into NVQ awards. Competence in this model is based on narrow and fragmented skill sets, which are cumulative rather than

²³ This insert, prepared for the Leney et al study on *The Shift to Learning outcomes: policies and practice in Europe*, is drawn from the work of the UK Nuffield Foundation Project **Cross-National Equivalence of Qualifications and Skills**, led by Linda Clarke (University of Westminster, London) and Chris Winch (King's College, London), with the participation of experts in the UK, France, Germany and The Netherlands.
<http://www.kcl.ac.uk/schools/sspp/education/research/projects/eurvoc.html>.

²⁴ Rychen D.S., Salganic L.H. (2003) *A holistic model of competence*, in: D.S. Rychen, L.H. Salganic (Eds) **Key Competencies for a Successful Life and a Well-functioning Society**, Göttingen: Hogrefe and Huber.

integrative. Any knowledge presumed necessary for underpinning performance is equally fragmented. With its focus on output, competence in the English system is not a holistic concept, nor does it encompass an individual's social or civic qualities. It contains no notion of development of the self.

In 'Learning to learn: what is it and can it be measured?'²⁵ Hoskins and Fredriksson present some definitions of **skill** and **competence** to highlight the differences. They draw on Chisholm (2005):

'Competence means the ability to apply knowledge, know-how and skills in a stable/recurring or changing situation. Two elements are crucial: applying what one knows and can do to a specific task or problem and being able to transfer this ability between different situations'.

A skill, however, she defines as the ability, usually learned, and acquired through training to perform actions that achieve a desired outcome²⁶. Furthermore, they quote both Rychen²⁷ and Tiana²⁸ who distinguish between the ability to perform complex motor or cognitive **skills** with precision, including in changing situations, and a **competence** that is considered to be broader and to include several skills, as well as non-cognitive elements and attitudes. However, once that distinction has been made, the term competence (as well as competences and competencies) lacks a single, standard meaning, whether in the English language or across the range of European languages and education and training systems.

Within a given system, 'competence' may not be used in the same way in vocational education and training (VET) and in general education. Influences and approaches may well differ depending on whether the purpose is to improve the attractiveness of VET awards for employers or to determine the foundation of basic education. As an illustration, the competence standards (*référentiels*) set for

²⁵ Hoskins B. & Fredricksson U., *Learning to learn: what is it and can it be measured?* EUR23432 – Joint Research Centre – Institute of the Protection and Security of the Citizen, 2008.

²⁶ Chisholm L., *Bridges for Recognition Cheat Sheet: Proceedings of the SALTO Bridges for Recognition: Promoting Recognition of Youth Work across Europe*, Leuven-Louvain, 2005.

http://www.salto-youth.net/download/429/Bridges%20for%20Recognition_Cheat%20Sheet_final.doc.

²⁷ Rychen D.S., *Key Competencies for all: an overarching conceptual framework of reference*. In D.S. Rychen & A. Tiana, (Eds.) *Developing Key Competencies in education: Some lessons from international and national experience*, UNESCO// International Bureau of Education, Geneva, 2004.

²⁸ Tiana A., *Developing key competencies in education systems: some lessons from international studies and national experiences*. In D.S. Rychen & A. Tiana, (Eds.) *Developing Key Competencies in education: Some lessons from international and national experience*, UNESCO// International Bureau of Education, Geneva, 2004.

French vocational diplomas include a strong labour market influence, given the role of the social partners in their determination, whereas the foundation of competences for compulsory education reflects more the humanistic philosophy of education. Insert 2.2 below contains the aims of the recently reviewed curriculum for secondary education in England. The implicit notion of competence is rather different from that of the NVQs described in Insert 2.1.

Insert 2.2. The aims of the curriculum for secondary education: England

The curriculum should enable all young people to become:
– successful learners who enjoy learning, make progress and achieve
– confident individuals who are able to live safe, healthy and fulfilling lives
– responsible citizens who make a positive contribution to society.

Another example that can be taken to illustrate the different elements in the notion of competence is Bloom's taxonomy²⁹. In recent times, Bloom's taxonomy has been a widely known way of categorising knowledge and skills and has had an impact in some European countries (e.g. Malta and Slovenia). Originally (Bloom *et al*, 1964), the taxonomy specified the cognitive and the affective domains. As Winterton (2006) points out, a third dimension that is now always included in the Bloom taxonomy was added later. This is the psychomotor domain. The cognitive relates to mental skills, or knowledge. The affective relates to feelings, attitudes and emotional aspects of learning. Psychomotor skills refer to manual, dexterous and physical skills. In this example, three types of 'skills' together form the notion of competence. However, this taxonomy at the level of its framework does not directly integrate context or personal/social qualities. Both are important elements in the DeSeCo project outcomes.

Insert 2.3. Bloom's taxonomy of outcomes³⁰

Evaluation Synthesis Analysis Application Comprehension Recall	Internalising values Organising & prioritising Valuing Active participation Awareness and attention	Origination Adaptation Complex overt response Mechanism Guided response Set response Perception
COGNITIVE SKILLS	EMOTIVE SKILLS	PSYCHOMOTOR SKILLS

²⁹ Reference: Leney T., Gordon J. & Adam S., *The Shift to Learning Outcomes: policies and practices in Europe*, 2008.

³⁰ Ibid.

In summary:

A range of terms is used in the broad field related to competence and skill. Additionally they include the notions of capacities, capabilities, qualities, attributes, etc. Furthermore, in the European context, translation plays a role in the interpretation of notions into shared operational terms. As we will see in the later sections of this chapter, the EU framework uses the term ‘competences’, whereas the OECD DeSeCo project used the term ‘competencies’ in the synthesis report discussed below. The report by CRELL on *Learning to Learn: What is it and can it be measured?* uses both plurals. Though the distinction is not always clear, it would appear that the plural ‘competences’ tends to refer more to a holistic notion about the attribute, capacities and qualities of the person, while competencies is close to the use of skills as the ability, which is usually learned, to perform an action to achieve desired outcomes³¹. This study, which focuses on the implementation of the EU Key Competences framework, will use the plural ‘competences’, except for specific examples where ‘competencies’ is the preferred term used by the authors of a report or in country data or reports. A brief summary of the terms used is given here with definitions that are relevant to this study.

Competences: Definitions of competence tend to refer to a complex notion that goes beyond the cognitive aspects, includes attitudes and capacities in addition to a set of skills. The EU definition in EQF includes a notion of autonomy and responsibility. Thus, ‘*competence* is defined as the proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development. In the 2004 document, *Key Competences for Lifelong Learning; a European Reference Framework*, competence is described as a combination of skills, knowledge, aptitudes and attitudes crucial for personal fulfilment, active citizenship and inclusion and employability. The contexts are aligned; the main difference is that for the EQF, the competence must be ‘proven’, as it is a framework linked to qualifications.

Skill, on the other hand, means ‘the ability to apply knowledge and use know-how to complete tasks and solve problems’³². In the context of the European Qualifications Framework, skills are described as cognitive (involving the use of logical, intuitive and creative thinking) or practical (involving manual dexterity and the use of methods, materials, tools and instruments), which is a similar classification to the cognitive and psychomotor skills in Bloom’s taxonomy.

³¹ Brony Hoskins & Ulf Fredricksson, *Learning to learn: what is it and can it be measured?* EUR23432 – CRELL, Joint Research Centre – Institute of the Protection and Security of the Citizen, 2008.

³² Ibid.

Key competences: A historical reference describing what key competences could be (even though the term itself is not used) was suggested in the 2002 Eurydice study on Key Competencies. It is the World Declaration on Education for All: *Meeting Basic Learning Needs* (World Conference on Education 1990) which states: 'Every person – child, youth and adult – shall be able to benefit from educational opportunities designed to meet their basic learning needs. These needs comprise both essential learning tools (such as literacy, oral expression, numeracy, and problem solving) and the basic learning content (such as knowledge, skills, values, and attitudes) required by human beings to be able to survive, to develop their full capacities, to live and work in dignity, to participate fully in development, to improve the quality of their lives, to make informed decisions, and to continue learning.'³³

This is echoed in the OECD DeSeCo study (see below section 4), which had quite significant influence on the work on competence frameworks in the EU (both Member State and EU level). Key competences are supposed to contribute to a successful life and a well-functioning society: "Globalisation and modernisation are creating an increasingly diverse and interconnected world. To make sense of and function well in this world, individuals need for example to master changing technologies and to make sense of large amounts of available information. They also face collective challenges as societies – such as balancing economic growth with environmental sustainability, and prosperity with social equity. In these contexts, the competencies that individuals need to meet their goals have become more complex, requiring more than the mastery of certain narrowly defined skills'³⁴. This project's conceptual framework for key competencies classified them in three broad categories:

1. Ability to use a wide range of tools for interacting effectively with the environment and to understand them well enough to adapt them for their own purposes;
2. In an increasingly interdependent world, individuals need to be able to engage with others and to interact in heterogeneous groups; and
3. Individuals need to be able to take responsibility for managing their own lives, situate their lives in the broader social context and act autonomously.

³³ Quoted in: Eurydice, *Key Competencies; A developing concept in general compulsory education, Survey 5*, Directorate General for Education and Culture, D/2002/4008/13, ISBN 2-87116-346-4 Eurydice, 2002.

³⁴ *The definition and selection of key competences. Executive Summary*, OECD, 2005.

In the 2002 Eurydice survey report mentioned above, key competences were found to: ‘usually relate to better management of one’s own learning, social and interpersonal relations and communication and reflect the general shift of emphasis from teaching to learning’³⁵. In the European Reference Framework, the central focus of this study, key competences are defined as those competences that ‘all individuals need for personal fulfilment and development, active citizenship, social inclusion and employment’³⁶. The additional element in the Eurydice survey is the management of one’s own learning but this is in fact embedded in the 8 key competences of the reference framework.

Cross-curricular key competences: Though it is common to find illustrations of cross-curricular key competences, finding a definition is more difficult³⁷. The Quebec Education Program defines them highlighting three aspects. Firstly, they have a focus in all subjects and all activities in a school and are the responsibility of all school staff. Secondly, they represent the goals that are common to the whole curriculum and constitute different types of tools schools believe that students need to adapt to a variety of situations and to continue learning throughout life. Thirdly, they are mutually complementary: ‘since all complex situations necessarily call for more than one cross-curricular competence at a time’. In the Quebec programme, they are described as epitomising integrated learning as they apply to all areas (described as horizontal integration) and all years (described as vertical integration).

Observations that can be made:

- Developing a set of key competences (or key skills) in a given education system could imply some significant differences in goals and purposes among both countries and sub-sectors.
- The same ‘content’ may be labelled differently in different systems or approaches.
- This is still an evolving domain including in the use of vocabulary. This factor has had to be taken into account in analysing the data in the following chapters on policy and implementation.

The next section turns to the different EU frameworks and one European project.

³⁵ *Key competencies*, Survey 5, Eurydice 2002.

³⁶ *Key Competences for Lifelong Learning, European Reference Framework*, European Communities 2007.

³⁷ Quebec Education Program, Chapter 3 Cross Curricular Competences:
www.mels.gouv.qc.ca/DFGJ/dp/programme_de_formation/secondaire/pdf/qep2004/chapter3.pdf.

2.3 EU strategies to support competences for the 21st century

This section presents the key competences framework as well as other competence frameworks that are significant in the development of lifelong learning policy and practice in Europe. They are EQF, the Council of Europe language framework and the teacher competences. The generic competences produced by the Tuning project on higher education are also presented. The aim of presenting these frameworks and tools is to assess both their main features and the issues arising for this study.

The recent Communications of the EU Commission (referred to in the introduction to this chapter), the outcomes of the working groups and the peer learning process (part of the Open Method of Coordination) and the findings and proposals of the projects and working groups that examined how to introduce a larger measure of learning outcomes into higher education in order to increase the transparency of learning, courses, credits and qualifications have all contributed to creating a rich baseline approach to key competences in Europe.

The acquisition of key competences by every young person is one of the long-term objectives of the *Updated strategic framework for European cooperation*³⁸. The focus is on acquiring learning outcomes for professional and private life placed in a perspective of lifelong and life-wide learning. Emphasis is laid on the quality of teachers and on the autonomy of schools that should be open to civil society and enterprises and should put in place appropriate approaches to quality assurance.

Firstly, there is a brief presentation of the different frameworks and then differences and complementarities are discussed.

2.3.1 The framework of key competences

The major thrust of the recent Communications was presented in the introduction to this chapter. *Improving Competences for the 21st Century* makes a strong statement about the role of schools, so that ‘every young person can develop his or her full potential’ and their role in promoting the ‘health and well-being of pupils and staff and active citizenship’. These objectives are contained within the implications of the framework of key competences and are to be achieved through a greater focus on competence development in schools. As a reminder, the following table shows the eight domains of key competences developed through the work of

³⁸ op cit.

the Working Group ‘Key Competences’ as part of the Education and Training 2010 Work Programme and adopted in December 2006 as the Recommendation on key competences for lifelong learning³⁹. The first four can be interpreted as discipline-linked, whereas the other four are inherently cross-curricular.

The work has taken place in several phases, drawing on the outcomes of the OECD DeSeCo study, which is presented later in this chapter. The following documents constituted the main milestones:

2002: Eurydice, **Key Competencies; A developing concept in general compulsory education, Survey 5**, Directorate General for Education and Culture, D/2002/4008/13, ISBN 2-87116-346-4 Eurydice, 2002. A survey was carried out in the then 15 Member States for the period of general compulsory education to establish whether and how the concept of key competence was defined and if it was reflected in the curriculum and in assessment.

2004: The Directorate General for Education and Culture, Implementation of ‘Education and Training 2010’, Working Group B ‘Key Competences’. Analysis of the mapping of the key competency frameworks, November 2004. The Working Group on Key competences was established in 2001 as part of the Education and Training 2010 work programme. It focused on the extent to which key competences were taken account of in national frameworks, or are otherwise taken into account; the extent of curricular reform in the area of key competences; and the nature and extent of cross-curricular working in relation to key competences. The purpose of the exercise was to provide an overview of the current situation; and to illustrate areas of convergence and diversity in respect of education and training. Like the Eurydice study in 2002, the introduction to the report underlines that ‘there is no universal definition of the notion of ‘key competence’ but a certain consensus that for a competence to be described as ‘key’, ‘core’ or ‘basic’, it has to make a contribution to the development of human and social capital.

2005: Publication of the Recommendation of the European Parliament and of the Council on key competences for lifelong learning, Brussels, COM (2005) 548final. The final version was adopted in 2006. See below.

2006: **Recommendation of the European Parliament and of the Council of 18 December 2006 on key competences for lifelong learning**, (2006/962/EC), Official Journal of the European Union, 30.12.2006. This text now provides a cornerstone for policy in this area covering lifelong and life-wide learning as is illustrated in the five Recommendations contained in this text:

³⁹ *Recommendation of the European Parliament and of the Council of 18 December 2006 on key competences for lifelong learning*, (2006/962/EC), Official Journal of the European Union, 30.12.2006

1. Initial education and training offers all young people the means to develop the key competences to a level that equips them for adult life and which forms a basis for further learning and working life;
2. Appropriate provision is made for those young people who, due to educational disadvantage caused by personal, social, cultural or economic circumstances, need particular support to fulfil their educational potential;
3. Adults are able to develop and update their key competences throughout their lives, and that there is a particular focus on target groups identified as priorities in the national, regional and/or local contexts, such as individuals needing to update their skills;
4. Appropriate infrastructure for continuing education and training of adults including teachers and trainers, validation and evaluation procedures, measures aimed at ensuring equal access to both lifelong learning and the labour market, and support for learners that recognizes the different needs and competences of adults, is in place;
5. Coherence of adult education and training provision for individual citizens is achieved through close links with employment policy and social policy, cultural policy, innovation policy and other policies affecting young people and through collaboration with social partners and other stakeholders.

(For the full text of the Recommendation, see Annex 1)

Table 2.1. Framework of Key Competences for Lifelong Learning

Competence	Definition
Communication in the mother tongue	Communication in the mother tongue is the ability to express and interpret concepts, thoughts, feelings, facts and opinions in both oral and written form (listening, speaking, reading and writing), and to interact linguistically in an appropriate and creative way in a full range of societal and cultural contexts; in education and training, work, home and leisure.
Communication in foreign languages	Communication in foreign languages broadly shares the main skill dimensions of communication in the mother tongue: it is based on the ability to understand, express and interpret concepts, thoughts, feelings, facts and opinions in both oral and written form (listening, speaking, reading and writing) in an appropriate range of societal and cultural contexts (in education and training, work, home and leisure) according to one's wants or needs. Communication in foreign languages also calls for skills such as mediation and intercultural understanding. An individual's level of proficiency will vary between the four dimensions (listening, speaking, reading and writing) and between the different languages, and according to that individual's social and cultural background, environment, needs and/or interests.

Competence	Definition
Mathematical competence and basic competences in science and technology	<p>A. Mathematical competence is the ability to develop and apply mathematical thinking in order to solve a range of problems in everyday situations. Building on a sound mastery of numeracy, the emphasis is on process and activity, as well as knowledge. Mathematical competence involves, to different degrees, the ability and willingness to use mathematical modes of thought (logical and spatial thinking) and presentation (formulas, models, constructs, graphs, charts).</p> <p>B. Competence in science refers to the ability and willingness to use the body of knowledge and methodology employed to explain the natural world, in order to identify questions and to draw evidence-based conclusions. Competence in technology is viewed as the application of that knowledge and methodology in response to perceived human wants or needs. Competence in science and technology involves an understanding of the changes caused by human activity and responsibility as an individual citizen.</p>
Digital competence	Digital competence involves the confident and critical use of Information Society Technology (IST) for work, leisure and communication. It is underpinned by basic skills in ICT: the use of computers to retrieve, assess, store, produce, present and exchange information, and to communicate and participate in collaborative networks via the Internet.
Learning-to-learn	‘Learning to learn’ is the ability to pursue and persist in learning, to organise one’s own learning, including through effective management of time and information, both individually and in groups. This competence includes awareness of one’s learning process and needs, identifying available opportunities, and the ability to overcome obstacles in order to learn successfully. This competence means gaining, processing and assimilating new knowledge and skills as well as seeking and making use of guidance. Learning to learn engages learners to build on prior learning and life experiences in order to use and apply knowledge and skills in a variety of contexts: at home, at work, in education and training. Motivation and confidence are crucial to an individual’s competence.
Social and civic competences	These include personal, interpersonal and intercultural competence and cover all forms of behaviour that equip individuals to participate in an effective and constructive way in social and working life, and particularly in increasingly diverse societies, and to resolve conflict where necessary. Civic competence equips individuals to fully participate in civic life, based on knowledge of social and political concepts and structures and a commitment to active and democratic participation.
Sense of initiative and entrepreneurship	Sense of initiative and entrepreneurship refers to an individual’s ability to turn ideas into action. It includes creativity, innovation and risk-taking, as well as the ability to plan and manage projects

Competence	Definition
	in order to achieve objectives. This supports individuals, not only in their everyday lives at home and in society, but also in the workplace in being aware of the context of their work and being able to seize opportunities, and is a foundation for more specific skills and knowledge needed by those establishing or contributing to social or commercial activity. This should include awareness of ethical values and promote good governance.
Cultural awareness and expression	Appreciation of the importance of the creative expression of ideas, experiences and emotions in a range of media, including music, performing arts, literature, and the visual arts.

This work has been further developed through the Open Method of Coordination, specifically by the peer learning cluster on key competences. Examples and progress will be referred to in later chapters, as this process is essentially an observation of practice and exchange of expertise.

Four of the competences can be acquired within traditional disciplines and therefore tend to be anchored in subject-based curricula: communication in the mother tongue, literacy, mathematical competence, basic competence in science and technology and communication in foreign languages. This group of (primarily cognitive) competences is seen as being measurable (at national and international level); the competences are covered by tests and those test results are used in the efforts to improve schooling at classroom, school and school system level. Another second group tends to need a higher degree of cross-curricular organisation if the competences are to be achieved: digital competence, learning to learn, social and civic competences, a sense of initiative, entrepreneurship and cultural awareness and expression. They are seen as being underpinned by transversal competences such as critical thinking, creativity, initiative, problem solving, risk assessment, decision taking and the constructive management of feelings. As will be seen in the following chapters, each of these groups has slightly different consequences for their acquisition and they impact in different ways on the design and delivery of the curriculum.

The Centre for Research on Lifelong Learning (CRELL) was established in 2005 to harness expertise in the field of indicator-based evaluation and monitoring of education and training systems. CRELL takes an interdisciplinary approach to lifelong learning research and is sponsored by DG EAC as part of the Joint Research Centre of the EU. They have been undertaking research to explore if and how these cross-curricular key competences contained in the framework can be measured. Three literature reviews and reports on research studies have appeared

dealing with how to measure learning to learn, civic competences and creativity⁴⁰. The issues are taken up in the chapter on assessment.

2.3.2 European Qualifications Framework

The European Qualifications Framework (EQF) is probably the most far reaching outcome of the Education and Training 2010 strategy and the result of over 20 years of intensive work to support mobility and lifelong learning in Europe by developing instruments to improve the transparency of qualifications. The history of this instrument is rooted in early sectoral work prospecting the possibility of harmonising vocational and professional qualifications, through the pilot work and research steered by Cedefop on equivalences and recognition and then the early transparency work (including the valorisation of Leonardo project outcomes) in the 1990s leading to the tools agreed by the Transparency Forum in the late 1990s and subsequently Europass (since 2005).

The European Qualifications Framework (EQF), which was adopted by the European Parliament and Council in April 2008, acts as a translation device to make national qualifications more readable across Europe, promoting workers' and learners' mobility between countries and facilitating their lifelong learning. It is intended that by 2010 it will relate different countries' national qualifications systems (and NQFs where already in use) to a common European reference framework. The aim is that individuals and employers will be able to use the EQF to better understand and compare the qualifications levels of different countries and different education and training systems⁴¹. By 2012, it is hoped that all new qualifications will carry a reference to an EQF level. There are eight reference levels describing what a learner knows, understands and is able to do – 'learning outcomes'. The key characteristics which are important for this study are:

⁴⁰ Brony Hoskins & Ruth Deakin Crick, *Learning to Learn and Civic Competences: different currencies or two sides of the same coin?* EUR23360EN 2008, CRELL, Joint Research Centre – Institute of the Protection and Security of the Citizen, 2008.

Brony Hoskins & Ulf Fredricksson, *Learning to learn: what is it and can it be measured?* EUR23432 – CRELL, Joint Research Centre – Institut of the Protection and Security of the Citizen, 2008.

Ernesto Villalba, *Towards an Understanding of Creativity and its Measurements*, EUR 23561 EN 2008, CRELL, Joint Research Centre – Institute of the Protection and Security of the Citizen, 2008.

⁴¹ For more detailed information see:

http://ec.europa.eu/education/lifelong-learning-policy/doc44_en.htm.

- It has been designed to apply to all types of education, training and qualifications;
- There is a shift in focus towards learning outcomes and away from input based approaches;
- It promotes the validation of non-formal and informal learning.

Table 2.2. The European Qualifications Framework

Level	Knowledge Described as theoretical and/or factual	Skills Described as cognitive (use of logical, intuitive and creative thinking) and practical (involving manual dexterity and the use of methods, ma- terials, tools and instru- ments)	Competence Described in terms of responsibility and auton- omy
1	Basic general knowledge	Basic skills required to carry out simple tasks	Work or study under direct supervision in a structured context
2	Basic factual knowledge of a field of work or study	Basic cognitive and practical skills required to use relevant information in order to carry out tasks and to solve routine problems using simple rules and tools	Work or study under supervision with some autonomy
3	Knowledge of facts, principles, processes and general concepts, in a field of work or study.	A range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying basic methods, tools, materials and information	Take responsibility for completion of tasks in work or study. Adapt own behaviour to circumstances in solving problems
4	Factual and theoretical knowledge in broad contexts within a field of work or study	A range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study	Exercise self-management within the guidelines of work or study contexts that are usually predictable, but are subject to change Supervise the routine work of others, taking some responsibility for the evaluation and improvement of work or study activities

	Knowledge	Skills	Competence
5	Comprehensive, specialised, factual and theoretical knowledge within a field of work or study and an awareness of the boundaries of that knowledge	A comprehensive range of cognitive and practical skills required to develop creative solutions to abstract problems	Exercise management and supervision in contexts of work or study activities where there is unpredictable change Review and develop performance of self and others
6	Advanced knowledge of a field of work or study, involving a critical understanding of theories and principles	Advanced skills, demonstrating mastery and innovation, required to solve complex and unpredictable problems in a specialised field of work or study	Manage complex technical or professional activities or projects, taking responsibility for decision-making in unpredictable work or study contexts Take responsibility for managing professional development of individuals and groups
7	Highly specialised knowledge, some of which is at the forefront of knowledge in a field of work or study, as the basis for original thinking Critical awareness of knowledge issues in a field and at the interface between different fields	Specialised problem-solving skills required in research and/or innovation in order to develop new knowledge and procedures and to integrate knowledge from different fields	Manage and transform work or study contexts that are complex, unpredictable and require new strategic approaches Take responsibility for contributing to professional knowledge and practice and/or for reviewing the strategic performance of teams
8	Knowledge at the most advanced frontier of a field of work or study and at the interface between fields	The most advanced and specialised skills and techniques, including synthesis and evaluation, required to solve critical problems in research and/or innovation and to extend and redefine existing knowledge or professional practice	Demonstrate substantial authority, innovation, autonomy, scholarly and professional integrity and sustained commitment to the development of new ideas or processes at the forefront of work or study contexts including research.

Note. Each of the 8 levels is defined by a set of descriptors indicating the learning outcomes relevant to qualifications at that level in any system of qualifications.

Source: *Adapted for the Cedefop study 'The Shift to Learning Outcomes; Policies and Practice in Europe' from Commission of the European Communities (2006 and 2008).*

The EQF, which is focused on giving recognition to lifelong and life-wide learning, addresses, among others, the issues of access to learning and employ-

ment, as well as that of pathways and progressions insofar as it is based on level descriptors. This is a major difference with the key competences framework.

2.3.3 Common European Framework of Reference for Languages (ECFR)

The Common European Framework of Reference for Languages, which is available in over 30 language versions, has become a key reference document and tool for educational purposes (learning, teaching and assessment), as well as for professional mobility. Building on the ‘Threshold level’ concept of the 1970s, it was developed by the Council of Europe through a process of scientific research and consultation in order to provide a practical tool for setting clear standards to be attained at successive stages of learning and for evaluating outcomes in an internationally comparable manner. A European Union Council Resolution (November 2001) recommended the use of this instrument in setting up systems of validation of language competences. The document describes i) the competences necessary for communication, ii) the related knowledge and skills and iii) the situations and domains of communication, as well as levels of attainment for understanding (listening and reading), speaking (spoken interaction and spoken production) and writing⁴². The summary table has been included below. It illustrates the relationship of this framework to other competence and learning outcome-based frameworks (‘can do’) and the cumulative process of level descriptors adding increasing categories of difficulty and unfamiliarity (e.g. more varying situations) and knowledge and its application of increasing sophistication of language. In these aspects it has much in common with the EQF and current NQF approaches.

Table 2.3. Common European Framework of Reference for Languages

Proficient user	C2	Can understand with ease virtually everything heard or read. Can summarise information from different spoken and written sources, reconstructing arguments and accounts in a coherent presentation. Can express him/herself spontaneously, very fluently and precisely, differentiating finer shades of meaning even in more complex situations.
	C1	Can understand a wide range of demanding, longer texts, and recognise implicit meaning. Can express him/herself fluently and spontaneously without much obvious searching for expressions. Can use language flexibly and effectively for social, academic and professional purposes. Can produce clear, well-structured, detailed text on complex subjects, showing controlled use of organisational patterns, connectors and cohesive devices.

⁴² For a detailed presentation, see http://www.coe.int/T/DG4/Portfolio/?L=E&M=/main_pages/introduction.html.

Independent user	B2	Can understand the main ideas of complex text on both concrete and abstract topics, including technical discussions in his/her field of specialisation. Can interact with a degree of fluency and spontaneity that makes regular interaction with native speakers quite possible without strain for either party. Can produce clear, detailed text on a wide range of subjects and explain a viewpoint on a topical issue giving the advantages and disadvantages of various options.
	B1	Can understand the main points of clear standard input on familiar matters regularly encountered in work, school, leisure, etc. Can deal with most situations likely to arise whilst travelling in an area where the language is spoken. Can produce simple connected text on topics which are familiar or of personal interest. Can describe experiences and events, dreams, hopes & ambitions and briefly give reasons and explanations for opinions and plans.
Basic user	A2	Can understand sentences and frequently used expressions related to areas of most immediate relevance (e.g. very basic personal and family information, shopping, local geography, employment). Can communicate in simple and routine tasks requiring a simple and direct exchange of information on familiar and routine matters. Can describe in simple terms aspects of his/her background, immediate environment and matters in areas of immediate need.
	A1	Can understand and use familiar everyday expressions and very basic phrases aimed at the satisfaction of needs of a concrete type. Can introduce him/herself and others and can ask and answer questions about personal details such as where he/she lives, people he/she knows and things he/she has. Can interact in a simple way provided the other person talks slowly and clearly and is prepared to help.

The three frameworks above focus essentially on learners, whatever their age. The next one is on teacher competences.

2.3.4 Teacher training: preparing teachers for developing student competences

Improving Competences for the 21st Century states that ‘Staff need the skills to give every pupil adequate opportunities to acquire necessary competences in a safe and attractive school environment base on mutual respect and cooperation, which promotes social physical and mental well-being and where bullying and violence have no place. Yet most countries report shortfalls in teaching skills.’⁴³ The Common European Principles for Teacher Competences and Qualifications⁴⁴, agreed in

⁴³ *Improving Competences for the 21st Century* op cit.

⁴⁴ *Common European Principles for Teacher Competences and Qualification*, European Commission, DG EAC, 2005.

2005, aims to support policy-makers at national or regional level by setting out common European principles for teacher competences and qualifications.

The three key competences have more similarities with the Framework of Key Competences for Lifelong Learning than with EQF or the ECFR for language acquisition in that they are multi-faceted competences of a type often referred to by national systems as cross-curricular or transversal or basic, but they are not part of a framework of reference levels intended to be used for validating competence achieved. They describe the content in generic terms. They are presented in the following table:

Table 2.4. Teacher Competences

Work with others	They work in a profession which should be based on the values of social inclusion and nurturing the potential of every learner. They need to have knowledge of human growth and development and demonstrate self-confidence when engaging with others. They need to be able to work with learners as individuals and support them to develop into fully participating and active members of society. They should also be able to work in ways which increase the collective intelligence of learners and cooperate and collaborate with colleagues to enhance their own learning and teaching.
Work with knowledge, technology and information	They need to be able to work with a variety of types of knowledge. Their education and professional development should equip them to access, analyse, validate, reflect on and transmit knowledge, making effective use of technology where this is appropriate. Their pedagogic skills should allow them to build and manage learning environments and retain the intellectual freedom to make choices over the delivery of education. Their confidence in the use of ICT should allow them to integrate it effectively into learning and teaching. They should be able to guide and support learners in the networks in which information can be found and built. They should have a good understanding of subject knowledge and view learning as a lifelong journey. Their practical and theoretical skills should always allow them to learn from their own experiences and match a wide range of teaching and learning strategies to the needs of learners.
Work with and in society	They contribute to preparing learners to be globally responsible in their role as EU citizens. Teachers should be able to promote mobility and cooperation in Europe and encourage intercultural respect and understanding. They should have an understanding of the balance between respecting and being aware of the diversity of learners' cultures and identifying common values. They should also need to understand the factors that create social cohesion and exclusion in society and be aware of the ethical dimensions of the knowledge society. They should be able to work effectively with the local community and with partners and stakeholders in education – parents, teachers, education institutions, and representative groups. Their experience and expertise should also enable them to contribute to systems of quality assurance.

Following on from this first experience of defining common principles during 2004 and 2005, the next step was the work undertaken to ground these principles in teacher education. This led to the Conclusions of the Council and of the Representatives of the Governments of the Member States on ‘Improving the Quality of Teacher Education’, adopted in October 2007⁴⁵. It states that ‘teaching provides a service of considerable social relevance: teachers play a vital role in enabling people to identify and develop their talents and to fulfil their potential for personal growth and well-being, as well as helping them to acquire the complex range of knowledge, skills and key competences that they will need as citizens throughout their personal, social and professional lives.’ In this Communication a clear link is made between the quality of teaching and the acquisition by students of the key competences they need for life (greater learning autonomy, taking responsibility for their own learning, etc.). It states that teachers need to be able to adapt their methods to the evolving needs of learners and to update their existing skills and/or develop new ones regularly. It is, however, interesting to note that these two key competences mentioned for students are not explicitly stated among the 8 key competences in the framework for students.

2.3.5 Competences in higher education

A higher education view offered by the Tuning project on higher education reform identifies learning outcomes as ‘statements of what a learner is expected to know, understand and/or be able to demonstrate after completion of learning’ (Wagenaar, 2004). They are formulated as competences that represent a dynamic combination of attributes, abilities and attitudes. Some may be developed to a greater level than required by the learning outcome, producing what is sometimes referred to as a ‘spiky’ rather than a flat profile, meaning that the different competences of an individual may not all be at the same level⁴⁶.

The Tuning project

As the Tuning project illustrates, the Bologna process is attempting to place emphasis on learning outcomes. The Tuning project developed its own classification of generic learning outcomes, expressed in terms of instrumental competences, interpersonal competences and systemic competences. This can be tabulated as follows:

⁴⁵ Draft conclusions of the Council and of the Representatives of the Governments of the Member States, meeting within the Council, on improving the quality of teacher education, Adoption of the conclusions, Brussels, 26 October 2007, 14413/07; EDUC 180 SOC 405.

⁴⁶ Leney *et al* (2004) op cit.

Table 2.5. The Tuning Project generic learning outcomes

Instrumental competences	Interpersonal competences	Systemic competences
Capacity for analysis and synthesis Capacity for organisation and planning Basic general knowledge Grounding in professional knowledge Oral and written communication Knowledge of a second language Computing skills Information management skills Problem solving Decision making	Critical and self-critical abilities Teamwork Interpersonal skills Ability to work in interdisciplinary team Ability to communicate with experts in other fields Appreciation of diversity and multiculturalism Ability to work in international context Ethical commitment	Capacity to apply knowledge in practice Research skills Capacity to learn Capacity to adapt to new situations Creativity Leadership Understanding other cultures Ability to work autonomously Project design and management Initiative and entrepreneurial spirit Concern for quality Will to succeed

Source: Adam –Presentation associated with Adam (2004).

Given the number of countries whose higher education systems have agreed to participate in the Bologna process, this classification can be expected to have an influence at the policy level and – presumably in differentiated ways – at the level of learning and teaching in higher education. The extent to which this is already the case remains doubtful, and until now the main impact of the Tuning learning outcomes has probably been to publicise the importance of generic competences, which are not subject-based but are generic and transferable. One source of tension is that graduates, employers and academics frequently apply different rankings to skills, in terms of their importance⁴⁷.

Observations for this study:

- There is a variety of frameworks at EU level which address different groups in different ways – not all are structured around level descriptors, some are more functionally oriented than others and some broader and more descriptive. These frameworks provide a useful example of how context affects the content and the outcomes of aggregation, and poses interesting questions for national policy in terms of taking a ‘joined up’ approach to policy making and implementation concerning competences.
- The frameworks contain two different approaches: frameworks that serve for validation purposes identify reference levels and are linked to

⁴⁷ Leney, Gordon & Adam, (2008) op cit.

assessment systems (whether formal or through the validation of non-formal and informal learning). This is the case for EQF and the ECFR. The other type describes learning outcomes desired at the end of a period of learning or discernible in an individual's professional qualification. These competences are still under review in terms of how to measure them. This is the case for the framework of key competences, the teacher competences and the Tuning generic competences. They all contain elements of cross-curricular key competences whether or not they are made explicit.

- One issue arising from the above is how to link the first and second groups so that the cross-curricular key competences can be assessed within a framework providing progression and pathways.
- Concerning the content, one observation that can be made is that in the European frameworks above the need for students to 'understand about how one learns best', that is one's individual learning patterns and preferences, could usefully be further developed⁴⁸. Understanding one's own learning processes is an essential part for all students of learning how to learn, for becoming autonomous learners and hence for lifelong learning. Even though the Communication on improving the quality of teaching refers to the need for teachers to be able to help students take more responsibility for their own learning and the key competence framework includes under learning to learn developing the 'awareness of one's learning process and needs'. it may be useful to consider how to make the links more explicit. This is an example of the need to reinforce synergies between setting goals and developing curricula for the different levels and types of education and training.
- How far is there any alignment either in these frameworks or in competence frameworks developed in the Member States between the key competences for students (school and higher education) and for teachers? Is the notion of a 'key competence' the same for a student and for a teacher? This aspect will be further addressed in the chapter on teacher training.
- Is it possible in any of the education systems and policies to identify continuity between school and higher education in terms of how competences for the individual, and for life, work and citizenship are defined?

⁴⁸ O'Toole, L. (2008) *Understanding individual patterns of learning: Implications for the well-being of students*, in Education and Well-Being, European Journal of Education. 43(1) pp. 71-86.

2.4 What can we learn from other international examples?

Bearing in mind the issues raised in the above sections, this section turns to other international examples to examine their contribution to better understanding the cross-curricular key competences. The examples selected are the Unesco International Commission on Education for the Twenty-first Century chaired by Jacques Delors which produced the report: *Learning: the treasure within* in 1996 and the OECD Definition and Selection of Competences (DeSeCo) project which ran from 1997 to 2002.

2.4.1 Learning: The Treasure Within The purpose of education

‘A broad encompassing view of learning should aim to enable each individual to discover, unearth and enrich his or her creative potential, to reveal the treasure within each of us. This means going beyond an instrumental view of education as a process one submits to in order to achieve specific aims (in terms of skills, capacities or economic potential), to one that emphasises the development of the complete person...’

The Report of the International Commission, *Learning: the treasure within* (1996) encapsulates the rationale behind the development of outcomes-based approaches to education and training with a focus on competences (and/or skills). The conclusions are rooted in the observation that the multitude of changes due to the expanding possibilities offered by technology in almost all domains of our lives- as well as the pace of change and its consequences- have substantial implications on our lives. They are further compounded by the opportunities and overloads created by access to information. This means that education is faced with being able to ‘transmit, efficiently and on a massive scale an increasing amount of constantly evolving knowledge and know-how adapted to a knowledge-driven civilisation’ and to ‘find and mark the reference points that will make it possible for people not to be overwhelmed by the flows of information....and to keep the development of individuals and communities as its end in view’. The report goes on to say that: ‘each individual must be equipped to seize the learning opportunities throughout life, both to broaden her or his knowledge, skills and attitudes, and to adapt to a changing, complex and interdependent world.’⁴⁹

⁴⁹ Jacques Delors, *Learning: The Treasure Within*, Report to UNESCO of the International Commission on Education for the Twenty-first Century, UNESCO, 1996.

The report does not refer explicitly to a set of competences; rather it defines the need to organise learning around four pillars in order to meet these challenges: learning to know, learning to do, learning to live together and learning to be. Nevertheless, it is interesting to look at some of the elements contained within each of the pillars to understand, firstly, the aspects the Commission wished to highlight and, secondly, how this overall approach compares with the EU framework of key competences. The extracts below are intended to draw attention to aspects that are either present or absent in the EU framework of key competences.

Learning to know includes:

- Understanding ... enough about his or her environment to be able to live in dignity, to develop occupational skills and to communicate.
- The pleasure of understanding, knowing and discovering.
- Learning to know presupposes learning to learn, calling upon the power of concentration, memory and thought.

Learning to do includes:

- From skill to competence ... Instead of requiring a skill which they see as still too narrowly linked to the idea of practical know-how employers are seeking competence, a mix, specific to each individual of skill in the strict sense of the term, acquired through technical and vocational training, of social behaviour, of an aptitude for teamwork, and of initiative and a readiness to take risks.
- Among those qualities the ability to communicate with others, to manage and resolve conflicts is becoming increasingly important.
- It is not easy to envisage the content of training programmes that will produce the required abilities and aptitudes.
- How can people learn to cope effectively with uncertainty and to play a part in creating the future?
- To a certain extent the two pillars above could be compared to the more cognitive competences, more readily available through traditional approaches and more familiar to teachers. Learning to live together and learning to be (below) are closer to the cross-curricular key competences and in the same way present greater challenges to education systems. It will be seen in the policy chapter that the focus in these two pillars on the discovery of self and of others, the development of a sense of purpose and of the all-round development of the individual are not universally present in systems moving to competence based education approaches. They are clearest in those systems that exhibit a strong sense of mission and well-defined goals.

Learning to live together includes:

...education must take two complementary paths; on one level, the gradual discovery of others and on another, the experience of shared purposes throughout life which seems to be an effective way of avoiding or resolving latent conflicts. School must first help them [children and young people] discover who they are.

Learning to be includes:

... education must contribute to the all-round development of each individual – mind and body, intelligence, sensitivity, aesthetic sense, personal responsibility and spiritual values.

All human being must be enabled to develop independent, critical thinking and form their own judgement...

What observations can be made?

- Many of the attributes or elements found in the EU Key Competences framework are embedded in the 4 pillars.
- The reference to learning addressing the whole individual is important, as is also the sense of shared purpose and discovery of self. One question to ask of education reforms introducing a ‘key competence’ type approach is the extent to which they encompass the notion of human development or focus on a more utilitarian set of competences.
- Learning in this report is also about living in dignity and the importance of the social and emotional intelligences.
- The focus is on the all-round individual who can cope with the uncertainties and challenges of the future and is equipped to continue learning.
- Competence is seen as more evolved and more complex than skill. Abilities and aptitudes are linked to and are products of the learning process. This is in line with the definitions examined earlier in this chapter.
- In addition to a traditional notion of skill, competence is clearly seen to include, social behaviours, teamwork, a sense of initiative and a readiness to take risk. In comparison in the EU definition of competence in the EQF level descriptors, competence is described as level of responsibility and autonomy. They are however included in the entrepreneurship cross-curricular key competence in the key competence framework.

In this seminal report from UNESCO there are perhaps two interdependent notions running through all four pillars: the development of the whole individual and the development of competence as an attribute of the individual. It is interesting at

this stage to take a look at examples of different notions that can be contained in ‘competence’, presented in the Inset 2.4.

Inset 2.4. Different notions of ‘competence’

1. UNESCO: competence is more **complex** than skills and includes, in addition to a traditional notion of skill, the elements of social behaviours, teamwork, a sense of initiative and a readiness to take risk. It appears to refer to the whole person.
2. The element of **context** is important. That includes a variety of factors that determine the concepts, terminology and policies defined. There is also the context within which a competence is actively demonstrated, as well as the evolving characteristics of the context and the issue of whether the person is able to adapt to stable, recurring situations as well as the unexpected and changing situations. (We will come back to that in the next section on the DeSeCo project.)
3. Depending on the national context competence used in an occupational context may or may not contain elements of **personal and social qualities** as well as the knowledge and skills. Some national distinctions are illustrated in the Inset 2.1 drawing on the work of Clarke, Brockmann and Wynch⁵⁰.
4. In EQF for competence the reference levels indicate the levels of **autonomy** and **accountability** but not risk taking (as in the UNESCO report), though this is part of the EU framework of key competences (entrepreneurship).
5. The definition of competence and its content varies not only among countries but even within a country, depending on whether the usage is for general education or VET. Approaches to identifying competences for the education system and the way they are combined results in rather different ‘profiles’ in general education and in VET. These differences have had significant implications for example in the discussions about the transparency of qualifications over the last two decades. Whether the learning outcomes approach of the EQF resolves these debates will be assessed as practice advances.

These elements will all be illustrated in the following chapters on the policy and the different aspects of implementation (including school practice and assessment). Firstly, the next section looks at the outcomes of the DeSeCo project that made a major contribution to thinking and to R&D on competence development in European countries.

⁵⁰ This insert, produced for the Cedefop Learning Outcomes report (2008), is drawn from the work of the UK Nuffield Foundation Project *Cross-National Equivalence of Qualifications and Skills*, led by Linda Clarke (University of Westminster, London) and Chris Winch (King's College, London), with the participation of experts in UK, France, Germany and The Netherlands. <http://www.kcl.ac.uk/schools/sspp/education/research/projects/eurvoc.html>.

2.4.2 DeSeCo – What are key competencies?

The DeSeCo project carried out by OECD in the period from 1997 to 2002 was probably the most impressive international study ever undertaken on competence. It provides a very useful reference point for this study. The project was launched with the aim of providing a sound conceptual framework to inform the identification of key competences and strengthen international surveys measuring the competence level of young people and adults. It was also the theoretical preparation for PISA. For the DeSeCo project, each key competency must:

- Contribute to valued outcomes for societies and individuals;
- Help individuals meet important demands in a wide variety of contexts;
- Be important not just for specialists, but for all individuals⁵¹.

In defining the aim of key competencies as contributing to a successful life for individuals and a well-functioning society, the project was examining the psychosocial prerequisites in terms of the demands that today's society places on its citizens. This means: what do they need to function well in society, keep employment, cope with technology and also *'competence is ... an important factor in the ways that individuals help to shape the world, not just to cope with it. Thus, as well as relating to key features and demands of modern life, competencies are also determined by the nature of our goals, both as individuals and as a society'*⁵². In summary, the project considered *'that individuals should be able to achieve their potential and that they should respect others and contribute to producing an equitable society'*⁵³.

The project carried out under the coordination of Switzerland was linked to the development of the PISA assessments. It brought together experts from 18 countries, 12 of which contributed country reports that constitute the data for the summary report. The European countries were Austria, Belgium (Fl), Denmark, Finland, France, Germany, Netherlands, Norway, Sweden, Switzerland. New Zealand and the USA were also included. We will see in later chapters the different types of influences that participation in this project had on the development of competence frameworks in the different countries of the EU (on the content, the process of implementation, etc.).

The experts came from a wide range of disciplines to work with the stakeholders and policy analysts to produce a framework. An important point to note for this study is that the project acknowledged the 'diversity in values and priori-

⁵¹ *The definition and selection of key competences: Executive Summary*, OECD, 2005.

⁵² *ibid.*

⁵³ *ibid.*

ties, across countries and culture, yet also identified universal challenges of the global economy and culture as well as common values that inform the selection of the most important competences.⁵⁴ The report, written by Uri Peter Trier in 2001 as a summary and analysis of the contributions of the 12 countries involved in the project⁵⁵, explores a number of issues that are important for this study. Moreover, since the study started 10 years ago, it means that most of the material looked at developments in the 1990s, thus providing a most interesting background to this current study.

The findings of the DeSeCo study raised a number of major issues. Firstly, this project's conceptual framework for key competencies classified them in three broad categories:

1. Ability to use a wide range of tools for interacting effectively with the environment and to understand them such tools well enough to adapt them for their own purposes;
2. In an increasingly interdependent world, individuals needed to be able to engage with others and to interact in heterogeneous groups; and
3. Individuals needed to be able to take responsibility for managing their own lives, situate their lives in the broader social context and act autonomously.

It suggested that reforms introducing a competence-based approach tend to fall into three main categories:

- Curriculum development which remains a pedagogical strategy to improve schools;
- Reforms that are embedded in broad national efforts of societal renewal;
- Reforms designed to maintain or improve the national competitiveness in an increasingly global economy.

The report underlined and illustrated the very different approaches in different countries. One major emphasis of the DeSeCo study is the importance of context, which includes the differences among national systems, but also the different types or levels of education, as well as the definition of competences by the economic sectors. Some examples are included below to illustrate the range of approaches developed during the 1990s in general education. The term, in this context, is used to mean 'essential competences in demand in individual, social, political, eco-

⁵⁴ *The Definition and Selection of Key Competences: Executive Summary*, OECD, 2004.

⁵⁵ Uri Peter Trier, University of Neuchâtel, on behalf of the Swiss Federal Statistical Office, *12 Countries Contributing to DeSeCo – A Summary Report*, OECD, October 2001. The full project publication was: D.S. Rychen and L.H. Salganik (eds.), *Key competencies for a successful life and a well-functioning society*, OECD, 2003.

conomic and cultural contexts'. In practice, a variety of terms was being used: essential or core knowledge, skills, learning or attainment goals, qualifications, etc.

One of the issues posed by differing contexts is that of general versus domain-specific competences. This is an issue that is central to the concerns of this study in examining how cross-curricular key competences are described and implemented in different systems. The authors also posed the question as to whether key competences were in demand in general education to the extent and in the same way as in vocational education and training. It would appear that this question is less relevant 10 years on with an increasing concern to underpin general education by a foundation of competences. Further issues raised concern the aggregation of competences and the fact that competences are neither static nor universal, nor is the competence (qualification) of the individual.

Three illustrations of 'context' taken from the DeSeCo report are presented below: different country approaches; differences between the education and economic sectors; and different weightings.

Context 1: Illustrations of different country approaches – 'historical' perspective – the 1990s

As can be seen in the table below, approaches in the 1990s demonstrated significant differences. On the one hand, the Norwegian education system emphasised characteristics of the learner as a human being, while, in Austria, the curriculum of 1999 which was designed to be 'personally driven' was organised by theme. The German learning objectives for the *Arbitur* were not dissimilar to elements contained in the current EU Key Competences framework even though they were organised differently. Finally, the example of Sweden illustrates the continuity to the current period putting a focus on objectives or goals.

Insert 2.5. Different country approaches – the 1990s

Germany: the <i>Arbitur</i>	Revisions in the period between 1995–2000 emphasised: understanding the structure of knowledge: <ul style="list-style-type: none"> – Self-directed learning – Reflecting on one's own learning – Thinking, judging and action – Metacognitive evaluation of one's own capacities – Cognitive flexibility and creativity – Concentration, precision and perseverance – Understanding basic social, economical, political and technological perspectives – Ability to apply knowledge in different contexts – Communicative competence – Ability to cooperate in teams – Ability to take decisions
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Norway:	<p>In the core curriculum for primary, secondary and adult education (1997) the chapters of the curriculum were organised around the following headings:</p> <ul style="list-style-type: none"> – The spiritual human being – The creative human being – The working human being – The liberally-educated human being – The social human being
Sweden:	<p>Learning objectives in schools (1992):</p> <ul style="list-style-type: none"> – The constructive aspect of knowledge is not a mirror on the world but a way of making the world understandable – The contextual aspect of knowledge is dependent on context – The functional aspect of knowledge is a tool <p>Competency areas to be developed in schools (1999):</p> <ul style="list-style-type: none"> – To see connections and be able to find one's way in the outside world – To make conscious ethical decisions – To understand and apply democracy – Creative ability and communicative skills
Austria:	<p>The 1999 curriculum aimed at enhancing 'personality driven' competencies and reinforcing a 'real-life' orientation without given up the existing science orientation. It defined five educational areas with the aim of constituting a framework that would encourage a closer interrelation between the subjects of teaching as well as a basis for cross-disciplinary and interdisciplinary cooperation:</p> <ul style="list-style-type: none"> – Language and communication – Mankind and society – Nature and technology – Creativity and design – Health and physical ability.

Context II: Illustration of the emphasis placed on key competencies by the education and economic sectors⁵⁶

The weightings illustrate continuity in the major orientations of the school education system as compared with the economic sector. In terms of preparing young people for work this discrepancy illustrates nicely one of the regular dilemmas of school systems – how to reconcile in one set of competences what is considered essential for the development of the individual and what is required by employers. One of the issues for this study is the extent to which the introduction of key competences into the curriculum begins to resolve this dilemma and which key competences need to be emphasised. This has been an on-going debate among education stakeholders for many years.

⁵⁶ *ibid.*

Insert 2.6.

Both education and the economy	Higher weighting in education	Higher weighting in economy
Self-management in general	Autonomous learning, meta-cognitive competencies	Action orientation, responsibility, taking decisions and risks
		Resource management, planning, shaping the workplace, management of time, assessing the impact and effectiveness of action, flexibility
Communicative competencies in general	Linguistic competencies, foreign languages, cultural identity, intercultural competencies, media competence	IT competencies, presentation capabilities, internationalization
Learning competencies in general	Learning in domain specific settings, mastering of learning strategies, meta-learning and reflection, evaluative skills	Lifelong learning, motivation to learn, methodological skills, applying knowledge, putting learning into context in the workplace
Social competencies in general / Team-working /Co-operation	Social comprehension, Positive social attitude,	Interpersonal competencies, Working in teams, Co-operating and negotiating, resolving conflicts
Value orientation	Ethics, Social and democratic values, tolerance, awareness of human rights ⁶⁰	Personal virtues: integrity, reliability, loyalty, honesty
Creativity (medium weight in both sectors)	Aesthetic education, expression (medium weighting)	Innovation and change, entrepreneurship,
Health, physical skills, attitude to body (medium weighting)	Physical education	Risk behaviour, resilience
Ecological orientation	Attitudes to natural environment	Ecological responsibility at the workplace

Context III: Aggregation and weightings

The DeSeCo report aggregates two different groups of competences, distinguishing those that were always prominent in the country contributions from those that were less unanimously reported.

The ‘big issues’ always present are:

- Social competencies/cooperation

- Literacies/ Intelligent and applicable knowledge
- Learning competence/ lifelong learning
- Communication competencies

Less present:

- Value orientation
- Self-competence/self management
- Political competence/democracy
- Ecological competence/relationship to nature
- Cultural competence (aesthetic, creativity, intercultural, media)
- Health, sports, physical competence

The relative frequency of mentions in country reports is summarised in the following table (see Insert 2.7)⁵⁷.

Insert 2.7. Mentions of competences in DeSeCo country reports

HIGH	MEDIUM	LOW
Social competencies /Cooperation	Value orientation	Cultural competencies (aesthetic, creative, intercultural, media)
Literacies / Intelligent and applicable knowledge	Self -competence /Self management	Health / Sports /Physical Competence
Learning competencies / Lifelong learning	Political competence /Democracy	
Communication competencies	Ecological competence, Relation to Nature	

If we look at this table in comparison to the EU framework, we note that all the competencies listed in the DeSeCo report as ‘high frequency’ appear in the current key competences framework, whereas the medium and low frequency entries are not all included. This raises an interesting question about the process of developing a set of key competences that is acceptable to all the Member States and whether the tendency may be to agree on the lowest common denominator. It poses the issue of how the open method of coordination stimulates member state representatives through the working groups to propose goals to be attained by all the systems (albeit each in their own specific manner) over a certain period of time. In some cases the benchmarks, for example, create a high objective that can only be achieved over a period of time. It would appear that this presumably would be the case for cross-curricular key competences also. This will be further

⁵⁷ *ibid.*

explored in subsequent chapters in examining in detail the policies and implementation strategies and practice in the Member States.

Major issues and questions arising for the present study:

The DeSeCo summary report is very rich in illustrations and draws out a broad range of issues that set the scene for further examination and work at policy and implementation levels. It is not the intention here to summarise that richness but to highlight issues that can affect the analysis of the data collected on the 27 Member States for the present study. Those that stand out are:

1. The issues presented above pose the question of whether it is possible to identify ‘universal’ key competences or whether context is always too significant a factor in the interpretation into practice.
2. In the last decade, key competences have been discussed in an increasingly explicit way when developing school curricula (both general education and also vocational education and training) as well as for higher education under the Bologna process and in adult education and training. To what extent are there strong common elements transversal to all sub-sectors of education and training or again is the context of the sub-sector a determining factor?
3. Assigning more weight in the teaching and learning processes to cross-curricular competences poses problems in relation to teachers’ attitudes and capacities. Both challenges should be addressed in teacher training.
4. According to the study, key competences in education should be conceptualised as dynamic entities that take into account differing and changing contexts (home, peers, leisure activities, neighbourhoods, jobs, etc.) outside the formal education system. This is one of the challenges of EQF – to be able to do so in lifelong and life-wide learning settings.

The final question for this study is whether the aspects that the DeSeCo reports considered absolutely essential almost 10 years ago have changed? In the end the project concluded more on a series of process issues than content: the dialogue between research and policy, the debate between universal competences and context; the dialogue among the different actors, etc., all of which remain essential and active components of the shift to approaches in school systems that aim to build on a foundation of cross-curricular key competences.

2.5 Further conceptual and research approaches and issues

This section introduces two other sets of issues arising from specific research approaches. The first comes from the recent research on the brain and the learning sciences. The second calls on selected elements of the research, development and discussions around a range of approaches referred to by terms such as ‘personalised’ education, person-centred education, integrated education, etc. which present some shared facets. The section aims to very briefly draw attention to the debates around new research and the learning sciences and the broader discussions around the need for education systems to be able to create learning environments that result in deeper understanding. In an interesting article on *The Contribution by Alternative Education*, Anne Sliwka quotes the work by R.K. Sawyer exploring the evidence that deep conceptual understandings of complex concepts and the ability to work with them requires complex social settings ‘enabling processes that involve learners, tools and other people in the environment in activities in which knowledge is being applied’⁵⁸. The discussions referred to earlier in this chapter about what set of (cross-curricular) key competences can underpin lifelong and life-wide learning all emphasise the complexity of the challenges of the 21st century, of the contexts and the need for an adequate response. This emphasis on deeper learning through creating complex settings and processes structured around a learner-centred and whole school approach is well illustrated in the examples below. But firstly what issues are raised by recent research on the brain and learning?

2.5.1 Brain research and learning

A major scientific development in recent years that is contributing to understanding more about learning is brain imaging which is opening up the possibilities of linking neuroscience research with research on how we learn. It is important for this type of European study to focus not only on what is taking place in the Member States and partner countries in terms of new policy and curriculum development, but also on some of the changes in the field of learning that are re-shaping our understanding of how learning takes place. The question is whether there are useful indications for the further development of outcomes-based systems.

⁵⁸ Sliwka A., *The Contribution of Alternative Education*, in *Innovating to Learn, Learning to Innovate*, OECD Publishing, 2008.

In 2007, OECD published its second book about brain research and learning, **Understanding the Brain: the Birth of a Learning Science**⁵⁹. It is a synthesis of the results of seven years of trans-disciplinary research, studies and seminars led by the OECD Centre for Educational Research and Innovation (CERI) in cooperation with teams of scientists, experts, research centres and ministries from a number of countries across the world. The project that started in 1999 set out to encourage collaboration between the learning sciences and brain research and also between researchers and policy-makers. The result is a fascinating set of observations, questions and pointers which begin to open up some new areas of reflection for education policy design and practice, and to supply evidence to support some very familiar notions about learning, while neatly refuting others. One of the nicer outcomes of recent research has to demonstrate the validity, on the basis of evidence drawn from brain research, of observations some teachers have always held to be true, for example children who are unhappy or hungry cannot learn as well or as effectively, fear does not stimulate learning, etc. Thus, the cumulated wisdom of educators is, in some cases, being verified.

In recent years, brain-imaging technologies have made it increasingly possible to observe the working brain. The resulting research provides helpful insights into perceptual, cognitive and emotional functions that contribute to our understanding of the processes of learning and could help in structuring nurturing learning environments for people of all ages. The plasticity of the brain and ‘sensitive’ (rather than ‘critical’) periods for learning are two key messages of the research. Research also shows that, though there are no ‘critical’ periods for specific types of learning, there are ‘sensitive’ periods. Thus, scientists have documented sensitive periods for certain types of sensory stimuli such as vision and speech sounds or for emotional and cognitive experiences (e.g. language exposure) but also other mental skills such as vocabulary acquisition that do not appear to pass through sensitive periods. Another key message is therefore that learning really is a lifelong activity and the more it continues the more effective it is. Their findings suggest that nurturing is crucial to the learning process and are beginning to provide indications of appropriate learning environments. Not only does this mean the quality of the overall environment but also the importance of focusing on minds and bodies together. Holistic approaches recognising the close interdependence of physical and intellectual well-being and the close interplay of the emotional and the cognitive enforce the possibilities of taking advantage of the brain’s plasticity, facilitating the learning process⁶⁰.

⁵⁹ http://www.oecd.org/document/60/0,3343,en_2649_33723_38811388_1_1_1_1,00.html.

⁶⁰ OECD, op. cit.

It has long been thought intuitively that emotions have an effect on learning. Brain research is demonstrating that they have a real effect, including on the neural tissue. The power of positive emotions and the pleasure of learning can be seen in so far as brain imaging shows that the brain reacts well to the illumination that comes with grasping new concepts! Similarly managing one's emotions has often been felt to be a key skill for functioning in society. Research shows (something that many teachers observed) that emotions can direct or disrupt the psychological processes such as ability to focus, to solve problems and so are one of the key skills to being an effective learner⁶¹. In their article, 'We Feel Therefore We Learn: The Relevance of Affective and Social Neuroscience to Education', Mary Helen Immordino-Yang and Antonio Damasio explore how the connections between emotion, social functioning and decision-making have the potential to 'revolutionize our understanding of the role of affect in education. The authors emphasise that recent findings underscore 'the critical role of emotion in bringing previously acquired knowledge to inform real-world decision-making in social contexts, they suggest the intriguing possibility that emotional processes are required for the skills and knowledge acquired in school to transfer to novel situations and real life'. They conclude by saying that when 'we educators fail to appreciate the importance of students' emotions, we fail to appreciate a critical force in students' learning.'⁶²

Observations:

1. The notion of sensitive periods for learning may have an influence on decision about which competences to develop at what age or rather how to develop them at different ages.
2. There appears to be a need for the range of key competences to address the development of the whole person to support learning which reflects the four pillars of UNESCO.
3. There is an interesting question about what types of pedagogies are relevant for key competences that take account of the different learning processes young people have and therefore addresses the issue of how to evolve teacher education and training in line with the introduction of cross-curricular key competences into the curriculum.

⁶¹ See also Goleman D., *Emotional Intelligence. Why it can matter more than IQ*, Bloomsbury, 1996. and *Social Intelligence, the revolutionary new science of human relationships*, Bantam Book, 2007.

⁶² Immordino-Yang, M.H. & Damasio, A (2007) *We Feel Therefore We Learn: The Relevance of Affective and Social Neuroscience to Education*, Mind Brain and Education, 1 (1), 3-10.

2.5.2 Personalising learning and person-centred learning

The intent here is not to open up the discussion about the large body of research and policy analysis around the concept of the personalisation of education, individualisation, person-centred education, etc., but to see which aspects can help our understanding about key competences in education policy and practice in the EU Member States. The interesting element of all the work on ‘personalising’ education is the emphasis it places on processes.

To a large extent, in defining a set of key competences, like most of the Member States that have undertaken similar or parallel exercises, the focus tends to be on agreeing the content, that is a list of key or core or essential or basic skills or competences to be taught, learned and assessed. Other approaches emphasise process over content. Thus for example it is interesting to look at the work of David Hargreaves and colleagues working with the iNet project and the Specialist Schools and Academies Trust in the UK and with their partners in many other countries (e.g. the Netherlands and Sweden in the EU), which focuses on system redesign as a path to educational transformation. They define their challenge as ‘getting schools from mass production to mass customisation’⁶³ with the aim that more of the educational needs of more of the students are met more fully than ever before.

iNet (International Networking for Educational Transformation) works with schools and organisations to transform education through the sharing of best practice and innovation in nearly 40 countries in Africa, Europe, North and South America and Asia Pacific⁶⁴. Their work is based on the observation that over the past decade there has been a shift in emphasis in many schools from teaching towards learning and therefore ‘excellent teaching must be complemented by excellent learning’ which they consider leaves the profession with the questions: how do we secure the move from teaching to learning? And then from learning to the deep learning that will equip students for the 21st century world of work? These questions echo clearly the concern of this study though their focus is on learning in general rather than specifically on key competences.

The concept of ‘personalising learning’ is founded on the belief that only a fundamentally child-centred approach can ensure genuine equity and excellence in education. iNet defines its mission as to create powerful and innovative networks

⁶³ Hargreaves D., *System Redesign: a path to educational transformation*. Presentation to the Redes de Innovacion, Madrid, Feb. 2008; and *Personalising learning – 2, Student voice and assessment for learning*, iNet, 2004.

⁶⁴ The summary of the work undertaken by iNet is mainly taken from the website and publications on the site: <http://www.ssat-inet.net>.

of schools that have achieved or have committed themselves to achieving systematic, significant and sustained change that ensures outstanding outcomes for all students in all settings. The research team has identified and developed what it calls ‘nine gateways’, clustered into four areas through which a school may successfully explore personalising learning. They are:

- Deep Learning (assessment for learning, student voice, learning to learn)
- Deep support (mentoring & coaching; advice & guidance)
- Deep experience (new technologies, curriculum)
- Deep leadership (design and organisation; workforce reform)

According to their definition, a learner experiencing ‘deep learning’ through personalisation of the learning is defined as:

‘An articulate, autonomous but collaborative learner, with high meta-cognitive control and the generic skills of learning, gained through engaging educational experiences with enriched opportunities and challenges, and supported by various people, materials and ICT linked to general well-being but crucially focused on learning, in schools whose culture and structures sustain the continuous co-construction of education through shared leadership.’⁶⁵

The term ‘deep learning’ was first used in the 1980s by researchers such as Noel Entwistle whose work on how HE students learn distinguished between what they termed ‘deep’ and ‘surface’ learning as set out below⁶⁶: In a short paper called ‘Creating the Future’⁶⁷ Entwistle summarises his research on the different factors that affect learning and the outcomes in terms of the learning accomplished. Referring to research by Saljo 1979 and Beaty, Dall’Alba & Marton 1990⁶⁸ he presents some different conceptions of learning:

1. Increasing one’s knowledge
2. Memorising and reproducing – reproducing
3. Utilizing facts and procedures

⁶⁵ Sims E., *Deep learning – A new shape for schooling?* iNet and Specialist School Trust, October 2006.

⁶⁶ Entwistle N., *Learning and studying; contrasts and influences*, in *Creating the Future: Perspectives on Educational Change*, Compiled and edited by Dee Dickinson, New Horizons for Learning, 1991, http://www.newhorizons.org/future/Creating_the_Future/crfut_frontend.html.

⁶⁷ Entwistle op cit

⁶⁸ Säljö R. (1979) *Learning in the Learner's Perspective: some commonplace misconceptions, Reports from the Institute of Education*, University of Gothenburg; and Beaty, E., Dall’Alba, G. & Marton, F. (1990) *Conceptions of Academic Learning*. Occasional Paper 90.4, ERADU, RMIT.

4. Developing an initial understanding – transforming
5. Transforming one's understanding
6. Changing a person.

This led to an exploration of the situations in which 'deep' learning takes place and those in which the learning remains on the surface. They defined the deep approach as:

- Intention: to understand ideas for yourself
- Relating idea to previous knowledge and experience
- Looking for patterns and underlying principles
- Checking evidence and relating it to conclusions
- Examining logic and argument cautiously and critically
- Becoming actively interested in course content.

They defined the surface approach as:

- Intention: to cope with course requirements
- Studying without reflecting on purpose or strategy
- Treating the course as unrelated bits of knowledge
- Memorising facts and procedures routinely
- Finding difficulty in making sense of new ideas presented
- Feeling undue pressure and worry about work.

This distinction has clear echoes with the debate about moving from input, subject-based approaches to the curriculum in systems in which the students are under pressure to succeed in their exams towards systems that focus on learning outcomes, critical thinking, learning to learn, etc.

Other researchers, such as Michel Fielding, maintain that: 'education must be person-centred, democratic and aim at the flourishing of each individual as a human being'⁶⁹. They focus on a concept of transformative education that draws on the approaches of the constructionists/social constructionists. Fielding also refers to the legacy of John Dewey's concept of experiential learning in emphasising the importance of the social process, in so far as the learning environment involves both collaborative and human relations as well as addressing the individual needs. Constructivism underlines the process of the learners actively building new ideas or concepts based on their current and past experience⁷⁰. This child- or human-

⁶⁹ Quoted in: Gill S., *Towards a Common Vision for Education. Developing the Concept of Human-Centred Education*, Report of the GHFP Conference on Human Centred Education, Guerrand-Hermès Foundation for Peace, 2005. www.human-edu.net.

⁷⁰ Gill (2005) *ibid*.

centred approach is nicely illustrated by Berit Bergström, a former teacher, head teacher and teacher trainer in Sweden, in her book about using the Human Dynamics approach in education. She asks a fundamental question. It is not about what may be wrong with a child who's having problems learning, but what in the teaching approach may be preventing that child from learning by not taking account of his/her learning processes and needs?⁷¹

Observations for this study:

These more process-oriented approaches add a dimension to the discussion about the introduction and implementation of competence-based approaches and in particular of cross-curricular key competences into European education systems. The development work has tended to be built around the identification of and agreement on a set of competences deemed to be essential for meeting the challenges of the 21st century. However the devil, as ever, being in the detail, the less attention may have been paid to the process of implementation and the implications for the whole school system not just for teacher training but for school leadership, organisation, management, etc. These aspects are further examined in the chapters on school practice, assessment and teacher training.

2.6 What are the major issues for the study raised by the different frameworks and literature?

This section pulls together the issues raised in the earlier sections of this chapter, which inform the analysis of the data collected on the Member States for the study. A number of questions arise from this review of literature and approaches that will be addressed in the analysis of the findings:

Sector-specific or system-wide: In the last decade, key competences have been discussed in an increasingly explicit way when developing school curricula (both for general education and for vocational education and training) as well as for higher education under the Bologna process and in adult education and training. To what extent are there common elements which are transversal to all sub-sectors of education and training, or is the context (type, population, level) of learning a determining factor? In terms of policy and the different aspects of practice and implementation, is it different for key competences in general and for cross-curricular key competences in particular?

⁷¹ B. Bergström, *Every Child has Specific Needs*, Runa Förlag, 2004.

Goals and purposes: Is it possible to reach a good level of understanding about the differences in goals and purposes that come into play when countries are developing a set of cross curricular key competences or key skills?

- To what extent are (cross-curricular) key competences defined with a purpose of contributing to: personal development, citizenship, lifelong learning and employability?
- What do the data tell us in terms of the direction in which the trends are moving?
- There appear to be a number of different types of motivation. To what extent do they influence the forms of implementation? Even within the notion of competence, differences could be substantial. And a similar 'content' may be labelled differently in different systems or approaches.

Aggregation: Is it possible through the data available to obtain an understanding of how countries aggregate and classify competences or skills to obtain a 'set'?

Development and implementation:

- How much do the data tell us about the ways in which countries have developed their sets of competences, key competences, core skills etc? Is it by research, borrowing from other systems, or discussion with social partners or other stakeholders? Is it through international comparison?
- What understanding do we have of the types of choices made in terms of putting together a set of competences deemed essential for the 21st century?
- To what extent is it possible to identify 'universal' key competences or is the balance with context always a very significant factor?
- Can a single approach to cross-curricula key competences work uniformly across the relevant sub-sectors of education? Do we have any examples?
- Brain research suggests that there are 'sensitive periods' for learning. Could this information be used to refine the ways in which decisions are made about how to develop competences most effectively at different ages?
- How do countries deal with the evolution of competence over a period of time and through different learning experiences? Apart from through a national qualifications framework and reference levels, are there any other examples?
- There is a large body of research emphasising the importance that the range of key competences implemented in school education addresses

the development of the whole person in order to support learning. Do the data indicate that this is being taken into account in policy and practice?

Understanding how one learns most effectively: One observation that can be made is that in the European frameworks presented above, the need for students to ‘understand about how one learns best’, that is one’s individual learning patterns and preferences, could usefully be further developed⁷². Understanding your own learning processes is an essential part of learning how to learn, for becoming an autonomous learner and hence for lifelong learning. Even though the Communication on the quality of teaching refers to the need for teachers to be able to help students take more responsibility for their own learning and be more autonomous, and the framework of key competences includes gaining ‘awareness of one’s learning process and needs’, it may be useful to consider how to make the links more explicit. This is an example of the need to reinforce synergies between setting goals and developing curricula for the different levels and types of education and training.

Links and synergies: A further set of issues concerns the links among the frameworks:

- How far is there any alignment either in these frameworks or in competence frameworks developed in the Member States between the key competences for students (school and higher education) and for teachers? Continuity across the different levels and types of provision does not appear to be a major concern or element of policy. This could have a substantial effect on the definition of a set of cross-curricular key competences.
- Is it possible to detect continuity in any of the systems between school and higher education in terms of how the cross-curricular key competences for the individual, for life, work and citizenship are defined?
- Is the notion of a ‘key competence’ the same for a student and for a teacher?

Gaps: A few elements are missing in the frameworks presented in terms of cross-curricular competences:

- It appears that to date, development work has tended to focus on the identification of and agreement on a set of competences deemed to be essential for meeting the challenges of the 21st century. However, as ever the devil is in the detail and less attention may have been paid in the

⁷² O’Toole, L. (2008) *Understanding individual patterns of learning: Implications for the well-being of students*, in Education and Well-Being, European Journal of Education. 43(1) pp. 71-86.

Member States to the process of implementation including the implications for the whole school system (and whole school approaches), for teacher training, school leadership, organisation, management, etc.

- There is little reference to the need to develop a sense of self and of understanding of self. The main references are the interpersonal skills/competences with a strong emphasis on interactions with others, social aspects, etc.
- Few of the definitions and usages refer to values, to the values with which children and young people will relate to each other and to the world around them.
- The relationship to the environment in both senses: the wider world around and issues of the survival of the planet.
- The capacity to make choices, to prioritise, to distinguish between the most essential and the less essential.
- Few countries refer to health or well-being. Research about the type of learning environment in which children and young people thrive and develop shows the importance of factors such as feeling safe, being able to develop a sense of self and belonging and having a sense of agency⁷³. All these factors are considered to contribute to the capacity of children to learn. It is not clear whether Member States, in developing their own approaches to competence, refer to this body of research.

A final set of issues concerns the education system as a whole and the place of curriculum change within it. Defining the content of a set of key competences may be the easier part. Implementing and developing the adequate processes that enable it to take place are dependent on the definition of a strategy and more resource. One of the questions that will be asked of the country data is whether there is a sufficient level of coordination between the definition of the key competences and all the other changes needed (pedagogy, school organisation, assessment practice)? It is tempting to conclude that each constituency (and sub-sector) of the education community develops their separate approach, but few systems appear to have an overarching approach for education with defined goals on which the competences are built. This will be further analysed in the subsequent chapters.

⁷³ Fattore T., Mason J. & Watson E., *When Children are Asked about Their Well-being: Towards a Framework for Guiding Policy*, Child Indicators Research, vol. 2, number 1, March 2009.

PART II: Policy and Implementation

3 Policies and Implementation Approaches

3.1 Introduction

This chapter examines the policies that countries have formulated concerning cross-curricular key competences. As a consequence of the variations in terminology used in the theoretical literature and in practice, the formal formulation of policy objectives as well as the meaning and content put behind them are somewhat different among the Member States. In addition, they may vary according to the level (primary, lower or upper secondary) and the type (general or VET) of education. The EU Member States do not necessarily refer to ‘key competences’ or ‘cross-curricular key competences’ as such, but most of them now are formulating and at least beginning to implement similar concepts, such as basic competences or competencies, core skills, key skills, ‘*socle commun*’, etc.

Moreover, making a clear distinction at policy level between what is meant by key competences in general and by cross-curricular key competences is not always obvious; there can be much overlap. These distinctions can only be observed in the implementation within schools and in teacher training, rather than in declarations of intention. This chapter includes all the concepts used and seeks to illuminate the realities they cover.

Another caveat concerns the use of the term ‘policy’. It is frequently used to designate a specific statement about a basic set of principles, with associated guidelines and tools, by which a government will be guided within its declared objectives and within the larger context of its medium/long term goals. Policy is therefore usually supposed to be a set of coherent decisions with a longer term purpose formulated by government to be implemented under its responsibility. In examining the ‘policies’ of the different Member States, it is clear that their status may be quite different depending on the country. The range goes from the most formal statements prescribed in law to curriculum policy descriptions, which can be non-statutory and simple recommendations.

A policy in the broad sense includes formulation of objectives, strategic communication on these objectives and their rationale, implementation schemes, teachers’ and school-leaders’ training programmes and evaluation tools. In this chapter, we will focus first on the formulation of objectives and their rationale and

then on implementation schemes. We will look firstly at whether or not all countries have formulated a specific policy in the area which concerns this study and then describe the main characteristics of those policies (in particular whether or not they cover just one level/type of education or are transversal to the system). The main scope is policy concerning school education. The next section presents the goals and purposes of the different policies and proposes a typology. The following section proposes some issues arising from this presentation and the last section examines the different types of implementation schemes.

3.2 Do all countries have a specific policy in this area?

Most of the EU Member States are formulating and at least beginning to implement policies that move their school systems from being predominantly input led and subject-oriented towards curricula which include competences, cross-curricular activities, active and individual learning, as well as a focus on learning outcomes.

3.2.1 What notions are used in the formulation of policies among the Member States?

The acquisition of key competences by every young person is one of the long term objectives of the *Updated strategic framework for European cooperation*⁷⁴. The focus is on acquiring learning outcomes for professional and private life in a perspective of lifelong and life-wide learning. Emphasis is placed on the quality of teachers and on the autonomy of schools which should be open to civil society and enterprises and put in place appropriate approaches to quality assurance.

For the countries that specifically used the term ‘**competences**’, there is, firstly, general agreement that it is about the application of knowledge and skills and secondly that it includes knowledge, skills and attitudes. In Portugal, competence relates to the integrated development of skills and attitudes conducive to the use of knowledge in different situations (familiar or unexpected). That is the third aspect included in definitions. Furthermore, in Portugal the notion of *Competências essenciais* (essential competencies) refers to the body of general and subject specific knowledge that is considered indispensable for all citizens in today’s society. In

⁷⁴ Op. cit.

particular, it is essential to identify the knowledge which enables pupils to develop their understanding of the nature of each subject and its processes, as well as a positive attitude towards intellectual activity and the practical work it entails. In the Maltese system, ‘competence’ is the proven capacity to use knowledge, skills and other abilities to perform a function against a given standard in work or study situations and in professional and/or personal development. This definition introduces a fourth notion, that of a standard to be reached. In Italy, knowledge and abilities are defined that each pupil will turn into personal competences with the help of the school. They are indicated for each subject and cycles of primary education. This is perhaps a fifth aspect that competence is an individual quality.

The notion of **key competences** (AT, BG, CY, CZ, DK, LT, MT, NL, RO, SK, SI) generally refers to subject-independent competences which are seen as providing a ‘core’ or basic set (as in Spain) or a foundation or a base (as in Belgium-Fr, France and Luxembourg with the ‘*socle*’ of competences). In France the ‘*socle*’ defined for compulsory education includes both subject based and cross-curricular aspects. The French ‘*socle*’ emphasises that it is the basis on which lifelong learning can be constructed which is an important element in terms of the purpose of the reforms and in line with the EU policy thrust. The Danish example of the definition of key competences is interesting, as it makes explicit their role ‘acting as axes of rotation, activating professional competences and serving as a pre-requisite for the acquisition of professional competences’.

The content of the set of key competences varies according to the education system or even sub-system. In Slovenia key competences include: learning to learn, social skills, ICT, planning and developing one’s career, entrepreneurship, environmental responsibility, safety at work. They are oriented towards thematic fields. In the German education system, cross-curricular key competences are explicitly defined as general (subject-independent) competences that are essential in order to operate effectively at personal and professional level. They are not limited to cognitive abilities and represent complex operational competences. They:

- are required for and supported by different subjects and subject areas;
- help solve complex, holistic tasks in real-life contexts;
- can be transferred to new situations not covered by the curriculum;
- can be characterised as general abilities.

Other terminology is used elsewhere. In Austria, the term ‘dynamic skills’ (*Dynamische Fertigkeiten*) refers to subject-independent transversal competencies which introduces an interesting sense of interaction and development. In The Netherlands, they are referred to as ‘core objectives’ (which relate to subjects) and general objectives (which are cross-curricular).

In Estonia, there is a clear distinction between general and domain-specific competences, and with cross-curricular themes. General competence (*üldpädevus*) is used in the national curriculum and consists of four competences (learning, activity, value and self-definition competence) while domain-specific competence (*valdkonnapädevus*) consists of seven competences which should cover each aspect that people have with their surrounding world. Finally, the compulsory cross-curricular themes (*kohustuslikud läbivad teemad*) are not taught as a separate subject but have to be covered while learning other subjects.

Insert 3.1. Policy: Estonia

<i>Üldpädevus</i>	<p>General competence is used in the national curriculum:</p> <ol style="list-style-type: none"> 1. Learning competence – the ability to manage one’s learning activities by using efficient learning strategies and suitable learning style; to motivate oneself to learning, to search for necessary information, have an overview of one’s knowledge, to relate one’s knowledge to that created by other people and create new knowledge, to monitor and assess one’s thinking and learning activities. 2. Activity competence – ability to notice problems and to solve them, to plan one’s activities, set goals and foresee expected results, to choose activity means, to assess the results on activities, ability to cooperate. 3. Values competence – ability to perceive one’s relation to other people, to one’s own and other cultures nature and things created by humans to assess relations between people and activities in relation to general moral norms. 4. Self definition competence – ability to understand and assess oneself, understand the meaning of one’s activities and behaviour in society, to shape one’s personality.
<i>valdkonnapädevus</i>	<p>Domain-specific competence:</p> <ol style="list-style-type: none"> 1. Nature competence: Subjects (nature studies, geography, biology, chemistry, physics) and cross-curricular theme (environment and sustainable development). 2. Social competence – involves understanding social life and processes and readiness to support democratic changes in the society. Includes subjects (social studies, history, geography, human studies, literature, art, music) and cross-curricular themes – environment and sustainable development, security, career and career design. 3. Reflection and interaction competence – understanding oneself and interpersonal relations, choosing appropriate behaviour, healthy lifestyle and solve problems related to mental and physical health and interpersonal relations. Subjects (human studies, physical education social studies, philosophy, literature, geography, biology) and cross-curricular themes (security, career and career design). 4. Communication competence – understanding, memorising, creating, interpreting texts by using language. Subjects (Estonian or Russian language, literature, foreign languages, all other subjects

	<p>with their concepts and texts) and cross-curricular theme (information technology and media).</p> <p>5. Technology competence – understanding changes in human life and work style that are related to technology, to function in today's world of high technology and sustainable use resources. Subjects – work and technology studies, mathematics, history, society studies and cross-curricular theme –environment and sustainable development, security, career and career design, information technology and media.</p> <p>6. Art competence – ability to understand culture, enjoy art, use art for creative self expression. Subjects – literature, Estonian or Russian language, foreign languages history, music, art, handicraft, physical education, cross-curricular theme information technology and media.</p> <p>7. Mathematics competence – ability to operate with objects in a way that their relations to each other and their models in a formalised way, Subjects – mathematics, nature studies, physics, chemistry, cross-curricular theme – information technology and media.</p>
<i>kohustuslikud läbivad teemad</i>	Compulsory cross-curricular themes: four themes that are not taught as a separate subject but have to be covered while learning other subjects: the environment and sustainable development, career and career planning, media studies, and ICT and security.
<i>ainealased teadmised ja oskused</i>	Skills and knowledge in specific subjects.

Source: country fiche Estonia.

In Hungary, the reform introducing key competences in the primary school curriculum demonstrates in an interesting manner one possible expression of cross-curricular key competences. Most of them are expressed as capabilities⁷⁵ and the notion of 'values' is included.

Insert 3.2. Policy: Hungary

<p>The strategy of the ministry contained a list of specific key competences to be developed in primary schools:</p> <ul style="list-style-type: none"> – the capability of using various learning techniques⁷⁶ – the capability of intelligent learning – the capability to apply knowledge – instrumental competences (like communication, mathematics or ICT-related competences) – social competences – value orientation (the capability to understand and use norms and values)
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Source: country fiche Hungary.

⁷⁵ The concept of capability was defined by Amartya Sen (Nobel prize in Economics in 1998) as a 'person's actual ability to be or to do something'.

⁷⁶ This is close to 'learning to learn'.

It is interesting to compare that list with the notion of what is considered as essential in Portugal: ‘it is essential to identify the knowledge which enables pupils to develop their understanding of the nature of each subject and its processes, as well as a positive attitude towards intellectual activity and the practical work it entails’, insofar as the two approaches appear to differ on the importance placed on content or process competences.

In Finland (similarly to Estonia) the cross-curricular aspect is through themes which are defined as ‘educational challenges with social significance’. At the same time, they are current statements on values. In practical terms, cross-curricular themes are policies which structure the upper secondary school’s operational culture and priority areas that cross subject boundaries and integrate education. They deal with issues concerning the way of life as a whole. For the upper grades of basic education, the cross-curricular themes are:

- Growth of the person;
- Cultural identity and internationalism;
- Media skills and communication;
- Participatory citizenship and entrepreneurship;
- Responsibility for the environment, well-being and a sustainable future;
- Safety and traffic competences;
- Technology and the individual.

The examples above referred either to the idea of a foundation that underpins the curriculum or are intended as threads running transversally across it.

The Lithuanian example is interestingly different as recent reforms, while stressing the need to develop citizenship, entrepreneurship, digital competences, learning to learn and cultural awareness competences, also state that, in order to ensure the quality of education development, the content of education needs to be related to an individual’s new competences. The orientation is towards the development of general abilities, values, the provision of the necessary competences that are based not so much on the transfer of knowledge, as on their analysis, critical assessment and practical application; such competences will relate the contents of education to actual life, actual problems and their solutions. This aspect related to the ability to apply what has been learned is often important. It is one the main characteristics of the PISA evaluations.

Another question is whether those countries that use the term ‘skill’ are close to the notions above or to Chisholm’s definition (2005): a skill is ‘an ability, usually learned, and acquired through training to perform actions which achieve a desired outcome’. In Hungary, the term ‘*kompetencia*’ is a frequent synonym of ‘*képes-*

ség’ which could be translated as aptitude or skill. In Austria, the term ‘basic skills’ (*Grundfertigkeiten*) is used to convey the notion in its broadest sense.

The terms **skills**, **core skills** and **key skills** are the common ones in use in the four countries of the UK and in Ireland, all of which are very similar in the choice of skills to highlight in the schools curriculum.

Insert 3.3. Policy: Ireland

The Irish Key Skills Frameworks:

Primary –The ability to: question, analyse, investigate, think critically, solve problems.

Junior secondary –Interact effectively with others: communication and literacy, numeracy, manipulative skills, information technology, thinking and learning, problem solving, personal and interpersonal, social.

Key skills framework senior cycle: Information processing, critical and creative thinking, working with others, communicating, being personally effective.

Source: country fiche Ireland.

While Ireland has developed a separate (though similar) framework for each age group (primary, lower secondary and upper secondary), Wales has one framework from age 3 years to 19. The skills embedded in the curriculum contain many elements that are present in the cross-curricular key competences of the EU framework, including the aim that young people should become ‘full, active and responsible’ members of society (Scotland). The ideas contained in learning to learn, entrepreneurship and interpersonal and civic competences in the EU framework are present in these different formulations of core/key skills. The emphasis is quite strong on personal ‘capabilities’, a term used specifically in the Northern Ireland curriculum and which echoes the Chisholm definition.

Insert 3.4. Policy: UK (Scotland)

Core Skills:

Core skills describe the broad, transferable skills that people need to be full, active and responsible members of society. The core skills include:

- Communication
- Numeracy
- Problem solving
- Using information technology
- Working with others.

Source: country fiche Scotland/UK.

Insert 3.5. Policy: UK (England)

Example of a combination of different types of skills, competences and qualities:

The curriculum states that: 'If young people are to be prepared for the future they need to develop essential skills and qualities for learning, life and employment. These include skills that relate to learning in subjects as well as other more generic, transferable skills'.

There are 'functional skills' and 'personal learning and thinking skills' (PLTS) for 11–19 year olds and lifelong learning.

Functional skills are the 'core elements' of English, mathematics and ICT considered to be essential for learning, life and work.

The personal learning and thinking skills (PLTS) 'framework' contains six groups of skills:

- independent enquirers
- creative thinkers
- reflective learners
- team workers
- self-managers
- effective participators.

'These generic skills, together with the functional skills of English, mathematics and ICT, are essential to success in life, learning and work... For each group of skills, a focus statement sums up the range of skills and qualities. This is accompanied by a set of outcome statements that are indicative of the skills, behaviours and personal qualities associated with each group... Each group is distinctive and coherent. The groups are also interconnected and learners are likely to encounter skills from several groups in any one learning experience'.

There are also cross-curriculum dimensions which can provide a focus for work within and between subjects and across the curriculum. They include:

- identity and cultural diversity
- healthy lifestyles
- community participation
- enterprise
- global dimension and sustainable development
- technology and the media
- creativity and critical thinking.

Source: country fiche England.

Like the French '*socle*', the Northern Irish curriculum puts explicit emphasis on the development of skills and capabilities for lifelong learning as well as for contributing effectively to society. These whole curriculum skills and capabilities consist of the cross-curricular skills (communication, using mathematics and using ICT) and thinking skills and personal capabilities which are called TSPCs and include managing information, thinking, problem solving and decision-making, being creative, working with others, and self-management. These skills are embedded and infused throughout the revised Northern Ireland Curriculum at each

key stage and it is intended that pupils will have opportunities to acquire, develop and demonstrate them in all areas of the curriculum. The notion of capabilities is linked here to a set of skills with a functional orientation, while it is linked rather to a set of competences in the case of Hungary (see above) with a more general focus.

One country that explicitly mentions cross-curricular or transversal skills is Poland for primary education. They reflect the cross-curricular elements of the EU framework and include:

1. Planning, organising and assessing pupil's learning, taking responsibility for one's learning process.
2. Effective communication in various circumstances, presenting one's viewpoint and acknowledging the views of others, proper use of language, preparation for public presentations
3. Effective cooperation within a group, building interpersonal relations, taking individual and collective decisions.
4. Solving problems in a creative way.
5. Searching for, ranging and using information from various sources, effective usage of ICT.
6. Using the acquired knowledge and creating necessary experiences and patterns of behaviour.
7. Developing personal interest, acquiring methods of negotiating and solving conflicts and social problems.

Another group of countries define **goals and objectives**. Flanders defines developmental (*Ontwikkelingsdoelen*) and final (*Eindtermen*) objectives. Whereas 'developmental objectives' are minimum objectives which the education authorities consider desirable for a specific pupil population, the 'final objectives' are objectives with regard to knowledge, insight, skills and attitudes, which the educational authorities consider necessary and attainable for a specific pupil population.

Similarly, the Swedish system is geared towards the idea of 'steering through goals' which are decided at the central level, though it is the responsibility of the decentralised authorities (such as the municipalities) to fulfil these goals. There are goals to strive for (the quality of education process) and the goals to be attained (learning outcomes). Amongst the goals, one finds the knowledge, skills and attitudes corresponding to particular key competences. The goals are not ranked in terms of importance and hierarchy and they present a range of capabilities or qualities or skills or competences that is broad and developmental. These goals cover all aspects of education from pre-school through to the end of secondary education.

Insert 3.6. Policy: Sweden

Some of the '**goals to strive towards**' detailed in the curriculum documents include that schools should ensure that all pupils:

- Develop the ability to form and express ethical viewpoints based on knowledge and personal experiences.
- Respect the intrinsic value of other people.
- Reject the oppression and abusive treatment of other people and assist in supporting them.
- Can empathise with and understand the situations other people are in and can develop the will to act with their best interests at heart.
- Show respect for their immediate environment as well as for the environment in its wider perspective.
- Develop a sense of curiosity and the desire to learn.
- Develop their own individual way of learning.
- Develop confidence in their own ability.
- Feel a sense of security and learn to consider and show respect in their dealings with others.
- Learn to carry out research, and to learn and work independently and together with others.
- Acquire good knowledge in school subjects and subject areas to develop themselves and prepare for the future.
- Develop a rich and varied language and understand the importance of cultivating this.
- Learn to communicate in foreign languages.
- Learn to listen, discuss, reason and use their knowledge as a tool to formulate and test assumptions as well as to solve problems.
- Reflect on their experiences and critically examine and value statements and relationships.
- Acquire sufficient knowledge and experience to be able to make well considered choices over further education and vocational orientation.
- Take personal responsibility for their studies and working environment.
- Gradually exercise increasingly greater influence over their education.
- Have an understanding of democratic principles and develop their ability to work democratically.
- Acquire sufficient knowledge and experience to be able to examine different options and make decisions concerning their own future.
- Develop the ability to assess their results themselves.

'**Goals to attain**' in the compulsory school include to:

- Have mastered Swedish and to be able to listen and read as well as to express ideas and thoughts in the spoken and written language.
- Have mastered basic mathematical principles and be able to use these in everyday life.
- Know and understand basic concepts and contexts within the natural sciences as well as within technical, social and human areas of knowledge.
- Have developed the ability to express themselves creatively and be interested in participating in the range of cultural activities that society has to offer.
- Be familiar with central parts of the Swedish, Nordic and Western cultural heritages.
- Be aware of the culture, language, religions and history of national minorities.

- Be able to develop and use their knowledge and experience in as many different forms of expression as possible covering language, images, music, drama and dance.
- Have developed their understanding of other cultures.
- Be able to communicate in speech and writing in English.
- Know the basis of society's laws and norms as well as their own rights and obligations in school and society.
- Be aware of the interdependence of countries and different parts of the world.
- Be aware of the requirements for a good environment and understand basic ecological contexts.
- Have a basic knowledge of the requirements to maintain good health and to understand the importance of lifestyle for health and the environment.
- Have some knowledge of the media and of their role in relation to the media.
- Be able to use information technology as a tool in their search for knowledge.
- Develop their learning and to acquire deeper knowledge in a number of individually selected subject areas.

Sources: Eurydice note and Skolverket <http://www.skolverket.se/sb/d/354/a/959>.

Another education system in which the competences are implicit in the goals is Latvia, which has goals that are common for all general secondary education and which aim to encourage the development of the students' personality and of their physical and mental capacities, and to develop their understanding of health as a condition of the quality of life. They also aim to encourage the development of positive, critical and socially active attitudes, and to develop understanding of rights and obligations of Latvian citizens; to develop the ability to study independently and improve knowledge as well as create motivation for lifelong learning and a purposeful career. The latter group is very similar to cross-curricular key competences mentioned earlier in the section.

In Hungary, the National Core Curriculum (NCC) also refers to basic goals, which include the development of key competences as well as a number of other areas. It also contains the principles which underpin and structure the NCC. The NCC published in 2003 also contains a thesaurus which defines the notion of 'competence-based' and the relation between competence and knowledge: *'The competence based approach means a commitment that determines the taxonomy of the curriculum. In the background of this approach there is a theory of personality which considers the competences (personal, cognitive, social and special competences) as the main components of the personality... [This approach] links the competences to specific activities and tasks that are achieved by the human being: someone is competent in relation with an activity if he/she is capable to achieve the tasks related with this activity.'* This was the basis for restructuring the NCC so that, instead of focusing on the element of national culture ('knowledge'), it focused on *specific developmental tasks* that are supposed to develop *specific competences*.

3.2.2 Are key competences introduced in the curriculum by legislation or curriculum policy documents?

The method by which competences/key competences have been introduced in the education system varies among countries. Some have introduced these approaches through adaptations of the curriculum, whilst others have done it through legislative change. From the data available in the country fiches, there are four situations which are illustrated in the table below:

Table 3.1. Methods of introducing key competences in the curriculum

Change in the legislation on education	Belgium (Flanders and Wallonia), France (' <i>socle commun</i> '), Greece, Lithuania, Luxembourg, Italy, Portugal, Slovakia, Spain.
Curriculum review	Austria, Bulgaria, Cyprus, the Czech Republic, Estonia, Finland, Germany, Hungary, Ireland, Malta, the Netherlands, the United Kingdom.
Complementary objectives in the legislation and in instructions about the curriculum	Poland.
No explicit specific policy on key competences: -different approach -not yet introduced	Sweden, Denmark. Romania, Latvia.

Source: Country fiches.

Countries which have passed legislation or specific decrees include: Belgium (Flanders and Wallonia), France, Greece, Italy, Lithuania, Luxembourg, Portugal, Slovakia and Spain.

Thus, in Flanders, final objectives and developmental objectives were defined for each level of education following a Decision of the Flemish government of 3 June 1992. Cross-curricular objectives are promoted by means of an inter-relationship between the National Core Curriculum (Department of Education); the school audit (School Inspectorate) and guidance/counselling for teachers and schools (Pedagogical Advisory Service). Similarly in Wallonia, legal statements define the terms '*socles de compétences*' and '*compétences terminales*'.

In France, an Act of March 2005 introduced the '*socle commun de connaissances et de compétences*' (common base or foundation of knowledge and competences) for all pupils from the last year of pre-primary to the last year of lower secondary school (*collège*), i.e. from about age 5 to 15/16, which corresponds to compulsory schooling. By the end of compulsory schooling, every student is supposed to have attained specified minimum standards for 7 major competences (or

skills). Each is designed as a combination of basic knowledge for our time, an ability to apply it in a variety of concrete situations, but also an ability to develop lifelong attitudes, such as be open to others, desire to seek the truth, self respect and respect of others, curiosity and creativity. Each of these 7 basic skills requires the contribution of several school subjects and each subject must contribute to the acquisition of several skills. The *socle* includes 5 competences which correspond to key competences proposed by the European Reference Framework: command of the mother tongue; command of at least one foreign language; basic competences in mathematics, science and technology; digital competence (practical knowledge of ICT); social and civic competences. The *socle* also includes two competences which are very close to European Reference Framework key competences, but are formulated in a slightly different way: a humanist culture (instead of cultural awareness and expression); self-sufficiency (*autonomie*) and sense of initiative (instead of sense of initiative and entrepreneurship). Finally, one should note that one European Key competence was skipped: ‘learning to learn’, mainly because there was no agreement about the way to assess it.

Insert 3.7. Policy: Belgium (Flanders)

Distinction between the cross-curricular final objectives and the subject-based developmental objectives

The cross-curricular final objectives have been formulated for the following areas:

- [Learning to learn](#)
- [Social skills](#)
- [Citizenship education](#)
- [Health education](#)
- [Environmental education](#)
- [Expressive-creative education](#) (only for second and third stage)
- [Technical-technological education](#) (only for general secondary education).

The developmental objectives constitute the common core curriculum. They have been formulated for five areas of learning:

- Physical education: motor skills, healthy and safe lifestyle, self-awareness and social integration
- Art education: visual arts, music, drama, dance, media and attitudes
- Dutch: listening, speaking, reading, writing, linguistics
- Environmental studies: nature, humankind, society, technology, time and space
- Mathematical initiation: numbers, measuring and space.

Source: country fiche Belgium.

In Luxembourg, another country referring to a foundation of competences, it is part of a major reform of the education system. The National Education Strategy 2003–2012 in Lithuania includes a clear and specific reference to cross-curricular key competences as the ‘new competencies of the individual’. In Slovakia, the

process is very recent. The National Programme for Education approved by the Ministry of Education in 2008 describes students' profiles in terms of cross-curricular key competences which are considered a key to social cohesion and the integration of minorities. It is also very recent in Slovenia, where a competence approach has so far only been adopted in VET curricular planning.

In Greece, an Interdisciplinary Cross-Curricular Thematic Framework (DEPPS) was introduced in 2003 for compulsory education: 'This innovative endeavour aims at the horizontal linking of all subject contents, seeking to cover a greater variety of topics. It also focuses on a fully comprehensive analysis of basic concepts and the cross-curricular thematic approach to learning implemented in school practice, a process that can greatly improve education in general'.

Some situations seem to come between the two and this is well illustrated by Poland where, on the one hand, the legislation on the school system does not refer to the term 'key competences', but uses the terms 'knowledge, skills and attitudes'. On the other hand, key competences or basic skills are referred to in a number of policy, strategic and programming documents, i.e. *Strategy for the development of education 2007–2013*, *Human Resources Development Operational Programme 2004–2006* and *Human Capital Operational Programme 2007–2015* providing the basis for ESF funding. It would appear in this case that the strategic programming for the social fund may have a stimulating effect on the school system.

Countries in which the principal policy reference to competences is in the major curriculum texts include: Austria, Bulgaria, Cyprus, the Czech Republic, Estonia, Finland, Germany, Hungary, Ireland, Malta, The Netherlands and the United Kingdom.

Among the data collected, there are many references to curriculum documents, but it is not always clear how they were elaborated. Some examples illustrate the different situations. It is the case of the Czech Republic where the National Programme for the Development of Education (White Paper 2001) brought in a framework curriculum which laid emphasis on competence-based child-centred approaches. In Hungary, the revision of the National Core Curriculum in 2002–2003 introduced the notion of competences and a definition of the relationship between knowledge and competence. Some countries have introduced an approach to key competences through a framework or core curriculum. This is the case in Finland and Malta. In Austria, secondary schools have included the dimensions of personal competence and social competence since 1999. The principle is that *'within the context of lifelong learning, the successful transmission of knowledge is only possible if pupils are empowered and encouraged to learn actively and independently and to critically examine the available information. All subject-specific competences must therefore be supported and complemented by*

Sozialkompetenz (social competence, i.e. taking on responsibility, co-operation, initiative, active participation, team spirit) and Selbstkompetenz (personal competence, i.e. development of individual talents and capabilities, being aware of one's own strengths and weaknesses, self-reflection)'.

Insert 3.8. Austria: Example of the development of personal qualities

In **Austria** for example the curriculum for primary schools states that primary school education aims at

- Development and promotion of the children's joy in learning, their individual abilities, interests and inclinations
- Stabilisation and development of the pupil's confidence of the pupil in his/her own potential
- Development and extension of social skills (responsible behaviour, co-operation, acknowledgment of rules and standards, ability to accept criticism)
- Extension of linguistic abilities (ability of communication and expression)
- Development of fundamental knowledge, talents, abilities, insights and attitudes, such as elementary cultural techniques (including modern communication and information technologies)
- Adequate capability to interact with the environment as well as development of musical, technical, physical skills
- Gradual development of an appropriate learning and work attitude (perseverance, care, accuracy, helpfulness, consideration)
- Leading children from the rather play-oriented learning forms of the pre-school time to conscious, independent, goal-oriented learning.

Source: country fiche Austria.

Insert 3.9. Policy: Finland

The national core curriculum defines the goals and main content of the various subjects. It also identifies cross-curricular themes which integrate skills and core competences, and education. The national core curriculum translates into a municipal curriculum, and in turn schools turn this into the school curriculum. There is a clear emphasis on a competence approach to the child's learning. The curriculum is considered to be:

- Broad based: covering the whole of school work
- Inclusive: meets the needs of all children
- Balancing academic learning and welfare
- Giving much importance to school culture as learning environment
- Taking into account future orientation: competence thinking.

Source: country fiche Finland.

Some countries do not seem to refer specifically to key competences (cross-curricular or otherwise) for different reasons. Two countries do not have a specific policy in this area in their education systems because their overall approach is different.

Thus, Denmark does not specifically refer to key competences in the major education texts but has introduced the National Competence Account (*Nationalt Kompetenceregnskab*) which is mainly intended for vocational purposes. Key competences are the axis on which vocational competence can be built. It has identified competences for professional life and personal development (environmental and natural competences, physical competences, social competences and learning competences), as well as those that support both organisational and social competences. Based on the OECD work for the DeSeCo Report, the following 10 key competences were identified:

- social competence,
- literacy competence,
- learning competence,
- communicative competence,
- self-management competence,
- democratic competence,
- ecological competence,
- cultural competence,
- health, sports and physical competence,
- creative and innovative competence.

Sweden does not refer to key competences because it has a different type of approach based on the concept of goals: goals to strive for (which indicate the quality of the education process) and goals to be attained (which indicate the learning outcomes for the individual student) – see above Insert 3.6. However, amongst the goals, the knowledge, skills and attitudes corresponding to particular key competences are found. The goals are not ranked in terms of importance and hierarchy.

Other countries have not yet begun to develop competence-based approaches in general education. In Latvia, the emphasis at this stage is on developing a framework for lifelong learning and in Romania the reforms that will introduce a more competence-based approach for general school education have not yet been enacted, although secondary VET provision and adult learning introduced competence-based approaches from the mid-1990s or through the development of occupational standards (for adult training) and education standards for secondary VET.

3.2.3 When were these policies introduced?

Policies on key competences (or whichever the term used in the country) have entered general school education in different ways over the last 20 years. In many

cases, the move to a competence-based approach started through VET provision as early as the late 1980s and was only introduced into general education provision during the 1990s or more recently. There are some exceptions, such as pilot projects in the UK in the 1980s, which focused on the introduction of technology education, such as the Technical and Vocational Education Initiative (TVEI), and were based on a set of skills to be achieved.

In some countries, the introduction of key competences – specifically in general education – has been an on-going process since the late 1990s. In Austria, the inclusion of personal and social competences came at that time and in Germany, certain key competencies were added to the curriculum at the same period with the objective of strengthening young people's capacity to undertake vocational education and training (VET) and higher education. They were all cross-curricular in nature and are listed below:

- The capacity to cooperate and work in a team;
- The independent organisation of learning;
- Problem-solving skills;
- The ability to handle money matters;
- A good grasp of economic principles;
- The ability to give an account of one's own activities;
- And basic knowledge of and ability to use technical constructs.

In Malta and Ireland, the process also started in the late 1990s in general education. In Ireland, key competences (or more precisely key skills) were introduced into the primary and lower secondary curriculum from 1999 and the process has continued more recently (2005) for the upper secondary curriculum. In the four countries of the United Kingdom, reforms have been successive and on-going over the last decade. In these countries, the first reforms in this area tended to focus on sets of key skills that could be accredited outside the main curriculum and awards as a specific key skills award. The current trend is to embed them in the mainstream curriculum.

Another group started curriculum reforms in the early 2000s. The Czech Republic, Hungary and Lithuania are all examples of competences being introduced as part of the review and revision of the mainstream school curriculum.

More recently, the reforms have been introduced since about 2005 in Belgium, France, Luxembourg, Greece, Italy and Spain. In these countries, implementation is necessarily at an early and often pilot stage. Slovakia is the most recent country to introduce its reform. It did so in 2008 with the National Programme for Education that will establish profiles based on cross-curricula key competences.

Some countries have been testing competence-based approaches in general education for a number of years. For others, piloting is on-going or very recent. This affects the extent to which the study can assess the impacts of implementation.

Table 3.2. Introduction of cross-curricular competences in the curriculum of compulsory education by period

Time of explicit introduction	Examples of countries
Before 2000	Austria, Germany, Ireland, UK, Malta
2000–2005	Czech Republic, Lithuania,
Since 2006	Belgium, France, Greece, Italy, Luxembourg, Slovakia, Spain
About to start	Latvia, Romania

3.2.4 What is the scope of the adopted sets of key competences?

This section seeks to respond to the following questions:

1. To what extent are there common elements in the key competences which are transversal to all sub-sectors of education and training, or is the context of the type and level of learning a determining factor?
2. Is it different for key competences in general and for cross-curricular key competences?
3. Is there any alignment between the key competences developed for higher education and for schools and for students (school and higher education) and teachers?

Table 3.3. Scope of the key competences

Types of approaches:	Examples of countries:
Sets of broad cross-curricular skills or competences that are designed to ensure continuity across the formal learning system from early years education to higher education	None of the EU Member States.
Goals and/or cross curricular competences or skills that cover the whole school system (primary education to the end of secondary school)	Austria (social and personal competences) Belgium (NL), Bulgaria, Czech Republic, Estonia, Finland, Ireland (3 sets but similar), Sweden (early years, school and extra-curricula activities), UK: Wales (3 to 19 curriculum), Northern Ireland, Scotland
Cross-curricular competences that address specifically compulsory or basic education only or mainly	France, Belgium (FR), Luxembourg (cross-curricular key competences currently in the process of being implemented do not yet address also the upper secondary cycle).

Types of approaches:	Examples of countries:
Sets of key competences or skills or aims that address specific levels of the school systems (primary, lower secondary and upper secondary or basic/primary education and upper secondary)	Cyprus, Germany, Netherlands, Portugal, Slovenia (VET only), Spain, UK (England)
Sets of key competences / cross-curricular key competences that are valid for students and for teachers	None of the EU Members States

Source: country fiches.

Observations:

The development of competence-based approaches identifying key competences tends to be more often focused on specific levels of education than on the whole education system. It is not always clear if this is part of the ‘silo’ effect or part of an on-going process.

However, well before adopting an overall approach in terms of transversal key competences, most of the countries started to introduce transversal themes of study and/or interdisciplinary activities. Thus, in most countries, even though the competence-based approach and the explicit reference to cross-curricular competences concern only vocational education and training and/or compulsory schooling, some similar evolutions have been observed in the general academic stream at all levels of education. In particular, in all countries, many initiatives were taken, mostly at regional, local or school level, in order to enhance civic education or education for citizenship, education for environmental issues and sustainable development and, of course, digital education and current use of ICT, including ethical aspects.

For instance, in France, though the ‘*socle commun de connaissances et de compétences*’ was introduced only recently (2005), some interdisciplinary activities called ‘*projets d’action éducative*’ (educational action projects) were introduced and generalised in lower and upper secondary education at the end of the 1970s. They were replaced later by similar activities with different names by the successive ministers of education: ‘*parcours diversifiés*’ (diversified pathways), ‘*travaux croisés*’ (cross-subject work) and then ‘*itinéraires de découverte*’ (discovery pathways) at lower secondary level; ‘*travaux personnels encadrés*’ (guided personal work) and ‘*projets pluridisciplinaires à caractère professionnel*’ (multidisciplinary vocationally oriented projects) at upper secondary level. All these activities aimed at developing active learning by the students, team work, increasing the use of ICT, project management, including the requirement of producing a concrete output (report, video, exhibition, or even an industrial product, etc.) under

the tutorship of teachers of at least two different subjects. But, except for the vocational stream, the assessment of these activities did not carry an important weight within the overall assessment of students' learning attainment. Hence, they were regarded as marginal within the main stream of schooling. It is only recently that very sophisticated tools were designed to assess learning outcomes in the field of ICT. This type of examples can be found in other countries. They illustrate well both the dynamic of developing competence-based approaches over quite a long period of time and perhaps the difficulty that systems have had in clarifying their choices of implementation mechanisms.

3.2.5 Policy content and intentions: a possible typology?

Scrutinising the policies regarding cross-curricular key competences raises some basic questions:

- Is it possible to reach a good level of understanding about the differences in goals and purposes that come into play when countries are developing a set of cross-curricular key competences or key skills? How clear are the definitions of the purpose and the rationale of such an approach to education in the Member States and at EU level?
- There appear to be a number of different types of motivations. To what extent do they influence the forms of implementation? Even within the notion of competence, differences could be substantial. And a similar 'content' may be labelled differently in different systems or approaches. What purposes are these concepts of competence, skill, qualities, etc. intended to serve? Is the purpose clear in the national definitions and is it well explained to all stakeholders, including, of course, the students and the teachers? To what extent have these stakeholders been associated with the definition of the objectives of the new curriculum?
- To what extent are cross-curricular key competences defined with a purpose of contributing to: personal development; citizenship; lifelong learning; employability? If there is generally a strong consensus about the fact that all these aspects of education should be taken into account, the relative importance which should be given to each of them in the curriculum (and in the assessment of students' attainment) can be different from one country to another, but can also be an issue of discussion within each country⁷⁷.

⁷⁷ However, it should be underlined here that the personal qualities to acquire in order to be a 'good citizen' are very much the same as those expected by the employers.

- How is the implementation of policy evaluated and is there any feedback from the field? Are feedback and bottom up initiatives taken into account in revising the policy objectives?
- Is enough importance given to teachers' training in order to enhance their motivation in implementing the new curriculum and to give them all the resources that help them to teach in a different way and work efficiently with teachers of other subjects?

Table 3.4. A possible typology of policy orientations

1. 'Functional' approaches* - skills based	Cyprus, Germany, Ireland, Lithuania , Poland, Slovenia, UK
- mostly subject-based	Bulgaria, Italy, Malta, Portugal
2. Thematic approaches - major issues of society - personal qualities	Denmark , Slovakia Austria (primary school), The Czech Republic, Greece, Hungary, Luxemburg
3. Goals and principles based	Finland, Latvia, The Netherlands, Sweden
4. Mixed approach (functional and thematic)	Belgium, Estonia, France

Note. * A 'functional' approach is a policy mainly defined by competences or skills, i.e. the ability to do a task either subject-based or cross-curricular.

Sources: Country fiches.

It is not easy to establish a typology of the policies adopted by the Member States, as most of them use several approaches based on skills or competences, subject-based and transversal competences, transversal themes and personal qualities to be developed all together. However, one can try to build up such a typology by taking what appears to be the **dominant** approach in each country as a criterion for classification (see Table 3.4).

Issues arising

Some questions arise from the presentation above of the different policies:

- Can a single approach to cross-curricula key competences work uniformly across the relevant sub-sectors of education? Or is it more relevant to adapt the general objectives to different levels of types of education and training?
- How do countries deal with the evolution of competence over a period of time and through different learning experiences? Apart from through a national qualifications framework and reference levels, are there any other examples?

- Is the notion of a ‘key competence’ the same for a student and for a teacher? Or, at least, what competences are required for a teacher to be efficient in implementing a cross-curricular policy?
- Continuity across the different levels and types of provision does not appear to be a major concern or element of policy. This could have a substantial effect on the definition of a set of cross-curricular key competences. To what extent is it relevant to ensure continuity between the main stages of education?
- A few elements seem to have a very different weight in the frameworks presented in terms of cross-curricular competences among the Member States:
 1. There is little reference to the need to develop a sense of self and of understanding of self⁷⁸. The main references are the interpersonal skills/competences, with a strong emphasis on interactions with others, social aspects, etc.
 2. Few of the definitions and usages refer to values, to the values with which children and young people will relate to each other and to the world around them, and to other ethical issues⁷⁹.
 3. The relationship to the environment in both senses: the wider world and issues of the survival of the planet.
 4. The capacity to make choices, to prioritise, to distinguish between the most essential and the least essential.
 5. Few countries refer to health or well-being (cf. Competences for the 21st Century).

Last but not least, how far are the policies implemented? Is there any gap between policy rhetoric and what is happening in the field? What steps are taken to reduce such a gap? There may be an identification of, and agreement on, a set of competences deemed to be essential for meeting the challenges of the 21st century, but, has equal attention been paid to the process of implementation and the implications for the whole school system, in particular for teacher training, school leadership, organisation, management, etc. In this respect, the training of headmasters and principals is crucial, notably to increase the capacity of building up relevant

⁷⁸ Such a fundamental ability was already advocated in Ancient Greece in the inscription ‘know thyself’ on the Apollo temple in Delphi.

⁷⁹ In his book *Five Minds for the Future* (Harvard Business School Press, 2006) Howard Gardner (Professor at the Graduate School of Education, Harvard University) underlines the importance of the ‘ethical mind’; the four other ones are: the disciplined mind, the synthesizing mind, the creative mind and the respectful mind.

school development plans that integrate the objectives related to transversal activities and cross-curricular competences. The examples of good practices mentioned in the case studies show the importance at the school level of a good development plan and of relevant leadership. The next section focuses specifically on implementation of policies.

3.2.6 Implementation approaches

The implementation of policies aiming at developing cross-curricular key competences which can be observed among the Member States depends on many factors and varies not only from one country to another, but also over time, depending on the authorities in charge of the education policy and their priorities on the political agenda. Indeed, it was tempting to try to set up a classification of different types of implementation patterns among the Member States. In order to do so, many assumptions were tested by selecting some dominant variables which could be of particular significance such as 1) the degree of political commitment and its continuity over time; 2) the degree of decentralisation of decision-making and mostly the degree of autonomy of individual schools; 3) the more or less comprehensive (holistic or piecemeal) approach. However, the actual situation is much more complex because of other factors such as the historic background, the institutional context, ideological aspects, possible gaps between rhetoric and reality, the degree of research in education and public management in designing the implementation schemes and teaching materials, etc. As a result, the task of trying to define a typology of implementation patterns was quite a puzzle; it appeared to be quite arbitrary and would have been a biased representation of the much more complex and ambiguous reality.

Thus, after a general overview of the different factors that influence the implementation process and of its different facets and instruments, we will present and comment on some particularly significant examples of implementation policies, before summing up the main issues and conclusions which emerge from such a review. It is also worth mentioning that the implementation process will be analysed in much more detail in the following chapters which concern implementation at school level (examples of innovative practices) and two basic vectors of any implementation of educational reform: assessment and evaluation tools on the one hand; and teachers' and school-leaders training schemes, on the other. Hence, here, we will analyse and discuss the overall architecture of implementation policies and focus on other elements of such policies such as the design of new curric-

ula and teaching methodology and materials⁸⁰, as well as strategic communication and monitoring of the process of change.

3.2.7 Main factors and instruments of implementation schemes

Historic and institutional context

The historic and institutional contexts are certainly major factors in many respects. Some countries have a strong and long tradition in more active learning and they introduced competence-oriented curricula well before the European recommendation, mostly in VET, but also to a lesser extent in the mainstream general education curriculum. The degree of autonomy of schools, as well as the degree of decentralisation of the education system, can also determine to a certain extent the type of implementation, particularly concerning the territorial distribution of responsibilities in the process and the relative importance of top-down and bottom-up initiatives⁸¹. Then, concerning public management in general, it is well-known that some countries traditionally attach more importance than others to the implementation aspect of a public policy. It is also clear that the degree of commitment of the political authorities, which is another determinant factor, varies from one country to another and according to the governments, even those belonging to the same political majority. In this respect, some countries have an education policy that is more stable over time, which seems an important asset (e.g. Finland).

Overall architecture of implementation policies: the main variables

At a more technical level, some differences can be observed in the relative importance given to the three main aspects of any implementation of a process of change (or of a reform). These are: 1) a new curriculum, guidelines and teaching/learning documents or textbooks; 2) new assessment tools of learning outcomes and evaluation tools of the results of the ongoing process (including control of quality and the role of the inspectorates where they exist); 3) teachers' and school-leaders' training schemes.

⁸⁰ The methodological and pedagogical aspects are further developed in the synthesis chapter.

⁸¹ It must be noted that an important distinction must be made between devolution to local authorities and the degree of school autonomy. This was very well illustrated by two studies by CERI/OECD in the 1990s in the INES project (INES network C). Schools may sometimes have less autonomy in a decentralised education system in which the local authorities are the decision makers, than in a more centralised one. Close administrative supervision can sometimes be more restricting than a distant one.

There are also differences in the method of introducing and monitoring the process of change (which can be as important as the relevance of the goals and the content of the policy): experimentations and pilot initiatives which are evaluated before any extension or generalisation; strategic communication on the rationale of the reform; management of time⁸²; capacity to take into account the opinion of the different stakeholders and some difficulties met on the field and to react accordingly; and, of course, budgeting specific resources, etc.

The Lisbon Council in 2000 did not launch the introduction of cross-curricular key competences in education. From the 1990s on, or even before in some cases, other initiatives or programmes carried out by some countries or supranational institutions also worked on the definition of the term *competence* and did introduce some learning activities aiming at developing transversal key competences. Most of the Member States introduced key competences in their educational system through pilot programmes created under the influence of international networks of cooperation⁸³. These pilot projects were sometimes led by single schools or networks of schools and in some situations arose from political initiatives taken by provinces, regions or other local authorities. The formal decision to introduce transversal key competences in the curricula seems to be more easily implemented in countries which have been introducing some of them for a long time. But the question is not only to know whether compulsory school systems are supposed to teach some key competences, but also if they have really changed the method by which they are developed. A new methodology implies in most cases reforming not only the school curricula, but also the teaching practices and therefore initial, induction and in-service teacher training programmes. The professionals in charge of education must be aware of the fact that they not only have to teach pupils knowledge but also the holistic notion of competence, i.e. combining values, attitudes, capabilities, behaviours and knowledge. The required change of school practices seems easier if, and only if, the educational system can count with the implication of all the actors of the educational community and an adequate organisation of schools. This in turn requires a new professional development of school-leaders; only a few countries seem to attach much importance to this aspect.

Because all the countries have tried or are trying to adapt, at least for their compulsory school systems, to the new European proposition based on the cross-

⁸² Actual paces of change which are observed are most of the time slower than expected. A substantive change of the curriculum requires an evolution of mindsets and thus cannot occur by magic. As the UNESCO report – *Learning: The Treasure Within* – (J. Delors, 1995, op.cit.) noted, change in education is possible only in the long term, while ministers of education must prove their efficiency in the short run, which may create a tension that is not easy to handle.

⁸³ In this respect, the CERI/OECD and the Council of Europe played an important role.

curricular key competences, the main question is not so much to see which countries have reacted, adapted and changed, but rather to evaluate the degree of implementation, the application of specific measures or methods, the tools and the strategies used to introduce and monitor the process of change, and finally, the results obtained. Under the general idea of convergence towards what could be called a *European Education Area* (by extension of the European Higher Education Area), the danger could be to consider that all the European school systems have become quite similar. In fact, because of all the factors mentioned, they are very different and one could say that each education system has its own way of implementing educational change. Thus, to review the current policies in implementing cross-curricular competences, we will start by those countries which have a particularly interesting overall and comprehensive approach. Nevertheless, the order in which country experiences are presented should not be interpreted as a ranking from more effective to less effective approaches.

Points deserving special highlighting

In reviewing some examples of countries' implementation policies, three aspects will be observed in detail:

1. **Is there an overall comprehensive strategy of implementation?** This aspect is fundamental, given the crucial importance of an overall consistency between all the vectors of implementation (new curriculum, new assessment procedures of learning outputs, teachers and school-leaders' professional development, communication top-down, bottom-up and horizontal). Teaching and learning according to a new paradigm requires a comprehensive strategy. This is well illustrated in the following document, reproduced in the Irish country fiche, which underlines the main challenges to be met in order to learn and teach in a new way.

Insert 3.10. Policy: Ireland

Ireland: NCCA interim report: results of a survey

For key skills to really make a difference to the learning experience of students the following **challenges** will have to be addressed:

- It will take time to change mindsets and convince teachers and students of the value of this approach to teaching and learning. This would be supported if key skills were embedded at junior cycle also.
- The amount and type of content in syllabuses will need to change to facilitate the development of key skills and to improve effective learning.
- Methods of assessment and the range of assessment instruments need to be developed to support the type of learning that is encouraged through key skills.
- Additional time is needed for planning, for teaching and for reflection on teaching.

- Professional development that includes a mix of theory and an understanding of practice will be very important to encourage a shift in teaching and learning. In addition to needing training in the skills of reflective practice, teachers also identified a need for training in group work skills, in feedback methods and in cooperative learning methodologies. Some expressed a need for support in integrating ICT within their teaching as it was evident that the use of ICT could contribute to the development of certain key skills (for example in language teaching).

Changing mindsets

Letting go of 'old habits' and assumptions about how students learn was identified by a number of teachers as a challenge, as was changing the mindsets and expectations of students. Not all students appreciated the change in the teacher's role from font of all knowledge to facilitator of learning. Within some classes, especially those taking Higher Level examinations, teachers encountered some scepticism about the value of this approach. Many students still expect to sit back and just absorb information from the teacher (Biology teacher). Teachers did believe that it would be easier for students to adapt to a key skills approach if all subjects were taught in this way and if a key skills approach was used at junior cycle.

'Covering' curriculum content

All the teachers involved in this project concluded that the pressures for coverage of the curriculum can militate against different approaches to learning. They agreed that the syllabus needs to change if a key skills approach is to be successfully implemented, both in terms of the amount of content that a teacher is expected to cover and the type of content. All courses need to be shortened because a key skills approach results in less material being covered in each class period, even though the students may have a far greater understanding of it (Biology teacher). In some cases the type of content must also change in order to facilitate more opportunities for cooperative learning, problem-solving, higher order thinking and reflective learning. 'We should aim to have a syllabus/curriculum with less volume and more quality' (French teacher).

Assessment

Teachers find themselves 'teaching for the exam' and the teachers involved in this project were acutely conscious of the demands and pressures of the exam as they were teaching Leaving Certificate students. Comments such as the following were common, particularly at the start of the project, 'exam dominance leads to teacher and student distrust of group-work' (French teacher). Teachers felt strongly that the method of assessment and the range of assessment instruments needed to change: 'there is little point in teaching our subjects with key skills embedded unless the method of assessment at the end is also key skills compatible. At the moment most exams involve rote learning so there is no incentive for students to do anything more than that' (Biology teacher). 'It is much harder to get things covered when your approach is skills based. While it goes without saying that teaching the skills is infinitely preferable to teaching students to parrot, until the exam changes, nothing else will' (two language teachers).

Time

A further challenge identified was the additional time needed for planning, for teaching and for reflection. The teachers noticed that teaching with a key skills focus required more forward planning. It often required preparing worksheets, group work tasks or exemplar materials which could be used in class. Teachers found out that group work in particular needed careful preparation.

Getting students to move from being passive to active in the learning process is difficult and challenging. It certainly requires more planning. 'Part of the process is the careful selection of pairs, clearly structured worksheets, clearly defined targets and innovative and varied methods of presenting information' (Biology teacher).

However, as the teachers became more familiar with and confident in a key skills approach then it did become easier and required less planning time. The actual teaching of a topic also takes more class time when a key skills approach is taken; but, teachers did comment that students had a deeper understanding of the material at the end of the topic.

Source: country fiche Ireland.

2. **Which communication strategy?** What complementarities are there between top-down and bottom-up (feedback) communication? How important is the horizontal communication through networking between innovators in order to exchange effective practices, to avoid replicating work, to provide support and encouragement, and a testing ground for new ideas? Networking can take place at all levels: local, regional, national, European (e.g. Comenius projects such as the example of *Eurov* quoted in the French case study) and international. In all cases, it is perceived as a very efficient way to develop transversal key competences. What relevant use of ICT can be made to facilitate this networking, collaborative work of teachers and new relationship between all the players in the field, and above all between teachers and students?
3. **What monitoring through assessment and evaluation tools?** Are there any 'measurable indicators' in terms of policy process improvement? What is the role of inspectorates (where they exist) or other similar bodies? Is there any quality control? Is there any incentive and reward for those schools which are effective in implementing the new curriculum?

3.2.8 Review of implementation approaches

In this section special attention is given, for practical reasons, to the six countries for which specific case studies were elaborated within the context of this study: Finland, France, Hungary, Poland, Spain and UK. But other countries are also included, based on information provided in the country fiches.

Finland is indeed a good example of an effective, comprehensive implementation strategy. The outstanding results in the successive rounds of PISA (which tests competences rather than knowledge) are a proof among others of this effectiveness. The Finnish approach to implementation was to involve all the teachers, school-leaders and local stakeholders collaboratively in order to develop each

school curriculum in its own location with reference to the broad objectives of the national curriculum framework. The whole process is a balanced combination of top-down and bottom-up initiatives. However, there is no evidence of specific tools to assess what we could call ‘pure cross-curricular competences’ (i.e. not mainly related to a subject), such as ‘learning to learn’ or ‘sense of initiative and entrepreneurship’. As for the training of teachers, the local collaborative teamwork inside each school is considered by the teachers themselves as the most interesting aspect to facilitate a competence-based approach.

In the **UK**, beyond the specificities of England, Northern Ireland, Scotland and Wales, one can find some main common features with respect to the implementation policies. Like in Finland, schools are increasingly expected to interpret the national curriculum in their local context and to meet as far as possible the specific needs of the students. Recently, more emphasis was given to the development of integrated skills across the various academic subjects and to learning through experiences. In the four nations of the UK, implementation includes three main aspects:

- the curriculum framework, either statutory or non statutory (in Scotland) with guidelines;
- teacher professional development; and
- evaluation (including inspection, surveys or case studies) and students’ outcomes assessment (formative and summative).

Here again, one finds very few references to teaching and assessing transversal key competences in the teachers’ and principals’ training schemes apart from literacy, numeracy and digital competence. Only in Wales is there an explicit reference to teaching problem-solving and creativity.

In Hungary, in 2003, the first revision of the national core curriculum (NCC) had, among other goals, to strengthen the effectiveness of skills development, to increase the innovative capacity of schools, to spur interdisciplinary activities, to focus on motivation to learn, attitudes and emotions, and to enhance cooperative learning and more active teaching methods. At the same time the NCC focused on some competences such as decision-making, critical thinking, problem-solving, handling complex information, and cooperation. The formulation of these objectives took into account the experience of the implementation of the previous NCC from 1998 to 2002 and of the results of some research on cognitive development and the concept of skill. The second revision of the NCC in 2007 focused on the key competences for lifelong learning defined by the European Reference framework (December 2006).

In order to ensure an effective implementation, a ‘curricular support system’ was designed. This system includes not only a curriculum framework and guide-

lines, but also teaching/learning packages, methodological and assessment tools, textbooks and in-service training programmes⁸⁴. There are two components of the support system. The first is responsible for the support of teachers by transferring the overall strategy, common values, key competences and cross-curricula developmental tasks to the local level. The second is educational support; the programme packages include: pedagogical concepts, curriculum, system of modules, tools for organising learning, tools for assessing learning outcomes and support services.

Insert 3.11. Hungary: Two significant examples of innovations in enhancing key competences

The Hungarian case study describes two examples of interesting initiatives taken for implementation purposes. One is of the top-down type. It is part of the 'Human Resource Development operational Programme' (HEFOP) and it concerns a pilot programme involving more than 100 schools operating in regional clusters for developing skills and competences for lifelong learning in 6 domains : literacy, numeracy, communication in foreign languages, ICT, social competences and career competencies. The other example is of the bottom-up type and concerns the initiative of a school with the support of the Foundation for the Modernisation of Education (KOMA) and later of other foundations within the international project on International Network of Innovative Schools (INIS) organised by the Bertelsmann Foundation. In both examples, the communication strategy, the networking allowing collaborative work and exchange of practices, the training of teachers and the dissemination of relevant teaching aids have proven to be particularly important for an effective implementation of a competence-based education giving more importance to active learning, team work and multidisciplinary activities.

Source: country fiche Hungary.

In **Spain**, though the national decision to introduce cross-curricular key competences is rather recent (Organic Act on Education of May 2006), the Autonomous Community of *Catalunya* started the process in 1997. They organised an evaluation of key competences through external examinations set up by the Catalan Higher Council of Evaluation. It was called 'Diagnostic Assessment' and was carried out at two stages of compulsory education. This assessment included 6 exams: 1) oral expression; 2) written expression; 3) written comprehension; 4) mathematics; 5) solving problems; 6) search and use of information. Obviously, the last two domains correspond to purely cross-curricular key competences. From 2000 to 2007, the Catalan evaluation included not only the analysis of the assessment of students' achievement, but also a set of survey tools which made it possi-

⁸⁴ Vilmos Vass, 'The competence-based content regulation system in Hungary', in *The Integrated Person. How curriculum development relates to new competences*, Jos Letschert, CIDREE, 2004.

ble to obtain information on the different patterns of assessing students' performance (according to each teacher and each school), teaching practices and the use of the outcomes of student performance assessment. At the beginning of this evaluation programme, only a few schools were involved in the pilot programme. Their experience was very useful for the extension of the programme. They monitored other schools with the help of experts between 2002 and 2006.

The main results of this survey show some significant improvement over the period in teaching practices and curricular aspects, but less a dramatic increase of student performance. However, as some other autonomous communities of Spain decided to gradually introduce the same kind of evaluation in their school system, the Catalan initiative facilitated the reception and implementation of the Spanish Act of 2006, which is supposed to be completed by 2010. The first national exam, aiming at assessing competences in linguistic communication, mathematics, interaction with the physic world and 'social and citizenship competence' will concern a random sample of schools (about 900 schools and 27,000 students) and will be taken in spring 2009. This Spanish example shows the utility of pilot and experimental operations before extending and generalising a reform in the domain of education. The Spanish case study also underlines the outstanding effort to use ICT and digital competence.

France is another interesting example with respect to implementation policy. First, it is worth knowing that, traditionally, implementation in France was not regarded as a priority (not only in the field of education) until the recent reforms adopted in the context of the new public management framework and according to the principle of accountability. Much attention was paid to the formulation of goals and operational objectives trying to set up a policy that was as rational and consistent as possible. Much less attention was given to implementation, assuming that a 'good policy' should be applied without any specific problem. Of course, it was often not the case. Thus, in the domain of education, many reforms succeeded each other without any systematic evaluation of the previous reform. As for the introduction of the cross-curricular element in the national curriculum of compulsory education with the education Act of April 2005, the implementation process has been rather slow. After a first step – publication in July 2006 of a decree listing the 7 key competences constituting the '*socle commun de connaissances et compétences*' (see above in this chapter) – an official book defining these competences and the first draft of an individual assessment booklet were published in 2007 for the purpose of experimentation in some schools during the school-year 2007–2008. Then, in November 2008, a statutory text was published in the Official Bulletin of the Ministry of Education, stipulating that the new curriculum in primary schools should start to be applied and that the final version of the assess-

ment booklet was to be used by all the schools in order to assess the 7 competences of the *socle*.

Only a few schools are trying to implement the new curriculum with explicit reference to the *socle*. Indeed, many schools are focusing on cross-curricular competences, but many teachers do not really know how to assess the new cross-curricular competences (particularly ‘humanist culture’, ‘social and civic competences’ and ‘autonomy and initiative’). This is not the case for the other key competences. In particular, there was no problem in applying the Common European Framework for Languages, which was easily accepted and used by the teachers. The competence-based approach has dramatically progressed in two other domains: digital competence and ‘education for media’, where France is probably ahead of many other countries. Concerning ICT, different assessment tools have been designed (B2i) which are now currently used in all schools and can be used on line by the students for self-evaluation. The main weakness of the implementation scheme in France is the insufficient effort in terms of teacher training for both teaching and assessing some of the key-competences. It is only for domains such as ICT, foreign languages, education for citizenship, education for media and education for sustainable development that the training of teachers in key competences fits teachers’ expectations. Another feature is that the implementation of the new curriculum is easier in schools confronted with a large number of students at risk (mainly in some disadvantaged suburbs of large cities), since the teachers are more used to working together to find solutions⁸⁵.

In **Poland**, the formal introduction of key competences in the national curriculum is even more recent (September 2009). However, one can consider that this country is at a ‘medium stage’ of implementation because of all the previous grassroots initiatives following different projects supported either by Europe or many NGOs. Already in 1995, the KREATOR project defined 5 competences (inspired by the reflections of task groups under the auspices of the Council of Europe): planning, organisation and assessment of self-learning; effective teamwork; effective communication in various situations; problem-solving in a creative way; and digital competence.

Some other initiatives followed, such as the one carried out in 1998 by the Center for Social Policy and Higher Education, which focused on 5 competences: searching

⁸⁵ There are also many local initiatives by grassroots pedagogical militants in order to implement new teaching methods along the new paradigm of the ‘*socle commun*’ and to disseminate good practice. See for example: Jean-Michel Zakhartchouk, Rolande Hatem (ed.), *Travail par compétences et socle commun : un mode d’emploi*, SCEREN-CRDP Amiens, April 2009. The Education Law of 2005 makes it easier for the schools to innovate by allowing pilot experiences at their initiative.

for and processing information; critical thinking; communication; mathematical literacy. As it is mentioned in the Polish case study, hundreds of initiatives by many NGOs were at the origin of many changes in teaching practices, so that one can say that, to a certain extent, implementation preceded policy formulation...

In **Cyprus**, the government launched an education reform in 2005 based on an academic research report followed by a stakeholders' consultation for which social dialogue structures were also established. The reform aimed to introduce new curricula, including key competences and modern teaching methods, and to ensure an effective transition between the stages of education. In 2008, the Ministry of Education and Culture adopted a second draft ten-year strategic plan for education which envisaged a transition to ten-year compulsory education within the framework of a common base of knowledge, skills and attitudes that are similar to the proposed EU key competences. Although the plan was adopted two months before the elections, with the change of government, the focus of the strategy shifted towards the priorities of the reform of 2005 (social aspects of education). The implementation plan is now under discussion with the main stakeholders. The present situation is that the committee on the reform of the compulsory education curricula has been formed and the first draft will be published by June 2009. The education system will remain highly centralised, with the Ministry of Education and Culture responsible for the curricula and content of the education delivered by public schools.

In some areas the reform is moving forward more rapidly, such as in teacher training programmes, because in some initial pre-service training courses for secondary school teachers offered by the University of Cyprus lectures dealing with the EU priority areas, including key competences, are included. Furthermore, teachers of all disciplines are trained in the effective use of ICT to use learner-focused competence-based approaches to teaching. For in-service training, and as part of the government initiative, all secondary education teachers are expected to become digitally literate and acquire skills to implement the new ICT-oriented curricula. Generally speaking, the new in-service training focuses on issues related to cross-curricular competences.

In the **Czech Republic**, the curriculum is defined at 3 levels:

1. The national curriculum, defined by the Ministry of Education, establishes the main principles and general requirements of state curricular policy.
2. Framework curricula for primary and secondary schools represent a lower level of curricular documents. They aim at modernising the content of education with an emphasis on a competence-based and child-centred approaches. These programmes set out general requirements for each stage of education and for branches of education and define the

compulsory core contents, the attainment targets (or standards) and general guidelines for their implementation.

3. School curricula are the lowest level of the system. Each school must elaborate its own curriculum in accordance with the Framework Curricula for the corresponding type of school. Schools are free to choose their own teaching/learning methods and to design the educational contents in compliance with their educational philosophy.

The cross-curricular topics comprise personal and social education, education for democratic citizenship, education for thinking in the European and global context, multicultural education, environmental education, and media studies.

The documents refer to 6 competences: learning to learn; solving problems; competence to communicate effectively; social and interpersonal competences; civic competence; competences to work effectively and cooperate with others.

Insert 3.12. The Czech Republic: the role of the Research Institute of Education in the process of implementation of the new curriculum

Key competences implementation is monitored and facilitated by the Research Institute of Education (*Výzkumný ústav pedagogický v Praze*), which is the research institute of the Ministry of education. The Institute is running a Project Methodology (*Metodika*) – a system of methodological support of teachers in the development of pupils' key competences and its successor Metodika II (*Keys to Quality/Klíče ke kvalitě*) planned for years 2008–2012, which is financed by the European Social Fund. The project includes:

- A handbook for the development of school curricula helping headmasters and teachers to create their own programmes step-by-step. Published under the title *Priručka příkladu dobré praxe* (The Handbook of good practice examples).
- An interactive virtual forum (called *Electronic Methodical Portal for Teachers*) which offers schools an effective help and methodological support in the course of their school curricula elaboration (<http://www.rvp.cz/>). Participative ways of implementing the Framework Curricula into the school curricula are widely recommended. Teachers are encouraged to use stimulating, participative and interactive teaching/learning approaches, strategies, working methods and forms (e.g. discussion, team work, project work, learning by playing, learning by doing, etc.). Good examples of project work, interdisciplinary approaches, and specific ways of content elaborating in different domains are presented (550 syllabi and tools on <http://dum.rvp.cz/index.html>). Under Metodika II, 2100 new methodological tips and 6500 teaching materials are planned.

Source: country fiche The Czech Republic.

The National Development Action Plan elaborated in 2002 defined a coherent strategy and objectives to be accomplished by 2005 and included proposals for concrete coherent steps for the development of the Czech education system (with some objectives proposed until 2010). According to objectives formulated, both in the White Paper and the National Development Action Plan, a number of funda-

mental changes in the aims and content of education have been launched. New features were introduced in the curriculum, such as the concept of key competences. An internal transformation process inside the schools was initiated. A new Education Act was approved in October 2004. The curriculum reform is designed so that pupil-centred teaching and competence-based learning will be widely applied. New methods of active and participative teaching/learning and various forms of cross-curricular integration are promoted. The National Strategy for Life-Long Learning (*Strategie celoživotního učení ČR*, 20.12.2006) presents key competences as one of the basic concepts for reform.

In Denmark, the Ministry of Education, which is responsible for setting up the framework for curricula at primary and secondary levels, publishes curriculum guidelines for the individual subjects. The standards defined by the Ministry are called: ‘aims and central knowledge and proficiency areas’. The municipalities and the county authorities define the targets and the framework for the activities of the schools. The contents of the courses are finalised by school boards, as long as they meet the targets set by the Ministry. The school board establishes the principles of the activities of the school (number of lessons, special education, optional subjects, etc.) and approves the teaching material.

The Danish Evaluation Institute (EVA) conducts evaluations of teaching and learning at all levels of the education system. The Institute is a self-governing institution which carries out evaluations both on its own initiative and upon request from the government, ministries, local authorities and schools. The evaluations encompass public educational institutions, as well as private providers which receive state subsidies. The Institute is also a national knowledge centre in the field of quality and quality assurance in education.

There is no specific teacher training related to cross-curricular competences except in three domains: ICT, education to citizenship and education to entrepreneurship.

In Germany, responsibility for the education system is conditioned by the federal structure of the State. According to the Basic Law (*Grundgesetz*), educational legislation and administration are primarily the responsibility of the *Länder* (in a system comprising the Standing Conference of Ministers of Education (*Kultusministerkonferenz, KMK*), the regional authorities (*Bezirksregierung/Oberschulamt*) and the school supervisory authorities (*Schulamt*)). School supervisory authorities in each *Land* are responsible for inspection and exercise academic, legal and staff supervision. Each school has a teachers’ council that is responsible for educational matters and a school council (comprising teachers, parents and pupils), which decides on school regulations or disciplinary rules. The relative powers of these councils vary between the *Länder*.

In an effort to improve educational quality across Germany, the KMK adopted a resolution to introduce national educational standards in May 2002. They relate to two types of standards: first the uniform test requirements for the school-leaving certificate and second the standards that should be attained on completion of certain years of schooling.

In 2003 and 2004, the *Länder* jointly adopted binding educational standards for the primary sector (grade 4), the *Hauptschulabschluss* certificate (grade 9) and the *Mittlerer Schulabschluss* certificate (grade 10) for German language and mathematics. At the same time standards for the first foreign language (English/French) in the two leaving certificates of lower secondary education and standards for the *Mittlerer Schulabschluss* certificate (grade 10) in biology, chemistry, physics were introduced. With the introduction of these standards in schools from the academic years 2004/2005 and 2005/2006 respectively, it is now possible, for the first time, to measure the development of quality in schools throughout the country by using a jointly agreed yardstick in the form of standards for average performance.

Educational standards primarily affect the core areas of each subject. They do not cover the entire spectrum of a discipline, but rather formulate subject-oriented and cross-curricular basic qualifications which are of importance for ongoing school-based and vocational education and training and make it possible to continue learning on the basis of competences that have already been acquired. The standards are illustrated with examples of tasks. Furthermore, educational standards guarantee that the school leaving certificates awarded by different types of schools are comparable. The Institute for Quality Development in Education (*Institut für Qualitätsentwicklung* (IQB)) must regularly examine whether the educational standards have been met. However, besides the introduction of the new standards, no information was available on efforts to develop the key competences.

Revisions of curricula in recent years attached more importance to key competencies or key qualifications. In this context, certain types of teaching, such as learning through discovery and understanding by doing, open teaching, a weekly work plan, free work or even pupils' enterprises are deemed particularly conducive to the acquisition of key qualifications. In such a teaching environment, the emphasis is less on instruction. Students are given the opportunity to experiment and show what they can do. They can follow the objectives of their actions and learning from the conceptual stage through to realisation. Mistakes are not punished with bad marks, but rather serve as learning opportunities and teaching staff are called upon much more to act as advisers or moderators than as conveyers of subject-specific knowledge. As far as teacher training is concerned, however, it is difficult to find evidence for concrete examples of the promotion of cross-curricular teaching. Also, the impact of key competences on learning and on out-

comes for learners is a topic that obviously needs further documentation. There are currently few concrete, systematic tools available for measuring the acquisition of key competences. There is, however, widespread testing in literacy and numeracy and, on a more limited scale, in the areas of science and foreign language acquisition. The participation in international comparative studies of pupils' achievement, which like PISA assess some cross-curricular competences such as problem-solving, compensates to some extent for the lack of national tools. Three strengths of the German educational system with regard to key competences are the continuing effort of the KMK to shape future-oriented teacher training programmes, as well as the existence of excellent measures of quality assurance and the implementation of innovative pilot projects in schools.

In **Greece**, a uniform national curriculum framework for primary and secondary education is defined by Law 2525/97. The Pedagogical Institute (PI) is responsible for developing, testing and assessing the national curriculum. An *Interdisciplinary Cross-Curricular Thematic Framework* (DEPPS) was introduced in 2003 for compulsory education. According to the President of the PI: *'This innovative endeavour aims to the adjustment of teaching aims and methodology, while focusing on the balanced distribution of teaching content among all grade levels and the horizontal linking of all subjects contents, seeking to cover a greater variety of topics. It also focuses on a fully comprehensive analysis of basic concepts and the cross-curricular thematic approach to learning implemented in school practice.'* The DEPPS includes a curriculum known as the *'Flexible Zones of Activities'*, which comprises educational material promoting interdisciplinary knowledge and participative educational methods. The Flexible Zones comprise at least two teaching hours per week and involve cross-thematic activities and projects.

Insert 3.13. Greece: Transversal objectives recommended for teaching all subjects

For all subjects 3 types of objectives have been defined: cognitive, affective and *'psycho-kinetic'*.

- Cognitive: acquisition of essential knowledge and development of cognitive abilities necessary for information processing; more specifically, the ability to gather and classify information, to formulate assumptions, to analyse and process information and draw conclusions, etc. The accurate definition of instructional/ cognitive objectives allows to determining what exactly should be taught and how the evaluation of the accomplishment of teaching objectives can be carried out.
- Affective: pupil's emotional development, fostering pupil motivation and their interest in scientific knowledge, developing a set of values, attitudes and behaviours meaningful to the individual and essential to society.
- Psycho-kinetic: development of practical skills, such as carrying out experiments, using instruments, adapting actions according to circumstances, performing new activities easily and effectively.

Source: Country fiche.

In the monitoring advice emphasis is placed on the development of critical thinking, the encouragement of collective and cross-subject activities on themes integrating knowledge from different disciplines. The DEPPS reform is still in the process of implementation. As the final Report on *Peer Learning Activity on Key Competences for Lifelong Learning* in Greece states, the Flexible Zone ‘...has proved much easier to implement in primary than in lower secondary schools, where teachers are more resistant to working in a cross-curricular way.’ According to the same source, ‘The curriculum remains very much textbook-centred, however. Individual subject planning is carried out centrally and seeks to ensure links between subjects within macro-concepts spanning different subject disciplines.’

Among the recommended objectives of assessing learning outcomes, some address transversal key competences more particularly:

- To cultivate an inquiring spirit, develop problem-solving abilities and acquire knowledge and skills through cross-thematic approaches;
- To foster pupils’ responsibility for their learning through involvement in collective work and self-assessment;
- To reinforce pupils’ confidence and self-esteem and assist the development of their personality;
- To allow pupils to acquire meta-cognitive skills through the control and management of their learning.

The Pedagogical Institute (PI) is responsible for quality assurance. It implements quantitative and qualitative surveys on primary schools.

Since 1997, Greek education has attempted a paradigm shift from a rigid curriculum-based school system in which the teacher had primary importance in the classroom to a more flexible learning-based system in which the student is at the centre of the learning process. This transition is not complete. A lack of financial and educational resources and continual changes in educational policy have played a role in slowing down implementation. Yet the new generation of textbooks and learning materials at the primary and secondary levels are clearly oriented towards the development of key competences as well as the ‘learning to learn’ approach. The adoption of the Flexible Zone, whereby each student has at least 2 hours per week to focus on a topic of individual (and class) interest, has permitted the exploration of a wide range of additional topics. The adoption of projects around themes such as the environment, the European Union and social inclusion has concerned every school in recent years. Other initiatives, such as entrepreneurship and the digital economy, have also been developed, although slowed down by the lack of resources for materials, teacher training, and equipment.

In **Malta**, The National Minimum Curriculum (NMC) dates from 1999. In this document the term *key competence* is not used. However, the NMC is orientated around learning outcomes. It lists what skills pupils should acquire by completion of primary schooling and what pupils should have achieved on completion of secondary schooling.

The 8 key competences recommended at European level are listed as part of the National Qualifications Framework rather than as part of the curriculum (which predates the NQF). The key competences are available for levels 1 to 3 of the NQF – up to the level of the Secondary Education Certificate. Thus, the main policy driver for key competences has been the introduction of the National Qualifications Framework for Lifelong Learning (Malta Qualifications Framework) adopted in October 2005. The NQF is the responsibility of the Malta Qualifications Council (MQC), which was set up by the same law. The mission statement of the MQC is to support competitiveness rather than the social aspects. The Council is also responsible for approving national standards of knowledge, skills and competences and attitudes.

The Directorate for Quality and Standards is currently chairing a national curriculum review with input from different stakeholders. The draft of the curriculum framework is planned to be completed by the end of 2009. In February 2008 a department of Quality Assurance was set up within the Directorate of Quality and Standards. Its role is being developed and it involves both internal and external quality assurance. The key competences of the NQF do not relate to the NMC and this is one of the reasons why the NMC is being reviewed. The Directorate of Education offers in-service training of teachers. However, the catalogue for 2008 does not include any courses promoting key competence-orientated teaching⁸⁶.

In **The Netherlands**, the inspectorate has monitored how schools interpret the objectives relating to '*stimulating active citizenship and social integration*' since 2006. The subject of citizenship is specifically defined in terms of '*learning to live together*', thus excluding a narrow, national interpretation. Activities designed to promote the internationalisation of education have been initiated both by educational institutions and the government since the publication of the policy documents 'Widening Horizons', 'Unbounded Talent', 'Unbounded Talent Action Plan' and 'Education without Frontiers'. These have led to programmes relating to, for example, mobility and exchanges between teachers and pupils in primary, secondary and vocational secondary education, international exchanges of teaching materials, in educational research and evaluation methods.

⁸⁶ **Implementing the 'Education and Training 2010' Work programme: 2005 Progress Report: Malta** (available at: http://ec.europa.eu/education/policies/2010/nationalreport_en.html).

According to evidence drawn from the inspectorate's evaluation of the curriculum referenced in a study by SLO (2008), in practice there is not a single school that meets all the core objectives for all subjects. Therefore no schools meet the legal requirements. They do, however, meet most core objectives. This seems also to apply to the general objectives. These implementation issues seem to have arisen from the more complex nature of the 2006 objectives and a failure to consult teachers sufficiently on the objectives. However, slowly but surely, one can observe more of a bottom-up than a top-down approach for the formulation and implementation of core objectives, and teachers are increasingly involved.

In terms of implementation, there is a substantial amount of guidance for teachers, who are given great autonomy to work within the framework for the curriculum. Requirements for assessment do not seem to relate to cross-curricular competences or skills beyond language and mathematics. However, the inspectorate is responsible for evaluating the implementation of both core and general objectives in the curriculum. Its evaluation has implications for teacher training.

In **Portugal**, the communication strategy began in the early part of the reform. The essential competences for basic education (*ensino básico*) are the outcome of a wide-ranging debate which took place between 1996 and 2001. The process of defining these essential competences involved schools, higher education institutions, specialists and researchers, educational associations and movements and civil society in general. This led to the *Projecto de Gestão Flexível do Currículo* (project for flexible curricular management) in which many schools took part between 1997 and 2002. Based on the experience of curricular management, the definitions of general and specific competences were validated through their school-based implementation. The curricular reorganisation of basic education has been implemented at national level since the 2001/02 school-year (under the terms of Decree-Law 6/2001). Initially applied to the first and second stages of basic education, its application was gradually extended to the third stage, a year at a time. Since 2004/05, the whole of basic education has been governed by the competence-based curriculum.

Some essential transversal competences are meant to be acquired at the end of basic education:

- adopt personalised working and learning methodologies geared to achieving set objectives;
- investigate, select and organise information in order to transform it into knowledge that can be mobilised;
- adopt appropriate problem-solving and decision-making strategies;
- carry out activities independently, responsibly and creatively;
- cooperate with others in common tasks and projects;

- foster a harmonious relationship between the body and space through a personal and interpersonal approach that enhances health and the quality of life.

For the development of these general competences, an interrelation between all curricular fields is required by ministry guidelines. The various parts of the curriculum and the teachers concerned have to make it clear how this transversal aspect should be integrated into each subject and applied to each learning situation. For each general competence, some teaching practices considered essential for its proper development in the different areas of the curriculum for basic education have been suggested.

In **Sweden**, within the framework set by the Parliament and the Government, each municipality has to implement the targets in terms of learning outcomes. The municipalities are also responsible for following up and evaluating the schools. According to the law, each municipality establishes a local school plan describing the organisation, financing, development and assessment of the activities within each school. Each school head teacher is required to establish a local working plan, taking into account the national goals and the local school plan. This working plan defines issues such as course content, organisation and teaching methods. It is prepared in consultation with the teachers and other staff. The school, or in most cases the teacher, decides what teaching material to use. The school plan has also to describe, in concrete terms, how the school intends to organise its activities in order to reach the centrally defined goals. The school head teacher has overall responsibility for ensuring that the national and municipal goals are transferred into concrete educational objectives.

The main authority for school education, the Swedish National Agency for Education, focuses on the follow-up and evaluation of activities (instead of providing detailed rules). The Swedish National Agency for School Improvement is responsible for the qualitative development of the educational system. It provides support for the development of local activities in pre-school, school-age childcare, school and adult education. Its main task is to support and stimulate municipalities and schools in their application of the national goals. Through this authority, the state supports work on developing quality within nationally prioritised areas. The focus is primarily on measures to achieve better results in basic skills and to improve conditions for education in deprived areas. The Agency is also responsible for the content of the national programme of training for school-heads, as well as promoting competence development of staff in the school and childcare system. In addition, the authority stimulates the continuing use of information technology in school by developing information campaigns and disseminating research findings. In accordance with the legislation, *'From ICT policy for society to policy for ICT Society'*, the Agency promotes the development and use of ICT in pre-school,

school and adult education. With the Swedish Agency for Flexible Learning it provides ICT-based tools that may be used to develop competence in the ICT area. The authority also promotes and supports the development of joint standards in the education arena and provides support and advice to municipalities and other organisers who are planning to co-ordinate measures with private players in order to create new services in ICT for pre-schools and schools.

Insert 3.14. Sweden A national initiative to make learning and teaching more attractive

Attraktiv Skola was a development project aimed at increasing the quality of Swedish schools and the attractiveness of the teaching profession. It was carried out in the years 2001–2006. The objectives of the project were: to create work organisations that support development and quality work in schools, to find new development and career opportunities for teachers, to promote school development by cooperating with university colleges and the business community, to show ways in which experience can be disseminated between schools and to disseminate the knowledge and experience that this project generates. The organisers of the project were the Swedish Union of Teachers, the National Swedish Federation of Teachers, the Swedish Association of Head Teachers and Principals, the Swedish Association of Local Authorities and Regions, the Swedish Ministry of Education and Science and the National Agency for Education in a unique joint venture. In May 2000 all the local authorities in Sweden were invited to take part in the programme, more than 100 local authorities applied to take part in the project, of which 34 were selected.

Source: Sweden country fiche.

In **Slovenia**, the reform of general education has been in the planning stages for three or four years and a new curriculum is to be introduced as from 2008/09. The General Education Institute has worked in parallel to develop a statement of key competences for upper secondary general education. The case of teacher training programmes is slightly different because, once again, as in Cyprus, some previous initiatives have already been implemented. Innovation has tended to concentrate on active learning styles rather than key competences. In any case, many academics doubt the usefulness of key competences as an approach and some consider the identified competences as too instrumental or related to the labour market. On the other hand, in-service training has been reformed and now all teachers have an entitlement to and an obligation to attend at least five days per year of in-service training because the intention is for teachers to become more actively and creatively engaged in curriculum planning and development, including new methods and approaches. So, active learning is stressed in the new official documents to empower teachers with new skills.

Interesting pilot programmes are taking place, but have not yet been expanded system wide. Change is intended at three levels: classroom practice; schools as change agents; school system level regulatory framework. These changes mean

that key competences are being built around the existing subjects: for mother tongue, mathematical and scientific skills this can be specific to a subject to some extent, but this does not work for the cross-curricula skills such as ICT, learning to learn and entrepreneurship, which implies that a deeper effort to define objectives and methodologies in these disciplines has to be made.

In **Italy**, the fact that the current Law on education does not mention the term ‘key competences’ makes it difficult to identify their implementation throughout the Italian education system. Nevertheless, some of the concepts appear implicitly in the curricula and, due to the New National Guidelines of 2007, taking into account key competences, curricula in compulsory education and training programmes for teachers are slowly and gradually changing with more advanced initiatives in a few individual schools or networks of schools.

3.3 Main issues arising

1. There is an ambiguity in the vocabulary used in the different countries. In particular, this is very much the case for the notion of cross-curricular key competences. A clarification could be useful: the distinction between ‘pure’ transversal competences (for example: ‘learning to learn’ or ‘sense of initiative and entrepreneurship’) and cross-curricular competences which are more subject-based (for example: mathematics or foreign language). The first category appears to require more innovative practice and tools.
2. The competence-based paradigm implies new teaching methods, new relationship between all the stakeholders (students, teachers, parents and external partners), the relevant use of ICT, a new organisation of schools, etc. This requires time for learning by doing and a comprehensive approach to the process of change by the policy-makers at all levels: national, regional, local, individual school.
3. Such a systemic approach must take into account, in their dynamic inter-relations, the different, complementary vectors of the process of change: teaching methods and technology; professional development of teachers; assessment of learning outcomes; the evaluation of the process of change (in particular in terms of motivation to learn and to teach, school ethos, dropouts, well-being, etc.).
4. A strategic communication (top-down, bottom-up and horizontal) is an important factor of an effective implementation policy. Only a few

Member States managed to design such a comprehensive communication strategy at a really satisfactory level.

5. It seems crucial to develop collaborative work at all levels and for interdisciplinary activities. ICT can contribute effectively to networking, exchange of experiences, self-learning, teacher and school-leader training, heuristic approaches contributing to acquire some important transversal abilities. These include adaptability to fast changing contexts, creativity, sense of initiative, etc. This requires more reflexion about the relevant use of ICT and the impact on key competences.
6. In most countries, the training programmes for teachers and school-leaders have been more or less insufficient. Improving them is a crucial condition for an effective implementation of the new curricula. The key competences approach demands a new attitude in teaching, with the emphasis changing from knowledge-based teaching to developing more active learning and multi-subject activities. School practice is playing an increasing part in the process of teacher training. Thus, closer cooperation is needed between training institutes and schools. Standards of teacher training have to be feasible, which requires some '*alternance*' between theoretical courses and periods of practice in school with some mentoring. Such an evolution is observed in nearly all Member States. Once the policy objectives are clear, the dissemination of relevant materials by a national institution for teachers and schools in relation to key competence approaches seems to be very helpful and much appreciated by the teachers. If the dissemination is at a global level, the degree of coherence of the message that has to be transmitted is higher, as well as the quality of the results of the teachers' training and the new learning process.
7. Much more reflection is necessary about the way to assess some of the cross-curricular key competences. In these domains, the basic question 'how good is good enough?' cannot be answered easily. What new criteria can be proposed? It is an important issue because this difficulty explains to a large extent the hesitation or reluctance of many teachers concerning pure transversal competences. In this respect the research/development in the field of education and training seems still insufficient.
8. The introduction of transversal key competences in the taught curriculum requires a new organisation of school activities which can very much benefit from relevant school development plans, including operational

measurable objectives and suitable indicators. School leaders need some specific training in this respect.

9. There is not much evidence yet among the Member States of a systematic evaluation of the results of the implementation process of cross-curricular key competences. For instance, not many countries have national indicators that guide the change for which local governments or schools are responsible. Nevertheless, where they do exist, they ensure some kind of quality. Implementation of the competence-based curriculum is not valuable without competence-based assessment of student achievement and support for teachers and schools in terms of material and guidance. It seems useful to organise assessment tools at national level in order to support policy. Evaluation can be made at different levels and can concern many aspects of implementation: teaching materials, teacher training programmes, school practices, methodologies, students' learning outcomes, communication between the key actors, etc. Not much is said in most country fiches or in the case studies about the role of inspectorates (in the countries where they exist) for evaluating the way policy objectives are understood and translated in the field. Scotland and the Czech Republic are ahead in this domain. It seems that the Inspectorate's role in this respect is not crucial, except for some quality control, while it looks more important in the task of explaining the policy objectives, stimulating change in attitudes and teaching methods and in giving advice. Only a few Member States (notably UK-Scotland, Denmark and Hungary) have developed formal quality control procedures.
10. The whole process of change towards competence-based learning and teaching must be regarded as a sustainable, systemic process of change which requires some continuity over time. This point is fundamental. One of the main explanations of the outstanding results of Finland in PISA and in other international surveys (IEA, ETS, etc.) is certainly a reasonable continuity of their education policy in the long run.

In the following chapters, the two main vectors of the implementation policy – assessment/evaluation and teachers' professional development – will be analysed in much greater detail before giving a concrete picture of what is happening at school level in the Member States.

4 The assessment of cross-curricular key competences

4.1 Introduction

This chapter addresses the challenge of assessing learners' key competences, particularly cross-curricular key competences, and current policies in the EU Member States. Whereas the previous chapter considered assessment as one of a range of implementation measures, this chapter takes a broader view of assessment and its contribution to the development and recognition of learners' key competences. It also touches on issues relating to teacher training, which is fully addressed in the next chapter. Like the other chapters, this assessment chapter primarily draws information from the country fiches assembled for this project. This is supplemented with information drawn from relevant sources used in the conceptualisation chapter plus a few new and additional sources. Given the information in these sources, this chapter necessarily focuses Member States' assessment policies, which may differ from practice. However, the chapter raises important issues for assessment policy in Member States and for the work of the European Commission.

This assessment chapter is structured according to two main sections, each with three sub-sections:

What is being assessed?

- Typology of assessed constructs
- Assessing knowledge, skills and attitudes
- Competences and contexts

How are competences being assessed?

- Competences, sub-competences and indicators
- Acquisition of 'competence'
- Modes of assessment and purposes

These main sections are followed by a concluding section considering the major issues and implications for assessment policy that arise from this chapter.

4.2 What is being assessed?

This section identifies the constructs being assessed in each of the Member States. It firstly provides a typology of countries according to these assessed constructs. It then goes on to consider the European definition of key competences, its implications for the assessment of learners, and the corresponding assessment policies in the Member States.

4.2.1 Typology of assessed constructs

This section provides a typology of countries and their policies according to the constructs assessed in relation to the school curriculum. The first two types refer to countries that assess cross-curricular competences explicitly, or implicitly. The third type refers to countries that mainly assess subject competences rather than cross-curricular competences. The fourth type is countries where assessments focus on knowledge rather than the broader learning outcomes inherent to competences.

Type 1: Assessing cross-curricular competences explicitly

Several countries that identified a set of cross-curricular competences for the school curriculum have also developed associated assessments. In these countries, the curriculum continues to be mainly structured by subjects (narrower domains, for example history or geography in France) or areas (broader domains, usually at primary level, for example knowledge of the natural, social and cultural environment in Spain)⁸⁷. However, these subjects/areas provide contexts for the development of the competences across the curriculum. Assessment is therefore through subjects/areas but, to varying extents, explicitly aims to assess each of the competences through each of the subjects/areas. The extent depends on the nature of each competence and subject/area, priorities for policy and, of course, the stage of implementation in each country. Several country examples follow.

In the French- and Dutch-speaking communities of Belgium, assessment during compulsory schooling continues to be through the prism of subjects but it now focuses on competences rather than knowledge alone. In Flanders, this assessment focuses on final objectives (relating to learning areas and cross-curricular themes) and cross-curricular final objectives, which define the minimum set of knowledge,

⁸⁷ For a fuller discussion see: Pepper, D. (2008). *Primary curriculum change: directions of travel in 10 countries*. International Review of Curriculum and Assessment Frameworks Internet Archive: www.inca.org.uk.

skills and attitudes required of pupils during compulsory education. The final objectives provide attainment targets and schools determine their own assessment policies. In Wallonia, the emphasis was previously on a smaller and more traditional range of domains but now assessments are being developed as a guideline to all schools which correspond to the eight domains of the *socles de compétences* for compulsory education.

In France, assessment during compulsory schooling has shifted towards the seven domains of *le socle commun de connaissances et de compétences*. The curriculum is generally organised by subjects or areas, with each one expected to contribute to the development of the knowledge, skills and attitudes in *le socle*. However, the competences in the *socle commun* are now to be assessed throughout compulsory education by means of the new *livret de compétences* and at the end of secondary education through the new *brevet des collèges* (which is not a compulsory qualification).

Luxembourg has moved away from knowledge assessment towards competence assessment. New methods of assessment are being encouraged and used in connection with *les compétences transversales* and *le socle de compétences*. Subjects, according to which the curriculum is structured, present opportunities for the assessment of these competences. Some competences are regarded as less measurable than others, such as entrepreneurship, but national policies give all of the competences a high status.

Spain has introduced assessments for the ‘*competencias básicas*’ in the compulsory curriculum. The focus of these assessments is currently on four competences: competence in linguistic communication, mathematical competence, competence in knowledge of and interaction with the physical world, and social and civic competence. Clear and explicit links have been made between these four competences and the assessment criteria for subjects/areas in the curriculum (Roca and Sanchez Nunez-Arenas, 2008)⁸⁸.

In Hungary, there has been a systemic move away from assessing factual knowledge towards assessing general competences. A set of cross-curricular competences have been defined for the subject area-based curriculum. Nationally, assessment of these competences through the statutory system of National Competence Measurement is currently mainly for reading and maths but there are plans for social competences to be assessed too. The development of not just literacy and numeracy but also competences in foreign languages, information and com-

⁸⁸ Roca, E. and Sanchez Nunez-Arenas, R. *Citizens' competences for the 21st century: Working and assessing competences in the Spanish education system* in CIDREE (2008) *A toolkit for the European citizen: The implementation of Key Competences: Challenges and Opportunities*. CIDREE/DVO: Belgium.

munication technology, social competences and career competences is currently being piloted. In this pilot, assessment of these competences is compulsory.

Information for some other countries suggests that cross-curricular competences and similar concepts are being assessed through more localised innovations or pilots. This presents an earlier stage of implementation than the examples presented above and perhaps a more-bottom-up approach to implementation. These countries include the Czech Republic, Estonia, Romania and Slovakia. This innovation is made possible particularly by virtue of the flexibility or provisions within national frameworks and additional resources from specific initiatives relating to key competences.

Ireland and the UK, where the emphasis of school curricula is on skills rather than competences, provide a contrasting example. The long-standing national key skills qualifications in Ireland and across the UK⁸⁹ are intended to explicitly assess cross-curricular skills. Skills in communication, number, ICT, working with others and improving own learning and performance are assessed discretely rather than through curricula subjects/areas. In addition, these qualifications have some implicit contextual knowledge and supporting attitudinal requirements.

The assessments associated with Northern Ireland's compulsory curriculum reflect the key skills tradition in the UK. Although the curriculum in Northern Ireland is mainly organised according to areas, skills form the basis of levels of progression and, therefore, assessments. There are, however, only levels of progression for 'cross-curricular skills', which relate to communication, using ICT, and using mathematics. Schools are encouraged to draw assessment evidence for each of the cross-curricular skills from at least two areas. Guidance is being developed to help schools to monitor and report progress in 'thinking skills and personal capabilities' (managing information, thinking, problem solving and decision making, being creative, working with others, and self-management) in each area⁹⁰.

Type 2: Assessing cross-curricular competences implicitly

Some countries emphasise the development of knowledge, skills and, sometimes, attitudes in each subject/area and across the curriculum. They identify cross-curricular constructs such as goals, objectives, themes or skills to promote this emphasis. Although these constructs do not form an explicit focus for assess-

⁸⁹ A similar suite of Key Skills qualifications are available across the UK but they are known as Core Skills in Scotland and are being replaced by Functional Skills in England. Full details can be found in the annexed UK case study for this project.

⁹⁰ Northern Ireland Partnership Management Board:
http://www.pmbni.org.uk/news_stories/0208/conference.asp.

ment, to the extent that they are expressed in subjects/areas, they are assessed through subject/area-based assessments.

Denmark's National Competence Account has identified competences for professional life and personal development. Indicators for these competences will make it possible to measure acquisition and barriers to acquisition of them. Also in relation to measurement, or rather assessment, 'qualifications and competences' is one of five areas in the government's Better Education strategy⁹¹. Assessment standards in a range of subjects have been developed but further information is required on the competence content of these standards.

Sweden's curriculum provides overarching 'goals to strive for' (for example, working independently and with others) and 'goals to be attained' (for example, mastery of Swedish) across the curriculum in compulsory and post-compulsory education. These goals incorporate knowledge, skills and, to a lesser extent, attitudes. They are linked to the content of subjects, through which the curriculum is organised and in which pupils are mainly assessed. National testing focuses on Swedish, English and mathematics but school self-evaluations of the extent to which the goals are achieved form the basis of locally compiled compulsory quality reports.

In Finland, knowledge, skills and attitudes are embedded in the subjects and cross-curricular themes of the curriculum. The cross-curricular themes include, for example, 'active citizenship and entrepreneurship' and 'sustainable development'. There are no established criteria for assessing the competences implied by these themes. However, each cross-curricular theme specifies several objectives for learners that could provide at least an initial basis for their assessment through the subjects or the themes.

In Greece, the cross-curricular thematic framework for compulsory education includes general goals, including knowledge, values, attitudes and skills which corresponding to or integrate each of the key competences set out in the EU reference framework. At primary level, these are particularly promoted through *cross-thematic activities*. These activities contribute to compulsory pupil assessment at the end of each grade. One of the purposes of this pupil assessment is to '*cultivate an inquiring spirit, develop problem-solving abilities and acquire knowledge and skills through cross-thematic approaches*'.

There is a slightly different approach in The Netherlands' compulsory curriculum. In basic education, continuous assessment is based on two types of objectives in the curriculum. There are subject-specific *core objectives* and cross-curricular

⁹¹ Eurydice. (2002). *Key competencies: A developing concept in general compulsory education*.

general objectives. These general objectives emphasis skills and attitudes to work and are embedded across curriculum subject and areas. At the end of primary education, a large majority of schools choose to participate in external standardised testing. The tests assess pupils' attainment in language, mathematics, study skills, and world orientation through multiple-choice questions. In contrast, pupils at basic secondary level are assessed in school-based tests relating to the general and core objectives.

In Cyprus, some key competences (Greek language, foreign language, mathematics, science and ICT) have been embedded into the curriculum subjects and are to some extent assessed through overall assessment procedures. However, this assessment remains more knowledge-focussed than secondary technical and vocational education, which is more competence-based.

In Ireland, the emphasis is on knowledge and skills alone, embedded in the subject-based curriculum. The key skills in the primary and secondary curriculum are defined in terms of their *essential elements* and *learning outcomes*. The learning outcomes indicate what learners might demonstrate in assessments as evidence of acquiring a key skill.

In the UK, in England, Scotland and Wales assessment at primary and lower secondary level is generally based on subjects/areas, which comprise knowledge and skills. Cross-curricular knowledge, skills and attitudes are embedded in the subjects and areas which usually provide the focus for assessments. However, schools may choose to assess skills discretely rather than within subject areas and there are resources to support them in this alternative approach.

Type 3: Assessing subject-specific competences

Other countries are taking a more competence-based approach to subjects or areas and this is reflected in the assessment of these subjects and areas. The emphasis of teaching, learning and assessment is on subject competences, particularly in prioritised subjects, rather than cross-curricular competences – although in some countries there are signs that this may change.

In Germany, Austria and Poland, national standards have been developed in order to facilitate the assessment of a limited range of competences during compulsory schooling. These standards are essentially subject-specific in Germany (German, mathematics, a modern foreign language and sciences) and Austria (reading, mathematics and, to a more limited extent, natural science and foreign languages). Although official documents in Germany refer to subject-independent competences to be developed across subjects, no references to their assessment were found. Austria's *Unterrichtsprinzipien*, which approximate to cross-

curricular themes, are currently being reviewed⁹². This may present an opportunity to incorporate these themes into assessments.

In Poland, there is more of a mixture of subject-specific (reading, writing, numeracy) and cross-curricular standards (reasoning, using of information and using knowledge in practical situations) at primary level. At lower secondary level, assessment focuses on two ‘blocks’ called humanities and math-science, which comprise discipline-specific skills. For example, interpretation and analysis relates only to humanities and problem solving relates only to math-science. However, it should be noted that Poland’s new curriculum arrangements, to be implemented in 2009, make reference to the key competences. It is not yet clear whether there will be corresponding changes to assessment.

Knowledge, skills and attitudes are also assessed through subjects in Latvia, according to information available for primary education. In addition, participation in classes is also assessed⁹³. In Bulgaria, pupils’ knowledge and skills in subjects are regularly assessed throughout the school year and assessment at upper secondary level has become more competence-based. Assessment in Italy has focussed on knowledge and skills in particular subjects but also overall behaviour, particularly attitudes towards school life. There are national developments in Italy relating to explicit assessment of competences but these tend to relate to competences within rather than across subjects.

Type 4: Assessing knowledge rather than competences

In some countries, assessment policy has recently been given an increased profile, particularly in terms of the assessment of broader learning outcomes than knowledge alone. However, the following examples show that, at some levels and in some sectors of education, the policy intention has sometimes been frustrated by implementation issues.

Although Portugal introduced *competências essenciais* in 2001, ‘the logic of knowledge assessment’ reportedly remains dominant in schools and the particular emphasis is on Portuguese and mathematics. However, the development of an assessment culture is now an explicit policy aim. Similarly, Lithuania has recently introduced a revised curriculum focussing on competences but assessment, as yet, is still limited to academic knowledge.

A number of countries have sought to reform assessment at post-compulsory level by moving away from knowledge assessment and towards competence as-

⁹² Concepts and Implementation Strategies for Overarching Themes, one-off CIDREE event on 13 March 2009 in Graz, Austria.

⁹³ *National summary sheets on education systems in Europe and ongoing reforms: Latvia*. Eurydice. (2008).

assessment. However the ‘high stakes’ associated with upper secondary qualifications has sometimes militated against such changes. This is particularly the case where these qualifications are required for entry to higher education. Several country examples are provided in the remainder of this section.

In Greece, the moves towards competence-based assessment in compulsory education contrast with upper secondary education, which is oriented towards university admissions. It therefore continues to focus on assessing academic knowledge rather than broader learning outcomes. The government suggested ‘decoupling’ upper secondary education from university entrance but specific proposals have not yet been made.

In Hungary, primary and lower secondary level assessment is now partly competence-based and there has also been some reform at upper secondary level. However, although the Matura examinations are now less knowledge-centred, the culture and influence of academic secondary schools means the changes have been more limited.

Malta’s new national qualifications framework is based on the key competences but they are only referenced to qualifications that are typically taken at the end of lower secondary education (for example the Secondary Education Certificate). Although this framework incorporates general and vocational qualifications, those relating to upper secondary education are therefore not referenced to the key competences. The curriculum predates the key competence approach in this framework but is being reviewed.

In Poland, the Matura examination procedures and criteria were substantially revised in 2007, yet the government was unwilling to introduce a Matura qualification for the compulsory subject of entrepreneurship. It is not yet clear what impact the new curriculum based on key competences planned for September 2009 will have on these and other assessments.

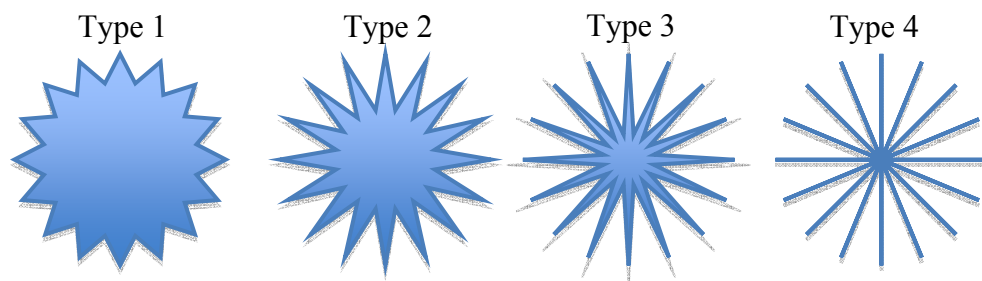
In Slovenia, vocational education underwent a process of reform that took an explicit key competence approach and was completed by 2007. On the other hand, the school curriculum remains strongly subject-based and assessment emphasises knowledge rather than broader competences. Upper secondary education is particularly bound by traditional opinion and practices in schools and universities.

4.2.2 Summary of typology of assessed constructs

The Typology, as illustrated in Figure 4.1 (below), shows that Type 4 assessment relates to narrow ‘spokes’ of subject-centred knowledge. This contrasts with Types 1, 2 and 3, where there is more emphasis on broader learning outcomes than

knowledge alone. In Type 3 the emphasis is on broader ‘spokes’ of competences (or similar) within subjects, particularly those subjects considered to be a priority.

Figure 4.1. Typology of key competences assessment



In Types 1 and 2 there is more emphasis on competences (or similar) to be developed across the curriculum, contributing to more holistic learning ‘at the centre’. In Type 2, these cross-curricular constructs feed into subject-based assessments implicitly, so there is more division between subject ‘points’ than in Type 1, where explicit assessment of competences across subject boundaries reduces traditional divisions and gains a broader picture of overall development.

4.2.3 Assessing knowledge, skills and attitudes

The Recommendation of the European Parliament and of the Council on key competences for lifelong learning clearly defines key competences as comprising knowledge, skills and attitudes. This differs from the European Qualifications Framework for Lifelong Learning (EQF). The EQF defines 8 levels according to learning outcomes arranged under three headings. These headings are knowledge, skills and competence. Knowledge is described as theoretical and/or factual. Skills are described as cognitive and practical. Competence is described in terms of responsibility and autonomy. Thus, in the EQF’s learning outcomes, knowledge and skill are distinct from competence and, although attitudes may to some extent be subsumed in autonomy and responsibility, there is no reference to attitudes *per se*. As a result, the key competences and the EQF, as currently configured, have different implications for assessment policy in Member States. However, there is no doubt that both the key competences and the EQF have the potential, as the Recommendation intended, to promote personal fulfilment and development, social inclusion, active citizenship and employment.

The policies of most EU Member States refer explicitly, or at least implicitly, to knowledge, skills and attitudes in their curriculum frameworks. However, whilst the stated aims of assessments may refer to competence and, implicitly, all of these three aspects, in practice assessed learning outcomes less frequently include attitudes than knowledge and skills. However, several examples of the assessment of attitudes as learning outcomes are available.

The annual Scotland Survey of Achievement has assessed the attitudes of a national sample of pupils, specifically their motivation to learn. In the first years of primary education in Germany, pupils' attitudes to learning are assessed. In addition, assessing attitudes to work, learning and social behaviour are now an accepted part of evaluation in most German Länder. Similarly in Italy, pupils' 'interest and participation in school and educational life, their commitment' are assessed. In Finland, the national criteria for pupil assessment include pupil conduct. A project in the Czech Republic that identified innovations in key competences found that one secondary school's self-evaluation included the assessment of pupils' skills and attitudes in relation to each key competence. The country fiches therefore suggest that whereas the assessment of attitudes is organised at system level for evaluation in Scotland, there is some assessment of attitudes at school level in Finland, Germany and Italy for apparently summative and formative purposes and, in the Czech Republic, for self-evaluation.

In other cases, assessments sometimes make an assumption that attitudes can be inferred from the acquisition of knowledge and skills. However, the acquisition of knowledge and skills does not necessarily imply positive attitudes that will sustain lifelong learning. Equally, it is important to identify negative attitudes that present a barrier to the acquisition of knowledge and skills, and therefore competences. The assessment of attitudes as learning outcomes in their own right presents a new challenge for many education systems. However, as the European Commission's Cluster on Key Competences and Curriculum Reform has noted, 'all cluster countries are keen to learn from other countries how to measure *the skills and attitudinal components of competences*'⁹⁴.

A further example arises from international assessments. Although OECD's PISA survey has assessed attitudes, it has done so from the perspective of attitudes as an explanatory variable for knowledge and skill acquisition. By contrast, the International Association for the Evaluation of Educational Achievement (IEA) International Civic and Citizenship Study and the European Commission's Centre for Research on Lifelong Learning (CRELL) pilot of the European framework for a test to measure learning to learn have both sought to assess attitudes as

⁹⁴ *Cluster Key Competences – Curriculum Reform Synthesis Report on Peer Learning Activities in 2007*, p.17. European Commission. (2008).

learning outcomes. CRELL's framework for learning to learn is notable for comprising an affective dimension, a cognitive dimension and a meta-cognitive dimension. In the pilot, the longest and most difficult cognitive test items arising from the framework caused some learners to give up and therefore unintentionally also tested the sub-dimension of learning motivation within the affective dimension⁹⁵. This demonstrates the difficulty of assessing knowledge, skills or attitudes in isolation and, in fact, the need to assess them together in concert.

4.2.4 Competences and contexts

As we have seen, the European concept of key competences comprises knowledge, skills and attitudes. It also considers that these three qualities should be *appropriate to context*. Thus, depending on the circumstances they encounter in each context, learners must be able to deploy their knowledge, skills and attitudes appropriately. In France the *socle commun* states that competences 'must be transferable, therefore applicable to a variety of situations and contexts and multi-functional, as they should be used to reach several objectives, to solve problems of different kinds and to accomplish different tasks'. In Luxembourg, pupils have acquired a competence when 'they know what to do, how to do it and why to use what they've learned in a particular situation'. These definitions have important implications for assessment. In fact, in Germany, one challenge in the assessment of competences has been identified as the need to 'measure the quality of interaction with a constantly changing environment'⁹⁶.

The concept of competences for contexts is, however, more familiar in vocational education, where learning is linked to specific applications. In the school curriculum, the challenge is magnified by its general nature; it should prepare learners for the range of contexts they may encounter in their lives. It follows that assessments of key competences should measure learners' application of their competence in a range of contexts. Naturally, this may be both inside and outside of formal learning environments. Assessment must therefore relate to real-life contexts or reproduce them authentically. If the aim of assessments is to measure the use of competence in context, then this is a prerequisite for their validity. Continuous observation and documentation offer the possibility of assessment in real or authentic contexts in real-time. Standardised tests where instruments use open-ended or task-based questions may be able to recreate these contexts after the fact.

⁹⁵ Hoskins B. & Fredriksson, U. (2008). *Learning to Learn: What is it and can it be measured?* European Commission, Centre for Research on Lifelong Learning (CRELL).

⁹⁶ Eurydice. (2002). Ibid.

Furthermore, the continued development of e-assessments may also present new opportunities for context-based assessment.

A related issue is the assessment of more than just learning outcomes relating to key competences. Finland's national criteria for pupil assessment also include the assessment of the learning process. In Germany, it has been argued that 'in addition to measuring outcomes', assessments, in particular tests, should also 'evaluate the operational approach and different strategies employed by the learner'⁹⁷. It seems appropriate to highlight the challenge to testing, since assessment of learning processes is more characteristic of modes of assessment relating to observation and documentation.

4.3 How are competences being assessed?

Having considered what is being assessed in each of the Member States, the chapter now turns to consider how competences, and similar constructs, are being assessed. This section details the modes of assessment used in relation to these constructs but firstly considers how broad competences can be made manageable for assessments and, secondly, the different ways in which competences can be assessed as acquired.

4.3.1 Competences, sub-competences and indicators

The basic requirements for the implementation of any new policy initiative are that its purpose is clear, its central concepts are defined and that the relationships between concepts are coherent. The definition of the central concepts is especially important for evaluation and all forms of assessment. Earlier sections have considered the definition of key competences and the implications for assessment. This sub-section considers the operationalisation of these definitions of competence. In practice, this means disaggregating competences into sub-competences and, in turn, indicators or statements of processes and outcomes.

Information available for several of the Member States indicates that the key competences they have identified, each naturally broad in scope, have been disaggregated into sub-competences. These sub-competences can then be attributed learning outcomes in the form of measurable statements. This enables teachers or

⁹⁷ Eurydice. (2002). Ibid.

other assessors to interpret the competences in the specific circumstances of each pupil and the contexts in which learning takes place. In Belgium (Flemish), the content of cross-curricular final objectives is broken down into areas and, in turn, into outcomes statements for teachers to use. For example, one of the areas within the cross-curricular competence of ‘social skills’ is ‘ways of relating’. One of the outcome statements in ways of relating is: ‘pupils are able to ask for help and allow themselves to be helped’. Another outcome statement in this area is: ‘In group tasks pupils are able to lead the group or cooperate under the leadership of a fellow pupil’.

In France, the *Livret de compétences* records ‘global and itemised’ observations of the learner during the learning process to assess sub-competences and competences. Northern Ireland’s levels of progression for cross-curricular skills take a similar approach but also describe outcomes at seven levels. A further example from France is the ‘Brevet informatique et internet’ (B2i) which certifies competence in practical knowledge of information and communication. It identifies five aspects which play the role of sub-competences: mastering an IT working environment, adopting a responsible attitude, creating, producing, processing and exploiting data, being informed using documentation, communicating and exchanging.

In Spain, within each of the four key competences that are currently the focus of assessment there are ‘processes’ or skills (such as planning, analysis, discussing) and ‘blocks of content’ or knowledge (such as grammar, geometry, matter and energy, people and social structures; see Roca and Sanchez Nunez-Arenas in CIDREE, 2008, p.117). This disaggregation, in providing sufficient detail for teaching, learning and assessment, seems intended to perform the same role as sub-competences elsewhere. However, in addition, the blocks of content seem to help associate aspects of each competence with particular curriculum subjects. The disaggregation applied to social and civic competence in Spain is shown in full in Table 4.1 below (reproduced courtesy of CIDREE, Ibid⁹⁸).

Ireland provides another example of the disaggregation of competences. A key skills framework is currently being developed in which each skill is broken down into essential elements and learning outcomes. The elements further describe the skill, clarifying the skills that students will develop. The learning outcomes indicate what students might show as evidence of achieving in the key skill.

⁹⁸ CIDREE (2008) is available from:

http://www.cidree.be/publications/free_downloadable_documents/goto.php?id=5fd0b37cd7dbbb00f97ba6ce92bf5add&type=docs.

Table 4.1. Social and civic competence in Spain

Competence	Processes	Blocks of content
Social and civic competence	Using information: – Obtaining – Analysing – Synthesising	People and social structures: – Individual – Society – Social structure
	Understanding social facts: – Explaining – Empathising – Interpreting	Evolution and development of societies: – Past – Present
	Living together in society: – Negotiating – Discussing – Participating	– Democratic systems – Human rights

In some other countries there is the suggestion that further definition of key competences, or similar constructs, may be provided. In the Czech Republic, it has been reported that teachers would like more definition of key competences, specifically the expected outcomes for each subject⁹⁹. In fact, in Germany, a national institute has been created to further develop assessment standards, including those relating to key competences.

Further examples are available from international sources relating to citizenship competence. For example, Kerr et al (CIDREE, 2009) state that recent debates on citizenship education suggest that it can and should be attributed three core dimensions: cognitive (knowledge and understanding), an active dimension (skills and behaviours), and an affective dimension (values and attitudes). Indeed, they found that assessment processes ‘touch upon most or all of these dimensions’ in England, Hungary, Ireland, Italy, The Netherlands, Northern Ireland, Scotland and Wales (p.43)¹⁰⁰.

The active citizenship composite indicator constructed by CRELL¹⁰¹ is also worth considering. Although intended to measure active citizenship (using the European Social Survey, 2002) rather than learning *per se*, it nonetheless also demonstrates that a competence can be defined as a composite of a number of

⁹⁹ Jaroslav Faltyn, *Assessing key competences in the Czech Republic, Presentation at the European Commission Peer Learning Cluster Key Competences – Curriculum Reform*, 1 October 2008.

¹⁰⁰ Kerr, D., Keating, A. & Ireland, E. (2009). *Pupil Assessment in Citizenship Education: Purposes, Practices and Possibilities*. Report of a CIDREE Collaborative Project. Slough: NFER/CIDREE.

¹⁰¹ Hoskins, B. & Mascherini, M. (2008). *Measuring Active Citizenship through the Development of a Composite Indicator*. Social Indicators Research.

dimensions, sub-dimensions and, finally, indicators that can be assessed. This example raises an additional point: indicators need to be weighted according to the relative importance assigned to each indicator and sub-dimension. This implies a subjective judgement and reaching consensus may be difficult (Hoskins and Mascherini, 2008). However this issue is likely to be limited to summative assessments and may be resolved through expert discussion and consultation with stakeholders and the wider public.

4.3.2 Acquisition of ‘competence’

How should assessments determine the threshold for acquisition of a key competence? The assessment of subjects in the school curriculum is generally compensatory. A high score in one sub-domain compensates for a low score in another sub-domain when set in the context of the whole domain. The Council of Europe’s Common European Framework of Reference for Languages (2007) refers to this as *the continuum criterion-referencing approach*. This is an approach in which: ‘an individual ability is referenced to a defined continuum of all relevant degrees of ability in the area in question... usually with a series of grades’. By contrast, vocational assessments usually require mastery. Scores in each and every sub-domain must reach a given, pre-defined threshold. The Council of Europe’s Framework calls this the *mastery criterion-referencing approach*. This is an approach in which ‘a single ‘minimum competence standard’ or ‘cut-off point’ is set to divide learners into ‘masters’ and ‘non-masters’, with no degrees of quality in the achievement of the objective being recognised’¹⁰². In general, it seems that Member States’ assessment of key competences is compensatory, reflecting traditional approaches to the assessment of subjects. Yet some references to mastery in relation to general education are noteworthy.

In Luxembourg, competences for compulsory education describe the knowledge/skills that students should master and apply at the end of a cycle of education. France’s new conception of the curriculum and skills-based approach to education indicates that the aim is to “master the common foundation” of knowledge and skills means to be able to call upon one’s acquisitions in certain tasks and in complex situations, at school and in real life. An example from one specific initiative comes from The Netherlands where, following curriculum reform, the University of Amsterdam developed ‘an assessment device for the measurement of mas-

¹⁰² The Council of Europe’s Common European Framework of Reference for Languages: Learning, teaching, assessment (2007) refers to these approaches as *continuum criterion-referencing* and *mastery criterion-referencing*, respectively.

tery of cross-curricular skills by students in secondary education¹⁰³. Poland's curricula documentation from previous reforms in 1999 argued that the basic curriculum should contain 'competences and skills to be mastered by a student' and defined competences as 'Sets of mastered knowledge, skills and attitudes developed can be referred to as competences'. In the UK (England), the new Functional Skills qualifications in English, maths and ICT, which have their roots in vocational education, require mastery. However, combining them within the compensatory assessments for the broader curriculum subjects they most closely relate to has proved technically challenging.

Whichever approach is taken to defining the acquisition of competence, whether it is mastery, compensation or other approach, the use of different approaches for general education on the one hand and vocational education on the other could serve to reduce combinations, comparisons and continuity in programmes of learning. A further challenge would be the measurement of holistic competence across all of the identified competences. However, no country is as yet proposing to develop such a composite or synoptic and singularly comprehensive measure of key competence. Such a need has not been identified and, consequently, the technical issues have not been addressed. However, composite qualifications, notably the French *Baccalaureate*, are well-established and, regardless of their degree of emphasis on competence development, may provide useful insights into how to weight and balance different assessment components.

4.3.3 Modes of assessment and purposes

This section details the modes of assessment that Member States are using to assess learners' cross-curricular key competences or similar constructs. These modes of assessment are categorised as external standardised tests, continuous teacher assessment and portfolio assessment. The purposes associated with these modes are broadly formative, summative and evaluative and details are given where available and relevant. It should be noted that, rather than the evaluation of schools, this chapter, as stated, focuses on the assessment of learners.

External standardised tests

Several Member States have implemented assessment systems in compulsory and post-compulsory education based on external standardised tests. In most cases these testing systems are summative or evaluative but occasionally they serve a formative purpose, particularly when used in conjunction with teacher assessment.

¹⁰³ Meijer (2007), p.157 in Hoskins and Fredriksson (2008) Ibid., p.26.

The European Commission Cluster Key Competences – Curriculum Reform Synthesis Report on Peer Learning Activities in 2007¹⁰⁴ noted that: "while schools are readier to change, the main obstacle seems to be the assessment of competence sand the dominance of factual knowledge in exams and national tests at lower-secondary and upper secondary levels in particular" (2008, p.17). The following countries provide examples of the use of testing systems in relation to key competences or, less holistically, knowledge and skills. These constructs typically relate to the domains of communication in the mother tongue, mathematics and, to a lesser extent, science and communication in foreign languages. There is also some existing evidence on the testing in citizenship education. Further work is required in relation to evaluation of these test systems, particularly as they become more fully implemented.

In Belgium, there are standardised tests for the assessment of pupils at key points in compulsory schooling. These relate to final objectives, including cross-curricular objectives, in Flanders and the *socles de compétences* in Wallonia. In Flanders the tests are intended to assess samples of students and therefore provide information on the overall performance of the system. In Wallonia the tests are seen as guidelines for teachers to help them in their assessment of their pupils. Similarly, there are national diagnostic tests in France, whose purpose is to help learners to improve. These tests have been modified so that they also assess whether pupils have achieved the goals of the *socle commun* at the end of compulsory education. The same approach has been taken in Bulgaria, where national external tests have shifted towards the assessment of subject competences at the end of primary and lower secondary education.

Hungary and Spain have both developed new national testing systems for the assessment of key competences in compulsory education. National Competence Measurement in Hungary involves a system of testing that covers every school and every pupil in several year groups. In Spain, by contrast, a sample of pupils is tested at age 9/10 and age 13/14 by the system of general diagnostic assessments. In Hungary, the reform of upper secondary education has proceeded more cautiously than at lower levels. However, written tests for the Matura have been significantly influenced by the new approaches to assessment in compulsory education. Since 2005 these tests have placed more emphasis on general competences and less emphasis on factual knowledge.

Several countries assess pupils' knowledge and skills in mother tongue and mathematics during primary and lower secondary education for evaluative purposes, summative purposes, or a combination of these two purposes. Finland and

¹⁰⁴ European Commission (2008). Ibid.

Italy assess a sample of pupils to gather evaluative information about the performance of their systems. Other countries assess all pupils for a mixture of summative and evaluative purposes: Austria, Denmark (in a wide range of subjects), Germany, Greece (all subjects but emphasising subject knowledge), Ireland (also key skills more broadly), Poland (plus a range of cross-curricular skills), Portugal (with more emphasis on knowledge), Sweden (plus English as a foreign language) and the UK (-England).

Kerr *et al* (2009) found that the countries that participated in their study (England, Hungary, Ireland, Italy, The Netherlands, Northern Ireland, Scotland and Wales) use different methods to assess different dimensions of citizenship education. Whilst the active and affective dimensions tend to be assessed by teachers internally and informally, the cognitive dimension tends to be assessed by more formal and standardised methods such as written examinations. The impression that this reflects practicalities rather than purposes is reinforced by their finding that the active and affective dimensions are less frequently assessed than the cognitive dimension. The authors suggest that this imbalance arises from the complexity of assessing these dimensions and a lack of relevant experience and confidence amongst teachers. There is a lack of information in the fiches on the assessment of attitudes through tests and it seems likely that these issues can be generalised across the key competences. So, there appears to be a technical challenge for assessment developers and a training and development need for teachers.

Continuous teacher assessment

Teacher assessment, as one mode of assessment potentially using a range of evidence sources, has an important formative purpose in all Member States and it sometimes also contributes, in part or in full, to summative assessments, particularly during compulsory education. This much is clear from the country fiches developed for this project. There was less information available on teacher assessment specifically in relation to cross-curricular key competences or related concepts. However, some relevant country examples were available and are given here. Overall it seems that, in comparison with external standardised tests, teacher assessment is being used in relation to a broader range of key competences.

On completion of compulsory schooling in France, pupils are awarded a *brevet des collèges* (national degree) on the basis of their marks obtained in the previous two years and of a national examination. The *brevet* has been reviewed to cope with the competences based monitoring of compulsory education. It is considered as the concluding evaluation for the *socle commun* at the end of compulsory education.

Spain implemented a new system of diagnostic assessment which is based on teacher assessment. This is distinct from the general diagnostic assessment based

on external standardised tests detailed above. Diagnostic assessments ‘...will be carried out by all schools on the key competences achieved by their students’ (Roca and Sanchez Nunez-Arenas, 2008, p.113). These assessments will be ‘of an internal, formative and advisory nature for schools and informative in nature for families and the educational community’. The 2006 Spanish law on education also ‘requires teachers to take into consideration the degree of acquisition of the key competences when a decision is taken about whether students can progress to the next stage or cycle of education, or their qualifications at the end of compulsory secondary education’. This ‘can only be decided collectively by the teachers’ but teachers are ‘already accustomed’ to such collective decision-making’ (ibid, p.120).

In Italy, periodic and annual assessment of pupils’ ‘learning and behaviour’ and therefore, to some extent, knowledge, skills and attitudes, is carried out by teachers. Similarly, in Latvia, during part of primary education, teachers write a descriptive assessment of pupils’ knowledge, skills and attitudes towards learning and class participation in mathematics, native language, Latvian language for minority pupils and also natural sciences¹⁰⁵.

Some countries are developing guidance for teacher assessment. In Luxembourg, teachers are being encouraged to discuss and agree definitions of the competences and their approaches to the assessment of them. A Lithuanian project called ‘The development of key competencies of basic education students (forms 5–8)’ is developing an assessment tool for teachers to use with their pupils for the learning to learn competence.

In the UK, teacher assessment is encouraged in relation to: the skills framework for 3–19-year-olds in Wales; personal, learning and thinking skills for secondary education in England; cross-curricular skills, thinking skills and personal capabilities in Northern Ireland; and, experiences and outcomes across the curriculum in Scotland. Also in Scotland, the Scottish Survey of Achievement in primary and lower secondary education has used the judgments of teachers nominated by their local authorities to assess pupils’ cross-curricular skills. These teachers carried out practical assessments, involving observation of working with others, problem solving and ICT skills.

Some countries identify a teacher competence that relates to assessment. Hungary’s set of competences for teachers states that teachers should: ‘use various forms of assessment in order to assess the development of pupils and their learning achievements (...) to apply the outcomes of various assessment forms and instruments and to develop self-assessment’. This relates to the need to: ‘apply a wide variety of procedures and methods of organising learning in order to create an

¹⁰⁵ Eurydice. (2008). Ibid.

effective learning environment'. Assessment tools that must be used by teachers have been developed for schools participating in the pilot of a range of cross-curricular competences (detailed above). The recent specifications for teacher training in France emphasise ten professional competences, one of which relates to pupil assessment. With a slightly different emphasis, in Belgium, Wallonia has 13 'indispensable competences' for teachers, including: 'Develop teaching approaches, test, evaluate and adapt them'.

Other countries identify assessment *skills* for teachers. Finland's teacher training aims include 'planning and assessment skills'. Similarly, to obtain the degree in education required to become a teacher in Sweden, a trainee teacher must acquire knowledge and skills including being able to: 'Analyse, assess, document and evaluate pupils' learning and development relative to the education institution's objectives as well as inform and cooperate with parents and guardians'. Furthermore, for teaching in lower and upper secondary school, trainee teachers: 'shall have an in-depth knowledge of how to analyse and assess pupils' learning processes as well as good knowledge of grading'. The professional standards for qualified teacher status in the UK (England) include a set of professional skills relating 'to the skills of teaching, including planning, assessing, monitoring, giving feedback, team working and collaboration'. Selected outcomes related to these skills include: 'Support and guide learners to reflect on their learning, identify the progress they have made and identify their emerging learning needs' and 'Evaluate the impact of their teaching on the progress of all learners, and modify their planning and classroom practice where necessary'.

Although these statements of competences or skills from several countries do relate to assessments undertaken by teachers, they do not refer to the particular challenges associated with cross-curricular assessment of competences, notably collaborative assessment with colleagues from different subject backgrounds.

Portfolio assessment

Some countries have introduced portfolios for the assessment of learning arising from their new and more competence-based curriculum arrangements. A portfolio can be defined as a 'representative collection of a candidate's work, usually assembled over the period of the learning'¹⁰⁶. The extent to which learners or teachers contribute to the portfolio varies across the Member States but there is generally a strong element of learner self-assessment that requires them to reflect on their progress. Since portfolios appear to be a notable area of innovation in relation

¹⁰⁶ Joint Information Systems Committee & Qualifications and Curriculum Authority. (2006). *E-assessment glossary (extended)*. Higher Education Funding Council for England.

to the school curriculum and assessment in some Member States (though well-established in vocational education), this section focuses on these developments.

Italy's *portfolio delle competenze* is a structured collection of the most significant materials produced by each student. This portfolio contributes to an overall teacher *assessment paper form* of pupils' competence in each subject. In relation to vocational education, Slovenia's recent reforms have led to the assessment of vocational competences through evidence of pupils' work and teacher observations compiled in an assessment pro-forma. In Sweden, although not linked with key competences, the upper secondary school leaving certificate includes assessed project work. Similar example can be found in Germany's *Arbitur*, Hungary's *Matura* and, in the UK (England), the new *Diploma*.

In France, the *socle commun* has led to the development of an assessment tool in the form of the new *Livret de compétences* (booklet of competences). It is based on both a global and an itemised observation of the learner during the learning process. Grids of observation enable the educational team to information which is recorded in the Livret. Pupils' competences and sub-competences will be assessed during primary and secondary education and recorded in the Livret. This will allow teaching staff, learners and families to share assessment information when making decisions about future programmes of learning. As yet, the Livret seems to be at an early stage of implementation, with only a few schools in most regional educational authorities of France currently making use of it.

In Luxembourg, the portfolio approach is also being introduced. It will be a document that belongs to the student, allowing them to reflect on their learning. The portfolio has both formative and summative purposes relating to *le socle de compétences*. For the formative purposes, the portfolio covers the whole learning cycle and the student, guided by the teacher, collects evidence relating to the competence. For the summative purpose, the teaching staff carries out regular evaluations on the portfolio quality and certifies that the student has attained the competences required by the *socle*. Teacher training has been organised in order to help teachers use the portfolio for assessment.

In the UK (England), the transition from Key Skills to Functional Skills qualifications also means a change in the way these skills are assessed. Key Skills qualifications are available at ISCED Levels 1 to 4. Whilst at Levels 1 and 2, they are assessed through national multiple-choice tests, at Levels 3 and 4 they are assessed through scenario-based open questions (50%) and a portfolio (50%). By contrast, Functional Skills are assessed through task-based tests with short answer questions rather than multiple-choice tests or portfolios. The purpose of this change is to provide a more 'holistic' assessment, and it would also seem to simplify the assessment. The use of task-based questions at all levels rather than multiple-

choice questions at some levels may also increase the authenticity of the assessment of skills in context. This is particularly important given the end of the requirement for a portfolio of learners' work. In Ireland, a programme of reform has been underway to embed Key Skills across the curriculum and strengthen practical project and portfolio assessment in order to reward active learning approaches.

In Northern Ireland, trainee teachers and qualified teachers use an e-portfolio to compile evidence and reflections on their development of the set of teacher competences. Such an e-portfolio could also be used by learners with the support of their teachers -teachers who, through their training, are personally familiar with this mode of assessment and its application. E-portfolios may be particularly useful in assessing digital competence. In France, 'How to evaluate ICT competences?' is the title of an instruction text provided to education staff for summative assessment at primary, lower secondary and upper secondary levels. The innovative character of this assessment lies in the way that five ICT sub-competences are observed and evaluated. The evaluation grid, shared by the educational team, is progressively completed as each learner achieves the different tasks proposed to suit their level of competence development. Practical know-how and outcomes will nevertheless be complemented by oral and written reports illustrating the depth of each learner's self-reflection. The upper secondary education portfolio has still to be finalised but presents an opportunity to refine and extend it.

Portfolio assessment may be an effective method of capturing evidence of learners' knowledge, skills and perhaps their attitudes too, particularly where both the teacher and the learner can contribute information to the portfolio. Where this evidence takes the form of a narrative about the learning that took place, it is naturally contextualised. In this way, portfolios assess the extent to which knowledge, skills and attitudes are used appropriately in different contexts. Where digital portfolios are used, information can be collected in a variety of formats, including video, audio, pictures and text and contribute, for example, to the development of digital and communication competences. Furthermore, experience of this mode of assessment may help learners to develop particular key competences, notably learning to learn, as they reflect on their learning, and social competences, as they work with their teachers to develop their portfolio.

In several Member States, learner self-assessment links more generally, either explicitly or implicitly, to the development of learning to learn competence. In the curricula of Estonia and The Netherlands, self-assessment is seen as an aspect of learning to learn. Estonia's cross-curricular 'learning competence' is partly about learning 'to monitor and assess one's thinking and learning activities'. The Netherlands' cross-curricular *general objectives* for secondary level refer to *learning to learn*, including 'assessing information on the grounds of reliability, representativeness and usefulness'. In Finland, assessment in basic education aims to en-

courage pupils to develop their self-assessment skills. Further, every school must continuously develop an individual study plan for each learner. The intention is for learners to participate in the development of the plan by reflecting on their progress and setting targets for themselves¹⁰⁷. In Greece, pupil self-assessment is intended to enable pupils to acquire meta-cognitive skills through the control and management of their own learning.

In parts of the UK (England, Wales and Northern Ireland), the Key Skills qualification in ‘improvement of own learning and performance’ can help learners to develop their self-assessment skills. Across the UK, self-assessment and also, in Northern Ireland in particular, peer assessment are seen as having an important role to play in combination with teacher assessment for formative purposes. Learning how to assess themselves and each other is seen as helping learners to develop their cognitive and social competences. In Scotland, a link is also made to attitudes and the positive effect on motivation that this involvement in assessment can have for learners.

4.4 Main issues and implications for policy

The first main section of this chapter provided a typology of what is being assessed in relation to key competences and the school curriculum in Member States. The typology identifies four broad types of approach to assessment ranging from explicit assessment of cross-curricular key competences at one end of the spectrum to assessing knowledge rather than competences at the other. The Member States’ policies are spread across the four types:

- Explicit assessment of cross-curricular key competences:
- BE, ES, FR, LU, HU and, to a more limited extent, CZ, EE, IE, RO, SL and UK.
- Implicit assessment of cross-curricular key competences:
- CY, DK, FI, GR, IE, NL, SE and UK.
- Assessment of subject-specific competences:
- AT, BG, DE, IT, LT and PL.
- Assessment of knowledge rather than competences:
- GR, HU, LT, MT, PT and SL.

¹⁰⁷ Finnish National Board of Education (Unpublished, 2009). *Response to a request for information by the Qualifications and Curriculum Authority*, UK (England).

An overall judgement was made about each Member State but, since the country fiches sometimes indicate that different approaches are taken depending on the educational level, some Member States appear in more than one of the four types. In fact, a move from knowledge assessment to competence assessment is generally more apparent in primary and lower secondary education than in upper secondary education. In particular, in some Member States, upper secondary assessments linked to higher education access have been quite impervious to change.

Where key competences are assessed, the chapter identified two major challenges for their assessment. Firstly, there is a challenge in not only assessing knowledge and skills but also assessing attitudes. This means assessing attitudes not in isolation from, or as an explanatory variable for, knowledge and skills but as an intrinsically-related learning outcome with equal status. Examples of this holistic approach were not readily available in Member States. Secondly, there is a challenge in assessing learners' appropriate application of key competences in a range of real or authentic contexts. There were some examples of such contextualised assessments but, again, mainly limited to knowledge and skills.

The second main section of this chapter showed how key competences and similar constructs are being assessed in Member States. It was first of all necessary to consider how to operationalise key competences for assessment, which is to say: how to make the broad key competences assessable. As suggested by the existing assessment literature, this means identifying sub-competences and, therein, statements of learning outcomes and, arguably, learning processes. There were a number of examples of Member States adopting this type of approach to key competence assessment. The challenge for them may be to make this assessment manageable without reducing learning to a series of narrow targets that militate against key competence acquisition. It also means deciding whether competence acquisition means mastery (typical in vocational education) in *each* sub-competence or compensatory assessment (typical in academic education) *across* sub-competences. This decision has implications for assessment measurement but also for continuity between educational sectors.

The modes of assessment that Member States are using in relation to key competences were broadly categorised as continuous external standardised tests, teacher assessment and portfolio assessment. Tests tend to be limited to communication in the mother tongue, mathematics and, to a lesser extent, science and communication in foreign languages. There was some existing information on the testing of cognitive aspects of citizenship education and the teacher assessment of affective aspects. Teacher assessment and portfolio assessment are being used across a more extensive range of key competences than tests and, in a few cases seem to incorporate assessment of not just knowledge and skills but also attitudes.

Self- and peer assessment also emerged as themes in some Member States, particularly in relation to learning to learn, social competence and lifelong learning.

There was a lack of information on the validity, reliability, equity or other technical properties of these different modes of assessment and particular approaches within each mode. However, the evaluation of assessments and their impact on learning should be an important aspect of assessment innovation. There was also a lack of information (in the fiches and more widely) on assessment arrangements relating to key competences for pupils who are defined as having special needs or disabilities. This warrants further exploration at national and supra-national levels.

Portfolio assessment was detailed separately in the chapter as it appears to be an important area of innovation in the assessment of cross-curricular key competences. Where it combines learner self-assessment, teacher assessment and e-assessment, there is growing potential for the actual process of portfolio assessment to strongly support learners' development and demonstration of learning to learn, social and digital competences –indeed, the full range of key competences. The requirement and support in some Member States for teachers to develop their assessment competences (or skills) is positive for portfolio assessment and teacher assessment more broadly. However, more emphasis in teacher training on cross-curricular assessment would be beneficial for learners' development of key competences. The next chapter addresses teacher training and key competences in detail.

5 Teacher Education for the Development of Key Competences

5.1 Introduction

This chapter addresses teacher education policies in the EU Member States with regard to cross-curricular key competences and competences in general. The main focus is on education systems and their capacity for promoting competences, but the chapter goes beyond that, exploring the informal teacher education that takes place within development and innovation projects in schools. It has links with the practice and assessment chapters. The main source of information is the fiches drafted for this study, but also Comenius programme materials which were used to a great extent. It is important to note that, similarly to the other chapters, the information refers mainly to policies and is only illustrated by the examples of practice. The chapter covers primary and secondary school teachers (teaching at ISCED levels 1 to 3). The focus is on general education teachers, but some VET teacher education examples are discussed.

5.1.1 The relation between teacher education and key competences

The relationship between teacher education and key competences can be considered within two dimensions. The first one is the education of teachers (initial and continuing) to teach key competences to students. There is a broad discussion about whether or not competences can actually be taught. Leaving this debate aside¹⁰⁸, teachers are at least expected to facilitate the acquisition of key competences by their students. That perspective evokes the question about the methods, practices and beliefs that are the most suitable for that purpose and whether or not they included in teacher education. The second perspective is based on the assumption that since key competences are to be acquired by every individual,

¹⁰⁸ We are aware that the distinction between ‘teaching competence’ and ‘facilitating the acquisition of competence’ results in different pedagogical approaches with much stronger stress placed on students’ independence in the latter situation (cf. Chapter 6).

teachers should also possess them. It is doubtful that any teacher without a particular competence would be able to promote it in their students. Therefore the question is whether teacher education builds up and enhances the key competences of the teachers.

Both perspectives involve a meta-level issue of teacher competences specific for teaching (or a complex teaching competence, which consists of several competences). This has been of interest to the European Commission and resulted in the document *Common European Principles for Teacher Competences and Qualifications*¹⁰⁹. There is, however, no reference to key competences for lifelong learning, as defined by the Recommendation on key competences for lifelong learning¹¹⁰. "The most recent EU cooperation, following the publication of *Improving the Quality of Teacher Education* led Education Ministers to adopt a set of priorities for improving teacher education, including explicit references to key competences and some examples of the competences that teachers themselves should have¹¹¹. We cover both those perspectives as well as the teaching competence issue.

5.2 Teacher education systems in EU-27 with regard to cross-curricular key competences

5.2.1 Initial education

Initial teacher education in all EU countries is in a state of transformation partly stimulated by the Bologna Process. According to the data in the country fiches, in almost all EU countries two parallel systems are running at present: the pre-Bologna and the post-Bologna. In most countries initial teacher education programmes are in a state of transformation and changes inspired by the Bologna Process are being introduced. They include for example:

¹⁰⁹ *Common European Principles for Teacher Competences and Qualification*, European Commission, DG EAC, 2005. For more information on that document, see Chapter 2.

¹¹⁰ However, key competences¹¹⁰ are referred to in *Improving the Quality of Teacher Education* and the related Council Conclusions.

¹¹¹ Conclusions of the Council and of the Representatives of the Governments of the Member States, meeting within the Council of 15 November 2007, on improving the quality of teacher education.

- unified teacher diplomas (not subject-specific), with credit requirements but allowing for flexibility (e.g. Hungary);
- teacher education programmes follow a 3+2 years degree structure, diversifying the backgrounds of prospective teachers. Different combinations of background disciplines are possible with more practical teacher training. It also allows for more academic or more practical orientation, suitable for different types of school.
- curricula are to be re-formulated in terms of learning outcomes.

Most teacher education programmes are located within higher education institutions, but the levels of education differ. In some of the Member States a prospective teacher generally needs a Bachelor's degree in Education (e.g. Ireland, UK-England, Denmark). In many others the most common case is that the teaching diploma for pre-school, primary schools and lower secondary schools can be acquired at Bachelor's level, but to teach at upper secondary level a Master's degree is needed (e.g. Hungary¹¹², Poland, Sweden, Finland, Czech Republic though in Finland and the Czech Republic pre-school teachers may have a Bachelor's degree). In some countries the Master's degree is necessary not only for secondary but also for primary schools (e.g. Slovenia).

Primary school teachers study to the level of the Master's degree in only 6 countries of the EU (Estonia, Finland, Germany, Poland, Portugal and Slovenia). Among the partners countries of the EU, it is interesting to note that Serbia recently introduced a Master's level programme of study for primary school teachers and in Iceland the Minister of Education has proposed a Bill that will introduce a Master's degree for all teachers, including those in early childhood education.

5.2.2 Induction procedures

Induction procedures providing a bridge between initial and in-service education, have proved to have some effectiveness in terms of developing competences. Mentoring, more or less formalised, is widely used in different countries for the induction of new teachers.

¹¹² In Hungary the teacher diploma for pre-schools and for the first 6 grades of primary school can be acquired at Bachelor's level (after 3-4 years of education). The diploma for teaching both ISCED2 and ISCED3 levels has to be acquired at Master's level. The most important innovation is the creation of a unified (not subject specific) Master's level that will be open for those achieving various subject related bachelor level courses. Only those acquiring this unified Master's level teacher diploma will be entitled to teach in ISCED2 and ISCED3 level programmes.

In Romania, ‘The Newly Qualified Teacher Induction Project’ is underway covering in-service mentoring. The project was initiated in 2001 as a pilot in West and North West Romania by the British Council Romania and the National Association of Romanian Mentors (AsMeRo). After 2003 it was extended nationally, although the distribution has not been even in all regions. The following competences are explicitly addressed:

- Communication in the mother tongue;
- Communication in a foreign language;
- Digital literacy and ICT skills;
- Learning to learn;
- Interpersonal and civic competences.

In Greece, since 1999 teachers appointed to their first position in the public school system are supposed to go through a series of practical and theoretical education sessions on didactical methodologies, educational administration and organisation, teaching practices, evaluation methods, practical teaching as well as evaluation and planning. The goals of this procedure are expressed in terms of key competences.

In Germany, the preparatory service (*Vorbereitungsdienst*) involves sitting in on lessons, guided and independent teaching at designated schools and studies in educational theory and subject-related didactics/pedagogy at teacher education institutes (*Studienseminare*), which reappraise and consolidate experience gained through practical education. The preparatory service concludes with the Second State Examination.

5.2.3 In-service education

This sub-section addresses the issue of in-service teacher education in the broader sense. That includes not only the formal education, but all the learning processes that teachers experience in the course of their work. The data suggests that what teachers learn through development or innovation projects directed at schools as a whole, is more significant in terms of cross-curricular key competences than ‘conventional’ teacher education.

The in-service education system in EU Member States can be described using the following dimensions:

- whether it is compulsory or optional;
- whether it is related to career progression or not;

- whether it is set within the context of a coherent professional development plan or is ad hoc.

Conventional teacher education required for professional development may include forms such as:

- Higher Education programmes whether degree or non-degree;
- courses provided by national and regional educational authorities (usually by the network of their education centres);
- courses by independent non-academic providers, usually NGOs, subsidised by the State;
- education offered for a charge by independent providers.

With a wide and constantly growing offer of initial education and a growing number of providers, quality assurance becomes an issue. The required amount of in-service teacher education and its role in professional development and promotion differs among countries from a comprehensive system of support (e.g. in England) through a rigid promotion framework system (e.g. in Poland) to incentives for the most active teachers (e.g. in Bulgaria).

In Luxembourg, the whole in-service teacher education system is being organised to support the implementation of a competence based system. Education is offered for example in the following areas:

- The competence-based approach;
- Managing differentiation on a daily basis: managing the class, learning cycles;
- Assessment and the portfolio;
- Teaching in multi linguistic situations;
- Learning and motivation; difficulties for learning;
- Children and adolescents: development and psycho-motor skills.

In Greece, a thorough education of teachers in the educational use of information technologies was organized through a programme funded by the Community Support Framework. Curricula have been developed and over 15,000 teachers trained in a 96 hour programme for primary and secondary levels. An additional 400 teachers have been trained on a 350 hour programme to train other teachers and trainers. In a related programme 12,000 teachers from upper secondary vocational education were trained in IT use.

Non-conventional teacher education refers to activities that are not designed as professional development but happen as a part of more complex activities directed to students or to the school as a whole. These might include:

- teacher components of different programmes and projects directed to school (NGOs or Corporate Social Responsibility programmes). Many of these projects have taken place using ESF funding under which many different sorts of providers are eligible including companies, churches, local government agencies etc.
- self-learning networks and other peer learning activities (supported by the different entities mentioned above), although this form is the most rare.

In general, the shift towards competences is more visible for in-service education than for initial teacher education. There are many small-scale activities, inspired locally or externally, by non-governmental or non-academic partners such as NGOs. Much work has been, and still is, undertaken supported by the EU structural funds (mainly European Social Fund), with special programmes aimed at competence-oriented teacher education. For example in Latvia, to provide the opportunity to use information technologies in the teaching and learning process, diverse visual electronic aids have been produced within an on-going ESF project for in-service education of science teachers producing CD Roms: ‘Visual Materials For Teachers’ and ‘Interactive Courses for Students’ Self-education’. In order to modernize the delivery of the curriculum, some teacher support materials on physics, chemistry, biology, mathematics, and science have been developed within the ESF Project, ‘Task book IV – Visual Materials’, which contains electronic visual aids, educational films and electronic aids for student self-learning, hand-outs (physics and mathematics formula sheets), chemistry tables as well as a wide selection of transparencies¹¹³.

As the evidence from Hungary shows, the supply created in the framework of the EU-funded programmes has had an indirect impact on those providers which were developing education programmes outside of that framework. As the EU-funded programmes changed the demand side, more demand has been created for competence development programme content. Providers started adapting their supply to the new demand, imitating those who could develop and provide education within the framework of the EU-funded programmes.

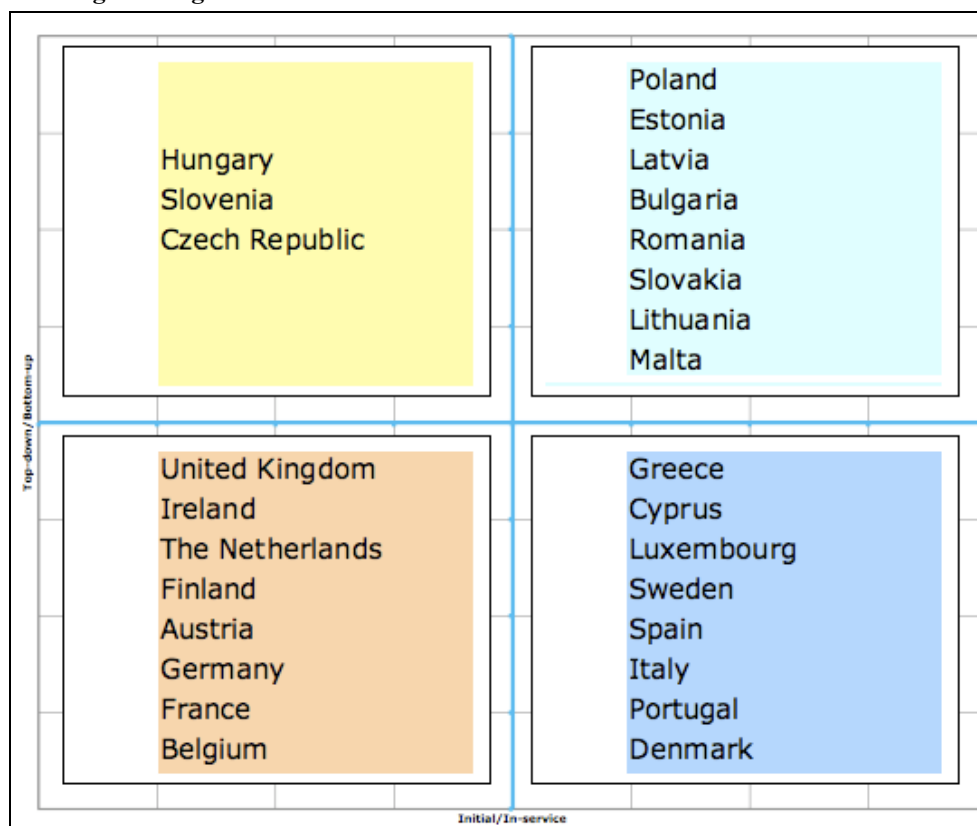
Alternative, non-statutory forms of education can also be helpful in changing mindsets. In Latvia, for example, the Soros Foundation supports teachers’ education in the area of cross-curricula competences with non-traditional forms such as organising a camp for teachers from the Vidzeme region (2002). They also provided programmes which were carried out through a series of seminars (2002),

¹¹³ Curriculum development and in-service education of teachers in science, mathematics and technology, ESF Project, May 2008.

focusing on methods of critical thinking, providing practice and experience and non-traditional approaches to the teaching of social science in general education.

It is important to note that even if some programmes are small-scale and do not necessarily have any systemic impact, teacher learning materials are produced and usually made publicly available, e.g. on the web. Such an example is the Italian project ORA (Observation, Reflection and Learning), which tries to integrate didactic and disciplinary competences, general psycho-pedagogical competences and experience in the field of didactic technologies and the diffusion of the scientific culture. The project was created to develop programmes to propose guidelines for science curricula. Teachers can use these materials also as activities to train themselves. They can easily download all the materials from the website, use all the written suggestions and participate in the forum contributing their experience about the discipline or about didactics.

Figure 5.1. Country Profiles: How and where key Competences are introduced in teaching training



Source: Country fiches

It is possible to describe country profiles on the basis of where the majority of key competence-oriented actions take place, i.e. whether it is in initial or in-service training, and whether or not key competences are introduced as a consequence of national curriculum or an official agenda or if they emerge from different school development programmes (i.e. whether they are top down or bottom up). The attempt to group the countries is shown in the diagram above.

A bottom-up approach means that competence-oriented actions emerge from pilot programmes rather than from the system level, but they may spread successfully. A top-down approach is more systemic and includes the presence of competences in official teacher education documents and comprehensive implementation mechanisms. They may or may not find their way to real school practice.

Where a competence perspective is more visible in initial training, the curricula (developed officially or by prominent teacher education institutions) has an impact on competences or other mechanisms promoting competences. The country may still demonstrate a strong in-service competence promotion activity. If there is a dominance of in-service activities promoting key competences, there appears to be fewer actions within initial teacher education programmes.

5.2.4 The changing role of teacher

The competence approach requires a change of paradigm from teacher-centred to student-centred learning, which necessitates a revision of the traditional methodologies and roles of teachers. With this change, teachers become facilitators of learning –organising teamwork, ensuring inclusion, managing classroom activity, etc. More of their time is likely to be spent supporting individuals and less on whole class teaching. The role of the teacher is also evolving as they are required to develop new methods supporting their new roles as collaborators, facilitators of learning, and lifelong learners. They are expected to promote decision making, in-depth thinking and problem solving amongst their students. They are expected to guide their students and instil in them a sense of personal responsibility, self-esteem, and integrity. Furthermore, teachers are prompted to make learning experiences more relevant and meaningful, encourage active citizenship, and create an environment conducive to reflective thinking. To be effective, teachers need to develop good interpersonal skills that enable them to interact positively with students and parents. Management skills, problem-solving skills and organisational skills are also important attributes for guiding students.

Countries generally recognize the need to redefine the role of teachers and the changing demands made on the teaching profession. These needs are usually at-

tributed to globalisation, increasing diversity and more recently, to the effects of the economic crisis. For example in Lithuania, the National Education Strategy states that *‘the holder of knowledge will be replaced by the organiser of the learning process, creator of learning opportunities, learning adviser, partner, mediator between the learner and different modern sources of information. At the same time a teacher in the present day society should remain an educator, a witness of the facts of life, a conveyor and creative developer of traditions’*¹¹⁴.

Some other countries express the new role in terms of tasks rather than the position in the classroom or in the learning process. This is directly related to the competence perspective, since competences are defined as a capacity and ability to perform those tasks. An example of such an approach is the Netherlands, where the Association for the Professional Quality of Teachers (SBL) identifies four professional roles for teachers: interpersonal, pedagogical, an organizational role and the role of an expert in subject matter and teaching methods. The teacher fulfils these professional roles in four different types of situations, which are characteristic of their profession: working with students and with colleagues, in the school’s working environment and working alone. The latter refers to his/her personal development. Another example is Slovakia and the Millennium project in which the term ‘teacher’ is symbolically replaced by ‘educator’ as it is considered that teacher refers to the subject teacher, whilst educators are to be *‘able to cultivate a person and his/her world’*.

The key element of the reform of teacher education in this new paradigm is the definition of teacher competences. The Ministers of Education in the EU recently made a joint recommendation advocating that teachers should achieve a high level of skills during their initial teacher education. These skills include: teaching a series of transversal competences; creating a safe and attractive school environment; teaching effectively in heterogeneous classes of pupils from diverse social and cultural backgrounds and with a wide range of abilities and needs; working in close collaboration with colleagues, parents and the wider community; developing new knowledge and being innovative through engagement in reflective practice and research; and becoming autonomous learners throughout their professional development.

Trying to identify the skills and competences that teachers should have, given their changing roles in today’s knowledge society, is a general trend that can be observed in many policy reforms about initial teacher education programmes. For policy-makers, this approach consists in elaborating professional profiles and standards that will provide a framework to guide not only initial teacher education

¹¹⁴ Provisions of the National Education Strategy 2003-2012, p.14.

but also teacher induction and certification. Some definitions of ‘profiles’ are being used to reflect in an adequate manner the tasks that teachers are expected to fulfil. Therefore the emphasis is not so much on the actual contents of the curricula but on the competences that teachers are able to show

Throughout their career, there is a shift in emphasis from certification based on the mastery of curricula to certification based on competences. Entrants into the teaching profession are expected to demonstrate that they have reached the status of qualified teachers by meeting a wide range of demands including knowledge, skills and competences, and professional values and practice.

Countries’ sets of competences vary and some examples are given in the table below to show if and how they fit into the framework of the Recommendation on Key Competences.

Table 5.1. Examples of definitions of teacher competences and how they correspond to the Recommendation on cross-curricular key competences

SUBJECT COMPETENCE	<ul style="list-style-type: none"> - (teachers should) have an excellent knowledge of the discipline and the interdisciplinary areas necessary for teaching - (teachers should) maintain a critical and autonomous relationship with past and evolving scientific knowledge <p>Belgium – Wallonia, official regulation</p>
PEDAGOGICAL COMPETENCE	<ul style="list-style-type: none"> - Pupil assessment <p>France, official regulation</p> <ul style="list-style-type: none"> - skills of teaching, including planning, assessing, monitoring, giving feedback, team working and collaboration <p>England (UK) official regulations¹¹⁵</p> <ul style="list-style-type: none"> - Guidance skills <p>Finland, VET colleges strategy</p> <ul style="list-style-type: none"> - To deal effectively with different learners (age, gender, cultural background, learning difficulties, etc.) <p>Finland, Helsinki University</p> <ul style="list-style-type: none"> - To be able to create favourable conditions for learning, safe and challenging learning environments – to motivate and mobilise pupils, create a positive emotional and social climate in the classroom, regulate the processes of the pupils’ learning – particularly adapting them to individuals from the point of view of requirements, time, extent of help, styles of learning <p>Czech Republic, official regulation</p>

¹¹⁵ In the UK it is referred to as standards and expressed in terms of skills, underpinned by the attributes and knowledge, with learning outcomes defined.

RECOMMENDATION ON CROSS- CURRICULAR KEY COMPETENCES	
Digital competence	<ul style="list-style-type: none"> - (Teachers should) have passed the professional skills tests in numeracy, literacy and information and communications technology (ICT). - Know how to use skills in literacy, numeracy and ICT to support their teaching and wider professional activities. <p>UK official regulation, expressed in terms of learning outcomes</p> <ul style="list-style-type: none"> - Skills to use the opportunities provided by modern information and communication - Technologies <p>Estonia, official regulation</p>
Learning to learn	<p><i>Student's competence of learning to learn:</i></p> <ul style="list-style-type: none"> - (The teacher) determines, together with the student, an (individual) learning route with for instance possibilities for extra-curricular activities, and learning in the context of professional practice - motivates the students for their learning and working tasks, challenges them to do their best, and helps them accomplish their tasks successfully - teaches the students how to learn and to work, both from and with each other, in order to enhance their learning autonomy. <p>The Netherlands, (Association for the Professional Quality of Teachers – SBL)</p> <p><i>Teacher's own competence of learning to learn:</i></p> <ul style="list-style-type: none"> - keeping curricular, subject and pedagogical knowledge up-to-date through reflection, self-study and collaboration with colleagues. <p>Northern Ireland, official regulation</p>
Interpersonal, intercultural and social competences and civic competence	<p><i>Student's social competence:</i></p> <ul style="list-style-type: none"> - Enhancing the formation of pupil communities <p>Hungary, ELTE University</p> <ul style="list-style-type: none"> - Teacher's own social competence: - Teamwork and cooperation with parents and school partners <p>France, official regulation</p>
Entrepreneurship	<p><i>Student's entrepreneurship:</i></p> <ul style="list-style-type: none"> - Stimulate pupil emancipation <p>Belgium – Flanders, official regulation</p> <ul style="list-style-type: none"> - An organisationally competent teacher makes sure that his/her students can work in an orderly and task oriented environment. He/she sees to it that they: i) know where they stand and how much play they have for initiatives of their own ii) know what they must (or can) do, as well as

	how and with what aim in mind they must (or can) do it. The Netherlands, (Association for the Professional Quality of Teachers– SBL)
Cultural expression	<ul style="list-style-type: none"> - (Teachers should) demonstrate a high level of general culture and knowledge of the cultural world Belgium – Wallonia, official regulation - (Teachers should) distinguish topical themes and developments and adopt a critical attitude towards the following domains: socio-political, socio-economic, philosophical, cultural aesthetic, cultural scientific domain Belgium – Flanders, official regulation

In some countries, no evidence has been found of explicit work towards competence-oriented teaching policies. It does not mean, however, that there is no work taking place because even if no explicit use is made of the notion of ‘competence’, an implicit process might be taking place. Such approaches might include:

- the implementation of standards for the effectiveness and professionalism of teacher education (Bulgaria, teachers career development plan;
- a more extensive practical orientation during teacher education;
- the intensification of the relations between the theoretical and practical phases of education;
- measures to improve teaching practice with regard to diagnostic and methodical competence;
- particular significance of the induction period for newly qualified teachers (Vorbereitungsdienst in Germany);
- qualification of higher education graduates without formal teacher education (employment-based programmes in England).

5.3 Assessing teachers’ competences

The question of assessment in regard to key competences can be understood in three dimensions:

- Assessing a teacher’s performance (quality of work) and effectiveness in competence-oriented teaching. This question might be answered with reference to the students’ performance and learning outcomes.

- Assessing a teacher's competences, both professional (pedagogical) and personal, i.e. those key competences they possess, such as IT competence or language skills.
- Assessing during education, also at the end of it or in-service.

The shift of the paradigm from knowledge and comprehension to key competences-oriented teaching for future teachers requires a change of the measuring instruments or, from a wider perspective, a change of the evaluation culture moving from more knowledge-based and decontextualised towards more contextualised competence assessment. When the object of the measurement is competences, assessment means more than only measuring and judging; it should play a crucial role in the whole learning process. More emphasis is placed on congruence between the learning process and assessment, which should both focus on stimulating the development of competences needed to perform flexibly different professional roles and on stimulating reflection and lifelong learning skills¹¹⁶.

Similarly to the changes in the assessment of students, portfolio assessment, self-assessment and peer assessment have been introduced as powerful tools to promote and support teachers' competence development. For example in Northern Ireland, there is a pilot project developing a common approach to using an electronic portfolio (e-portfolio) which provides a digital media file in which students and novice teachers can record evidence and reflections on their development against the teacher competences¹¹⁷.

Since most initial teacher education takes place at higher education institutions, prospective teachers are usually assessed through the system of assessment of each higher education institution. Each course/subject is assessed in particular following the curricula established by the different departments. A more holistic approach is taken within the practical part of education, in which the future teachers are required to show that they have acquired all the competences needed. In Poland, the practical part is documented on an observation sheet. The supervisor at the school in which the education takes place, comments on a trainee's performance with regards to different aspects of teaching.

The German Second State Examination is taken at the end of the preparatory service. It usually consists of four parts: a major written paper relating to educational theory, pedagogical psychology or the pedagogy of one of the subjects studied, a practical teaching examination involving demonstration lessons in the chosen subjects, an examination on basic questions of educational theory, educational and civil service legislation and school administration and, occasionally, on socio-

¹¹⁶ Swennen, van der Klink, 2009.

¹¹⁷ http://www.rtuni.com/conferences/page.php?page_id=26.

logical aspects of school education and examination on pedagogical and methodological issues in the subjects studied.

Some interesting examples of the assessment of teacher's competences in other countries include:

- The Dutch study of 2006, in which the Netherlands Association of Universities of Applied Sciences (HBO-raad) found that one quarter of primary school teacher trainees failed the mathematics skills test. Half of them failed the language test. At the end of the first year of the programme, one in eight first year students were obliged to leave their course because they had still not passed the maths or language test after two re-sits. In particular, students from secondary vocational education who transfer to Primary School Teacher Education College tend to score unsatisfactorily. Research by the inspectorate has shown that a number of secondary vocational education programmes for assistant teachers took those results into very serious consideration and improved their assistant teachers' education programmes accordingly.
- In France, the foreign language skills of future teachers are assessed. The legislation of April 2005 requires the level of modern languages of future primary school teachers to be certified by a higher education institution. A modern languages test is, in fact, included in the recruitment exam¹¹⁸. There is also certification of ICT skills: the C2i2 (computing and internet certification created in 2004) designed to encourage teachers from all disciplines to use information and communication technologies more in their classroom practices or, more globally, in their professional framework. C2i2 intends to certify teachers' competences to practice their profession in its pedagogical, educational and citizenship dimensions through the use of ICT in general and using pedagogy related to ICT, research and use of resources, working in teams and networks, numerical work spaces, evaluation and validation of computing competencies.

5.4 Education towards specific competences

As described in the next chapter of this report on school practice, some teaching methods have proved to be more effective in promoting key competences than others. They are:

¹¹⁸ <http://eduscol.education.fr/D0231/miseenoeuvre.htm>.

- interdisciplinary, cross-subject teaching;
- team orientation;
- individualised approaches, e.g. individual study plans;
- project-based work.

Teachers must continuously develop their repertoire of skills, to follow the rapidly changing cultural, social and technological circumstances of their students. It can also be considered as a proof that they possess a competence of lifelong learning.

In terms of teacher education, this raises two questions:

- Are teachers trained to use those methods?
- What methods of teacher education are most effective in order to create a competence approach?

All these methods are part of education in the Member States and have been for quite some time. Maybe not all teachers use them all the time, but they are aware that those methods exist and are promoted as a part of ‘modern’ approach to teaching. However, in most countries those methods are not linked to key competences and during teacher education are not put into a competence perspective. Some examples of education directed towards these methods include:

- The Tiger Leap Foundation projects in Estonia, especially Project Kit and DigiTiger. Targeted to all teachers irrespective of their subjects, the courses concentrate on active learning methods integrated with information technology. While the 20 hour Project Kit concentrates mainly on project-based learning, the 40 hour DigiTiger course offers also additional information about e-learning environments, e-portfolio, new media etc.
- The Comenius seminar: The European book of cultures in the Czech Republic includes education on how to work actively with texts and books.

From the data collected, it seems in the countries most focused on competencies, teacher education methods bear certain similarities (and they are quite convergent with effective teaching methods):

- individualised approaches, with individual learning plans and portfolio assessment, and with individual support and tailor-made in-service education;
- team orientation, with self-learning networks.

Effective competence-oriented methods need to be accompanied by competence-oriented practices at school. As described in the next chapter, changes are occurring in the class lesson system. Subject-related educational content and the individual definition of school achievements as well as the teacher-centred paradigm are changing. There are examples of actions aimed at supporting such practices in different countries. They include managerial education or the education of administra-

tors of education. Such change is also supported by using non-traditional organisation of teacher education, such as camps or summer schools (the example of Latvia) that put teachers in situations similar to ones they are suppose to create.

The country case studies (e.g. Poland) show that in order to make change widely accepted and be implemented, the idea behind that change must be known, understood and internalized by teachers, educators and even the general public. There is a need of an on-going debate, including the wider public. The teachers themselves need both to acquire teaching techniques and to internalize a certain philosophy of teaching and learning around the idea of competence development. A very interesting example of that kind of approach is the EU-funded programme in Hungary (under ‘Developing skills and competencies necessary for lifelong learning’: ‘The preparation of teachers and experts for the development of competence based teaching’.) The most important component of the programme was the development of the ‘packages’, i.e. sets of teaching materials. Education programmes supporting the use of those packages followed a standard structure reproduced below:

- The notion of competence-development and the need for competence-development;
- The competence matrix of the given competence area and specific goals related to the given area;
- Methods of differentiation in heterogeneous pupil communities;
- Cooperative techniques;
- Non-subject/competence-specific small group practical and developmental work based on the use of active methods.

Those programme packages were among the most elaborate and comprehensive tools promoting key-competences found in the data collected.

Table 5.2. Education of teachers toward specific competences. Examples of practice

DIGITAL COMPETENCE	<p>Estonia: international environmental education programme GLOBE. GLOBE teachers have made huge progress from beginners to advanced ICT users as a result of education and intensive work with computers and Internet. The advanced teachers are already using GLOBE resources in the classroom. Some GLOBE teachers have started the development of worksheets and learning materials that use the GLOBE graphs and data for learning science in the school computer lab. Transnational collaboration with GLOBE teachers from the Czech Republic, Poland, Norway, Netherlands and the UK was started in the year 2001 for the propagation of e-learning in science and environmental education. Under the collaboration project e-LSEE http://ael.physic.ut.ee/elsee/ (founded by EC under Socrates-Minerva program) a lot of curricula adapted e-learning materials for computer-assisted learning of Earth issues was produced in the Estonian language.</p>
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LEARNING TO LEARN	Poland: The Learning School Programme (<i>SUS</i> , 'Szkoła ucząca się') runs the formative assessment module of education for teachers to support students' learning to learn and sense of initiative. It uses a whole-school approach.
INTERPERSONAL, INTERCULTURAL & SOCIAL COMPETENCES & CIVIC COMPETENCE	<p>Austria: Centre for Social Competence (<i>Sozialkompetenzzentrum</i>) was to provide teachers with information and know-how on developing social competences (see the internet platform at http://www.frewilligenweb.at), the aim of which was the intensification of self and social competence of teachers in the areas of self-esteem; communication; conflict resolution; creativity</p> <p>Denmark: Master of Education (MEd) in citizenship education. In Denmark EDC is not a school subject as such. EDC is seen more in terms of students' active participation in classroom activities and in school democracy, and teacher education in EDC in terms of helping teachers to develop more democratic teaching styles and the skills to involve students more actively in their learning and in school life as a whole.</p> <p>To support teachers facing new challenges like individualism, diversity, globalisation and Europeanisation, the Danish University of Education in conjunction with Syddansk University has developed a Master of Education (MEd) course in citizenship education, offered from September 2005. The nature of the course is inspired by the thinking of the sociologist, Zygmunt Bauman – in particular, by the idea of citizenship education as a vehicle for maintaining homogeneous and stable political communities in a world undergoing constant change.</p>
ENTREPRENEURSHIP	Lithuania: In March 2003, within the framework of long term cooperation with the British Council, a project for teaching business in grades 9–12 was launched. During the 2003–2004 school year, teachers from 22 Lithuanian schools participated in the project. The Basics of Entrepreneurship was developed and tested at schools as a teaching aid.
CULTURAL EXPRESSION	Estonia: AnimaTiger is targeted to the teachers of art, mother tongue and information technology mainly – producing a puppet film results from a combination of these subjects. TechnoTiger is targeted to a small part of teachers of information technology, art and occupational guidance. In this project schools can participate that have a milling machine connected to the school computer, acquired with the help of procurements organized by Tiger Leap Foundation.

5.5 Leadership

OECD *Improving School Leadership* offers an inclusive list of leadership areas that teachers might be called on to exercise in school. The six roles identified can form the framework to describe countries efforts to foster teachers' leadership skills:

- continuing to teach and improve one's own teaching

This is the largest category of staff development programmes for teacher leadership. Teaching expertise, including subject matter knowledge, seems critical because it is basic to other leadership roles, including in-service education, advising and assisting individual teachers, and peer support. Programmes for enhancing teachers' power by increasing their knowledge of their subject matter are a substantial part of both initial and in-service training in all Member States.

- organizing and leading peer reviews of school practice

Programmes for the development of teachers' ability to examine school practices include preparation in doing a form of practical research. In some countries policies, action research is seen as an ongoing aspect of staff development and teachers are to be prepared accordingly. This is the case of United Kingdom.

- providing curriculum development knowledge
- participating in school-level decision making

In-house facilitators of organization development are trained to lead problem solving and to conduct process observations in each participating school. This is for example the case of school development projects in Hungary.

- leading in-service training and assisting other teachers

Countries show some experiences in mentor teacher programmes and teacher advisor projects. An example mentioned above is Romanian project, 'The Newly Qualified Teacher Induction Project' for in-service mentoring in education.

- participating in the performance evaluation of teachers.

5.6 Teachers as key actors in the shift towards competences

The successful implementation of a competence-based approach depends on the attitude of teachers. As the Irish National Council for Curriculum and Assessment '*Key Skills at Senior Cycle*' study states: '*The need for teachers to learn continuously in order to develop their knowledge and skill, and adapt and develop*

their roles, especially in classroom inquiry, needs to be recognised and supported. (...) Action research provided teachers with the opportunity to gain knowledge and skill in research methods and applications and to become more aware of the options and possibilities for change. It encouraged them to become more critical and reflective about their own practice and to attend more carefully to their methods, to their students and to their whole approach to the teaching process. Teachers acknowledged that practice had become ritualised for some of them and when they had some input on, for example, the theory of assessment for learning and cooperative learning it motivated them to change and try new things in their classrooms. Therefore continuous professional development that includes a mix of theory and an understanding of practice is crucial to improvements in teaching and learning at senior cycle.’¹¹⁹

Defining teacher competences in countries is a major step forward, but these formal competence requirements, as they appear in the key regulation documents, need to be translated into specific competence development programmes for teacher education institutions and then pass into the effective practice of teachers. There are many signs that the reforms have reached institutional level documents, but reaching practice will be more difficult. However, real change of practice happens often within different programmes and through projects directed to schools, often EU-funded run by agencies, NGOs or industries, which are usually small-scale programmes. They may not have direct consequences within the system as a whole, but they may also be considered the ‘bubbles of innovation’.

In an implementation perspective the reaction of different stakeholders is very important. From the teacher education, especially initial teacher education, point of view, the academics’ reaction is of special importance. Some countries reported general resistance of HEIs to change. To a certain extent it involves teacher education programmes too, but even if they are innovative there is a broader phenomenon of academia resisting the very concept of competences as opposed to more traditional, academic, knowledge-based approaches. With no orientation towards competences in higher education teacher education institutions, any wide-scale change of practice is hardly possible. But even if teacher education programmes, faculties of education and other institutions on the front line already think and work in terms of competences, the scepticism and resistance of other segments of academia make this shift problematic. There are two reasons:

- A practical one. Subject-specific teacher education in many countries happens as a specialisation within the faculties and programmes that are

¹¹⁹ ‘Key Skills at Senior Cycle’.

not part of the teacher education faculty and is the main – or equally important – entry path to teacher profession

- A symbolic one. The bottom-line of ‘traditionalist’ scepticism against competences is that it is a less worthy (or at least ‘less academic’ and industry-inspired) approach. This might result in widening the gap between teacher education and non-teacher education in higher education institutions and in the decrease in prestige of the teaching profession, which in most countries is not impressively high anyway. Increasing this prestige is one of the key factors to attract well-qualified candidates and therefore train highly-qualified teachers¹²⁰.

5.7 Main issues arising

1. The changing role of teachers is both a fact and a necessity in order for them to support the acquisition of key competences by students. Teachers need to embrace their new roles as collaborators, facilitators of learning and lifelong learners. Countries widely recognize this change in their policies and programmes, but there is still too little debate involving the teachers. Also, especially with more experienced teachers, who were formed within the more traditional paradigm, psychological training and support might be needed.
2. Most countries have made a substantial effort to define their own sets of teacher competences. However, there is usually no link to the key competences for students. Linking those two perspectives explicitly would be a big step towards a successful implementation of competence pedagogy.
3. A lifelong learning perspective means that teachers should possess the same key competences defined as learning objectives for students. Teacher education should include personal development of prospective and working teachers within those areas. Such training is most common in the area of ICT and languages, less common in leadership, interpersonal and social skills. It is virtually nonexistent in the area of cultural expression.

¹²⁰ A very interesting example is Cyprus, where due to its high social status and favourable terms and conditions of service, the teaching profession is very competitive. Teaching profession has also fairly high prestige in Finland, due to high quality of the educational system.

4. Teachers must continuously develop and modernise their repertoire of teaching methods. The methods which have proven to be particularly effective in regard to acquiring key competences are based on interdisciplinary, cross-subject teaching, team orientation, individualised approaches, e.g. individual study plans and project-based work. However, promoting cross-curricular key competences requires more than including new methods in a course or a lesson. A focus on out-of-lesson time teaching practices is also needed, such as individual tutorials.
5. The real change of teaching practice – and beyond that, a change in the way teachers function in schools – was observed within complex school development projects, targeted at different aspects of school life at the same time.
6. There are good examples of European Social Fund projects directed towards bringing a change of teacher attitudes and also teacher components of projects aimed at promoting students' key competences.
7. Teachers are a key agent in the successful implementation of competence-based education. They need to feel appreciated. Adequate pay schemes and increasing teaching professional prestige is necessary.
8. It is important to have allies at the universities. Competence approaches make it possible to overcome the tension between theory and practice, but academics need to realize that.
9. Training teacher educators is of key importance. On the plus side, the changing role of teachers is soundly recognized. However, it should integrate the perspective of teacher competences and students' competences, establishing the link between those two.

6 Competence Development and School Practice

6.1 Introduction

This chapter is based on the data collected for the country fiches elaborated for this project. Additional information was drawn from the six country case studies also drafted for this project and from original sources (especially websites) indicated in the fiches. Reports on the activities of the Peer Learning Cluster on Key Competences provided an additional rich pool of valuable information. In spite of the efforts of the project team to gather relevant data, information on the local school initiatives and daily practice is limited. Therefore the examples in the chapter illustrate different approaches applied in schools. They are "good examples of practice". It is possible that some of them are examples of the 'best' practice, but to confirm that more in-depth evaluation would be needed, which is beyond the scope of this study.

The chapter begins with a reflection on the impact of the Recommendation of the European Parliament and the Council on the reference framework of key competences on the development of innovative school practice. Then we briefly outline the context of regulations within which schools operate, in particular national curricula. School approaches were grouped into a simple typology: school level curriculum; teaching and learning methods; and school organisation. Each type is briefly characterised and illustrated with examples. Then we describe how the introduction of key competence based school practice could be supported and promoted. Finally, we present the issues arising.

The Recommendation of the European Parliament and the Council on the reference framework of key competences was adopted in December 2006 with the intention to support the Member States in the development of their educational policies to equip young people and adults with the competences that are necessary in present day economic and social life.

'This Recommendation should contribute to the development of quality, future-oriented education and training tailored to the needs of European society, by supporting and supplementing Member States' actions in ensuring that their initial education and training systems offer all young people the means to develop key

competences to a level that equips them for adult life, and which forms a basis for further learning and working life and that adults are able to develop and update their key competences through the provision of coherent and comprehensive life-long learning.¹²¹

The Recommendation does not provide direct guidelines for the organisation and practice at the school level. However, it is expected that implementation of the Recommendation will require ‘new pedagogy’.

The Communication of the Commission ***Improving Competences for the 21st Century: An Agenda for European Cooperation on Schools*** addresses this issue:

2.4 The school consultation responses called for a more flexible learning environment that helps students develop a range of competencies while retaining grounding in basic skills. Proposed approaches included new pedagogies, cross-curricular approaches to supplement single-subject teaching, and greater involvement of students in the design of their own learning.

2.5 Curricular reform to improve competences needs a holistic approach, organising learning within and across subjects, teaching competences explicitly, new teacher training and didactic approaches, and, vitally, involving teachers, learners and other actors fully. It should be noted that the Communication on ***Improving Competences*** refers to the concept of personalised learning.

It should also be noted that the changes and innovations at the school level were not triggered by the adoption of the Recommendation, nor by the debate among the experts and the discussion in the meetings of the Education committee and the Council as a part of the consultation process (*commitology*) leading to the Parliament and the Council decision. In many Member States, schools had been experimenting with competence-based education, education for life skills and transversal competences, etc. for a long time, even before the debate on the definition and selection of the key competences within the well-known DeSeCo project was initiated by OECD in the mid 1990s.

6.2 New pedagogy?

Can we say that the key competence-based approach in school practice requires a new pedagogical approach or could it be promoted by using ‘traditional’ meth-

¹²¹ Recommendation of the European Parliament and of the Council on Key Competences for Lifelong Learning, PE-CONS 3650/1/06.

ods? This is a difficult question to answer. It seems that in many cases traditional approaches can bring good effects. However, no-one can question that the development of active skills requires the use of active learning methods, i.e. learning by doing. What is definitely needed is a sound understanding shared by the whole school community of the concept of key competences. Within such an agreed framework, different methods and teaching styles could create a good effect. However, many (probably the most) examples collected during this study are innovative or – more precisely – non-traditional. They are based on the shared responsibility for education between teachers and learners (with a shift from teaching to learning), school organisation promoting strong links between subjects and the introduction of different forms rather than rigid class-subject structures. It seems that there is a link. Once a school decides to concentrate on key competences, it starts to introduce changes and innovation. On the other hand, many innovative projects are based on the concept of the development of key competences, even if that was not in the declared goal. In this sense, the adoption of the Recommendation could be considered as a stimulus for the innovations in school practice or, at least, for the reflection and critical evaluation of the teaching methods and means being used.

As described in the previous chapters of this report, most of the EU Member States have launched various initiatives to promote key competences in school education: they have reformed, or are in the process of doing so, the national curricula, modernised systems of examinations and assessment, and introduced changes in teacher training programmes. However, all those changes will not bring the expected impact if the pedagogical practice at school level remains unchanged.

6.3 The national curriculum – the context for school practice

Schools operate on a scene defined by rules and regulations. National curricula are the most important of these regulations. There are significant differences among countries as regards the extent of school autonomy as it is determined in the national curriculum (or other regulations). To illustrate different approaches, three examples are presented. In Greece, Flexible Learning Zones are an integral part of the package of teaching programmes (Cross-curricular Thematic Framework) developed by the Pedagogical Institute. The Flexible Learning Zones are specially designated for inter-subject, out-of-classroom activities. In Bulgaria, regulation on national standards sets the number of hours for core and optional studies. It is up to the school if the optional hours are used for traditional subjects

or for promoting cross-curricular competences. In Denmark, the Act on primary and secondary schools provides ‘instructions’ for the design of school curricula. It offers significant room for flexibility.

Insert 6.1. School practice: Greece

Introduction of the Cross-curricular Thematic Framework and Flexible Learning Zones in Greece (information provided by the President of the Pedagogical Institute¹²²)

The Interdisciplinary Cross-Curricular Thematic Framework (DEPPS) was introduced in 2003 for compulsory education.

This innovative endeavour aims to the adjustment of teaching aims and methodology focusing on the horizontal linking of all subject content and covering a greater variety of topics. It also focuses on a fully comprehensive analysis of basic concepts and the cross-curricular thematic approach to learning implemented in school practice.

Six main priorities characterise the DEPPS:

- To provide opportunities for personal growth, nurturing in self-awareness, emotional health, critical thinking communication skills and initiative taking. These factors combine to enable individuals develop as responsible citizens, embracing democratic and humanitarian values, free from religious or cultural prejudice.
- To provide access to lifelong learning.
- To assist the development of a critical attitude towards new information and communication technologies.
- To maintain social cohesion, by providing equal opportunities for all.
- To assist the development of European citizenship awareness, while preserving national identity and cultural awareness.
- To promote a spirit of co-operation and responsibility.

The DEPPS includes a curriculum known as the ‘**Flexible Zones of Activities**’, which comprises educational materials promoting interdisciplinary knowledge and participative educational methods. The Flexible Zones comprises at least two teaching hours per week, and involves cross-thematic activities and projects.

Each course within the DEPPS have to have:

1. Clearly defined goals which refer to knowledge, attitudes and values needed to satisfy personal needs and meet social demands.
2. Precisely described objectives that could be divided into three groups: i) cognitive, ii) affective and iii) psycho-kinetic.
3. Themes structured by integrating knowledge from different disciplines (cross-thematic links). Emphasis is placed on the development of critical thinking, the encouragement of collective effort and the acquisition of general knowledge.
4. Indicative activities defined in two categories: i) Subject-oriented activities, ii) Cross-thematic activities, which are designed to facilitate the integration of knowledge from different school subjects with everyday life experience.

¹²² The Pedagogical Institute (PI) is responsible for developing, testing and assessing the national curriculum.

In Bulgaria, State Educational Requirements (Standards) determine the minimum level of knowledge and skills to be acquired by students by year and subject. Compulsory education is carried out through setting a fixed minimum number of hours for every year and subject to which more hours may be added for core curriculum optional studies, depending on the type of school and students' choices. The hours for core curriculum optional studies increase by year from 64 to 806 per year. In addition, if approved by the corresponding financing body, there are free optional hours in which students may engage either in core curriculum studies or in extra-curriculum activities.

In Denmark, schools must design their curricula in accordance with the provisions of the Act on the *Folkeskole* (the primary and lower secondary school). The Act requires schools to:

- Organise the teaching respecting intellectual freedom and equality so that the individual student's needs for the preparation for employment are met;
- Prepare the pupils for active participation in a society based on freedom and democracy;
- Cooperate with the parents to further the pupils' vocational and personal development.

In 2002, the Danish Government presented an action plan to reform upper secondary education with the aim of strengthening its proficiency and competence level. The overall emphasis was on giving the individual pupil more options by setting aside more lessons for optional subjects organised as 'subject packages' (ensuring greater integration between subjects) and at the same time by allocating fewer lessons to the obligatory subjects. It is up to the individual school to combine subjects within the individual subject package. The teaching and learning must be organised so that students' curiosity and commitment are encouraged and experimental approaches to the subject-matter should be promoted. The plan also states that there should be more personal and subject-specific challenges and the work methods should encourage students to assume increasing responsibility for their own education.

In Denmark, there is also another interesting example of the regulation that is not directly linked to the curriculum but contributes to the promotion of key competences – civic competence in particular. The Act on Democracy in the Education System enables students to exert more direct influence on their day-to-day school life. It also gives them the right to set up students' councils and to have representatives on the school boards.

6.4 School strategies

School strategies aimed at the promotion of key competences could be grouped around three approaches:

- School level curriculum planning
- Teaching and learning methods
- Schools' work organisation.

Insert 6.2. School strategies

School level curriculum	Key competences defined within 'traditional' subjects Key competences promoted across various subjects 'Special' key competence related subjects (e.g. entrepreneurship, information and communication technologies)
Teaching and learning methods	Project based learning Individual learning plans Group, team work Experiments Practical experience Using formative assessment
Schools' work organisation	Out-of-school activities Involvement of external experts Cooperation of teachers, school leadership Responsibility delegated to the students

There are transversal issues that are present in most of the cases analysed:

- The role of the teacher: becomes more of a partner and tutor for the learner than a lecturer;
- The role/position of the students/learners: takes some of the responsibility for their own learning, involved in the process of planning and play different roles in groups and teams;
- The role of school leaders: encourage pedagogical innovations and promote cooperation among teachers;
- The role of partners, in particular the role of parents: contribute to the greater openness of the school, which is an important feature of the innovation culture in schools.

6.5 The whole school approach

The key competence based approach and particularly the focus on cross-curricular key competences require that the school level curriculum is designed not as a set of different (separate) subjects but that it creates links between subject domains. It also requires closer co-operation among the teaching staff. The teacher training chapter refers to the changing role of teachers who become partners assisting students in their learning efforts. Such change is difficult for individual teachers if they do not feel part of a whole school development programme. Transversal approaches could be illustrated by concrete examples in an OFSTED Annual Report 2006/07¹²³ where the following short but meaningful remark is to be found:

"In many good or outstanding primary schools, teachers make learning more meaningful by identifying helpful links between different subjects. They use information and communication technology well."

In Germany, policy documents (curriculum guidelines) refer to the changing role of teachers who now concentrate more on what they can do to guide and advise pupils when designing their own learning processes than on relaying factual information. This is a strong recommendation for schools to facilitate teacher professional development and to build the school pedagogical culture based on those principles.

A good example of students' active involvement in the learning process can be found in Finland where the complex modular system leaves the issues of pacing and sequencing to student choice and responsibility. Managing one's own learning brings good results in terms of the 'traditional' learning outcomes and builds the learning-to-learn competence. That could not happen if there were only individual students learning programmes. The whole school approach is crucial for success.

The Report on the activities of the Peer Learning Cluster on Key Competence¹²⁴ summarises the experience of the Member States where study visits were organised. It clearly indicates that the whole school approach is among the most important components of the learning environment, stimulating the acquisition of key competences.

¹²³ [http://www.ofsted.gov.uk/Ofsted-home/News/Press-and-media/2007/October/The-Annual-Report-of-Her-Majesty-s-Chief-Inspector-2006-07/\(language\)/eng-GB](http://www.ofsted.gov.uk/Ofsted-home/News/Press-and-media/2007/October/The-Annual-Report-of-Her-Majesty-s-Chief-Inspector-2006-07/(language)/eng-GB).

¹²⁴ European Commission DG EAC, *'Cluster Key Competences – Curriculum Reform, Synthesis Report on Activities in 2007'* (Brussels 2008).

The experience from PLAs in Flanders, Hungary and Greece shows that ‘an ideal’ learning environment for key competences should have (at least) the following features:

1. The development of competences is based on active and experimental learning, where learners’ individual development and personalised learning are supported. This implies more individualised approaches to learning.
2. Teaching and learning with subjects and cross-curricular elements are well coordinated and teachers collaborate effectively. Teachers and students have time and space for cooperation.
3. This, in turn, calls for leadership that builds on a common vision of school development, and a shared/ distributed approach that encourages teachers to work in teams rather than alone.

The Report also highlights the importance of the whole-school approach in successful projects promoting the key competences which is illustrated with examples:

1. Preparation of teachers in Flanders to provide ‘learning to learn’ opportunities within the subject instruction;
2. Introduction of meta cognitive skills through textbook exercises in Greece;
3. Teamwork and peer learning integrated in subject teaching (example of mathematics) in Austria.

6.6 School level curriculum

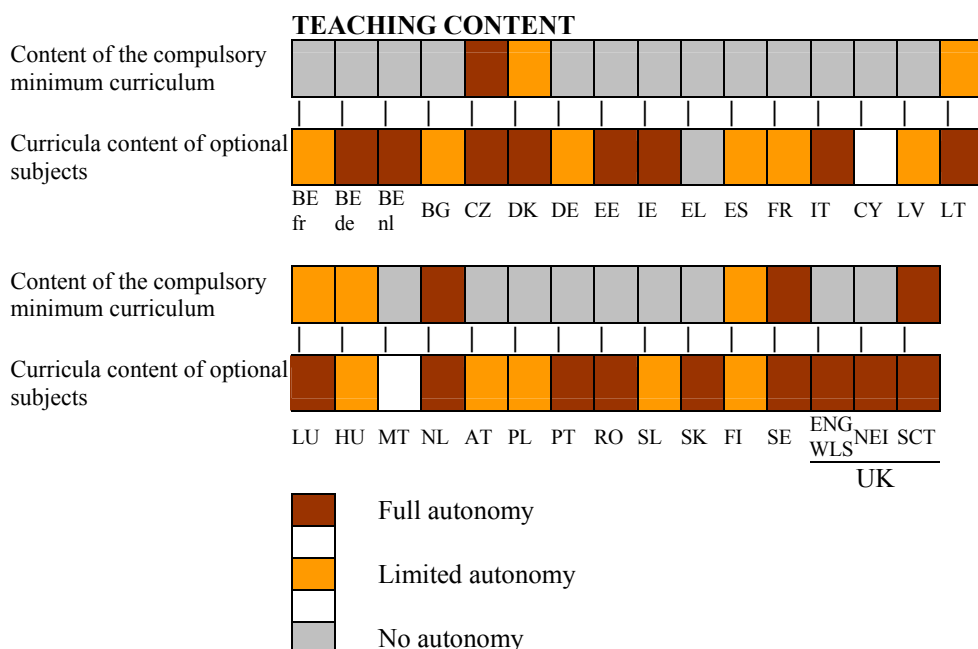
Schools in most of the countries examined enjoy substantial autonomy in deciding on the school curriculum. The scope of decision-making at school level is described in the Eurydice ‘Key Data on Education in Europe 2005’:

‘Within the area of teaching content and processes, three aspects are also characterised by school autonomy almost everywhere. Teaching methods are the first of these (six countries have limited autonomy). The choice of textbooks is also a matter for which schools have at least some autonomy (only Greece, Cyprus and Luxembourg (at primary level) do not have any autonomy). There tends to be limited autonomy with respect to the content of teaching programmes, while all coun-

tries, except Germany, Latvia and Luxembourg, have at least some decision-making power with regard to pupils' continuous assessment.'¹²⁵

Key Data on Education in Europe 2009 provides an overview of school autonomy concerning decisions about the teaching content (curriculum)¹²⁶. This is illustrated by country in the figure below showing the degree of autonomy (full, limited or none) for the content of the compulsory minimum curriculum and also for the curricula content of optional subjects.

Figure 6.1. School autonomy regarding teaching content



That freedom is not always used. In Estonia the national curriculum is oriented towards the future socio-economic development of the country. *'However, this approach does not guarantee that the planned principles and construction will remain the same in schools. Stereotypes are inevitably present in the deeply rooted views of the subject specialists and teachers concerning what are 'correct' knowledge and learning and these are hard to fight.'*¹²⁷

¹²⁵ **Key Data on Education in Europe 2005**, European Commission, Eurydice, Eurostat, 2005.

¹²⁶ **Key Data on Education in Europe 2009**, European Commission, 2009, http://eacea.ec.europa.eu/education/eurydice/documents/key_data_series/105EN.pdf.

¹²⁷ Country fiche.

School autonomy is not limited to decisions on the content of the curriculum. In many countries, schools can use time in a flexible way. But again, there is evidence that not all schools use these possibilities. For example, in Hungary, *‘The spreading of the use of flexible time-structuring is impeded more by the relatively slow adaptive capacities of teachers than by the constraints determined by the legal frameworks.’*¹²⁸

When a school designs its own curriculum it must observe more or less rigid and direct requirements defined in the national curriculum. Many of those documents refer to competences in the description of the requirements for particular subjects. For example, in Austria, schools must include the following competences for each of the following subjects:

- Mathematics: critical thinking, ability to design the learning process independently,
- Music: expression and fantasy, readiness to learn, self-discipline, team spirit and tolerance,
- Artistic education: the will to experiment, cultural awareness and tolerance
- Physical education: ability to manage conflicts.

Highly similar formulations can be found in the recently-adopted Polish national core curriculum (*postawa programowa*).

6.7 Key competence defined as special subjects

Three of the key competences defined in the Recommendation appear in many national curricula and stimulate much of school-based practice. In national curricula there are subjects that are directly related to certain of the key competences:

- Information and communication technologies,
- Entrepreneurial education,
- Civic education.

6.7.1 Information and communication technologies

The question is to what extent such obligatory subjects, often taught in a traditional manner, create opportunities to acquire key competences as they are defined

¹²⁸ Country fiche.

in the Recommendation. For example, the definition of digital competence in the Recommendation underlines ‘*the critical use of Information Society Technology (IST) for work, leisure and communication*’. It could be mastered by using computer technologies as a tool for the teaching of different subjects. Special ICT instruction may concentrate on the technical aspects, and the introduction to various computer programmes with less attention given to practical, daily usage. That is the case in Poland where during ICT lessons students practised standard tasks, editing documents or performing simple operations with spread-sheets (or playing games when not watched by the teacher), while computers were rarely used in the lessons devoted to other subjects. At the same time, the most successful project that promotes key competences in Polish schools, ‘Classy school’ (*Szkoła z klasą*), was characterised by two especially innovative features: its ‘online-only’ character (all the tasks were reported via online forms and most of the communication was via e-mail) and reliance on social control as one of the main forms of validation. The reports were the only basis for evaluation at the secretariat and after being accepted, they were published on the web. No-one formally checked what really happened at school, but the whole community knew what the school said it did. Never before had Polish schools ‘gone e’ on that scale.

There were two examples from Scotland, one at primary level and one at secondary level that involve pupils and teachers working in cross-curricular ways using ICT. Pupils from two distant primary schools in Scotland used *Glow*, the national schools intranet for Scotland, to hold a video-conference. They worked together on a project, looking at the differences between urban and island life, to develop a PowerPoint presentation. A secondary school in Scotland has been piloting the assigning and marking of homework using *Glow*. Teachers set tasks and pupils log on when it suits them. Pupils studying a Shakespeare play used the discussion board on *Glow* to help each other and even to ask their teacher for help. Those examples show that even if ICT is defined as a separate subject it is inter-linked with other subject domains and it may be used as a strong tool to promote a cross-curricular approach in the school work.

6.7.2 Entrepreneurship

Similar observations can be made for entrepreneurship education as for ICT. When it is an obligatory subject, taught like other subjects, concentrating on information and on knowledge more than on skills and attitudes, it is not in line with the definition in the Recommendation which stresses practical experience.

The Recommendation defines this competence as follows: ‘*sense of initiative and entrepreneurship refers to an individual’s ability to turn ideas into action. It*

includes creativity, innovation and risk-taking, as well as the ability to plan and manage projects in order to achieve objectives'.

In line with this definition, many schools offer the possibility of setting up and running various types of virtual student enterprises. There are examples of such initiatives in almost all Member States. In Austria, running training firms is part of the entrepreneurship curriculum. In Denmark, an internet-based simulator is available for schools to teach students about business plans, product development, negotiations, etc. SimuLith is a successful attempt to introduce enterprise into the classroom of higher vocational schools in Lithuania. The project aims at establishing a network of practice firms, which simulate as closely as possible the activities of an enterprise. Each institution participating in the project has to register as a fictitious company at the SimuLith Centre, which also hosts a fictitious post, bank and fair. The SimuLith Centre at the Vilnius College is an associated member of EUROPEN, a network of 3 000 'practice firms' that covers 35 countries. In Cyprus, in many primary schools students are responsible for running schools canteens.

6.7.3 Learning to learn

No evidence has been found that the 'learning to learn' competence is defined in any Member State as a separate 'subject' (with the defined content, outcomes and amount of time foreseen in the curriculum). In the curricula or teaching programmes in all the countries it is stated that learning to learn is covered by the subject instruction. It is hard to assess whether or not that approach is effective. Obviously it depends very much on teachers' skills, competences and their own teaching styles. Students develop their learning strategies directed more by intuition than by sound knowledge and understanding. So there are arguments for promoting 'learning to learn' as a kind of subject.

In this context it is worth noting an interesting Bavarian initiative to include 'learning to learn' as a specific, separate competence (not a subject) in the curriculum. This competence is composed of the skill of the learning organisation; the selection, storage and processing of information; knowledge management; the ability to manage one's own work (to concentrate and to relax); motivation and self-control. A similar initiative has been undertaken recently in North-Rhine-Westphalia.

6.8 Key competences through optional subjects

Some countries promote key competences as optional subjects. A good example is Denmark, where it is planned to introduce ‘innovation’ as an optional subject. This is designed to promote initiative, independence and creativity and to teach students the methods and theories of business, innovation and entrepreneurship. No other concrete examples of optional subjects which were directly and precisely related to specific key competences have been found in the country fiches.

6.9 Extra curricula activities

There are plenty of examples of the promotion of the key competences within the various extra-curricula activities. They can take the form of additional lessons, courses or clubs. Often they are organised as extramural events.

In some countries, for example in the Flemish Community in Belgium, there are six obligatory one-week extramural periods per year. They are used to organise various projects mostly linked to the local communities’ social and environmental issues. Such activities offer excellent opportunities for experiencing team work, planning, and solving problems. Leaving the routine of classroom instruction stimulates teachers and students to experiment with innovative approaches to education. Extramural activities can promote skills and attitudes linked to different key competence like in the Estonian *Põlevikvima* (Oil-shale land) project.

Insert 6.3. School practice: Estonia

In 2005 and 2006 a project called *Põlevikvima* (Oil-shale land) was run with the participation of Tallinn schools and private companies. The aim of the project was to teach Tallinn 10th grade students about the oil shale mining region of Ida-Virumaa. Participating in a one-day study tour, the students learned about the history, geology and nature of the region as well as chemical and physics related processes related to oil shale mining and production. The aim of the project was to teach one topic across the subjects as well as involve the cross-curricular themes of environment and sustainable development and career planning as well as break the negative prejudices about the industrial region of Ida-Virumaa. As there were Estonian and Russian speaking students together on the excursions, the project also aimed at cultural and linguistic understanding between the two groups¹²⁹.

Source: Country fiche.

¹²⁹ deepthought.ttu.ee/ajaleht/tp2005/polevkivimaa.pdf.

6.10 School networking

As explained earlier, the focus on key competences in school practice is connected with innovation. Even if traditional methods of instruction are used they are combined with a whole school approach, intensive teacher collaboration and extra-curricula activities.

It is good when innovation practice, experience and reflections can be exchanged and shared. For that purpose school networks are being set up. Sometimes they are bottom up initiatives. The impact of such initiatives is greater when they are integrated with the reform of the national curriculum. Three examples are given below:

Insert 6.4. School practice: Hungary

Self developing schools network in Hungary

This is going back the implementation of the National Core Curriculum in the middle of the nineties when the network of what were called ‘self-developing schools’ played a key role¹³⁰. The schools belonging to this network were the first institutions that elaborated their own school level curriculum in 1998. This process was embedded into a school level strategy-making exercise which started with a self-analysis, the collective formulation and adoption of the strategy of the school and, on the basis of this, the elaboration of the school level curriculum. In these schools, which still have a strong impact on the pedagogical thinking in the country, curriculum development and school level organisational development are strongly interlinked. In fact, the majority of the schools belonging to this network can be described as institutions where school organisation supports the provision of cross-curricular key competences.

Source: Country fiche.

Insert 6.5. School practice: Poland

Classy schools in Poland

One of the most innovative examples of seeking external help came through the Centre For Citizenship Education campaign, Classy School (‘Szkoła z klasą’, pun intended). It was co-run by the Centre and Poland’s biggest daily newspaper, Gazeta Wyborcza. The idea, the pedagogic framework and the guidance were provided by the education specialists from the Centre, but all the operations were taken care of at and by Gazeta Wyborcza. The aim was to evoke and promote the initiative of students, of individual teachers, but also at the school level. The campaign, planned for about 400 schools involved in the end over 5000 of them. Due to its success, several editions were undertaken, the later ones wrapped around particular skills (Lego, Cogito, Ago – I Read, I Think, I Act) and it developed into the complex, multi-stage system of facilitating change in education, with sub-programmes directed to whole schools, individual students, informal student groups,

¹³⁰ See the website of the Association of Self-developing Schools:
<http://www.onfejlesztoiszkolak.hu/>.

individual teachers, students-teacher teams. The successful participants (the ones that completed all the tasks chosen from the variety offered and passed the evaluation) obtained the opportunity to receive further training within 'Classy School Academy'.

Two especially innovative features of the program were: its 'on-line-only' character (all the tasks were reported via on-line forms, most of communication via e-mail) and relying on social control as a main form of validation (the reports were the only basis for evaluation at the secretariat, after being accepted they were published on the web. No one formally checked what really happened at school – but all the community knew what the school said it did). Never before Polish schools 'went e' in that scale nor was so much trust placed in them.

The Centre also runs several other comprehensive programmes promoting innovation at schools (improving teaching, school environment, school leadership). One of them is The Learning Schools Programme (SUS, 'Szkoła ucząca się'), which puts emphasis on the school ecosystem. Those programmes do not refer to key competences explicitly, but address them in different areas of school life, e.g. the formative assessment module promotes learning to learn and a sense of initiative.

Source: Country fiche.

The third example is from Ireland and refers to the NCCA – National Council for Curriculum and Assessment. The NCCA set up the School Network *in an effort to include the student and teacher voice in curriculum development*¹³¹. In 2006, the group of teachers from the Network were invited to participate in the project whose aim was to explore *'how the key skills ... could be embedded in teaching and learning across a range of subjects in senior cycle'*¹³². The researchers developed instruments to collect teachers' opinions, stimulate reflection and build a relationship of trust. The research findings were used to promote effective and practical solutions and to contribute to the wide public debate.

6.11 Methods and approaches

It is widely agreed that the acquisition of key competences, particularly the cross-curricula key competences, requires specific, non-traditional methods of instruction. For example, the development of competences for active citizenship requires active participation in democratic school life and real civic activities. Entrepreneurship could not be promoted without practical experience in real or virtual companies.

¹³¹ Key Skills in Senior Cycle, draft interim report, NCCA 2008.

¹³² *ibid.*

Self-learning is another important competence. It can be structured as in Burnfoot Community School in Hawick (Scotland) which has been working with personal learning plans since 1999. Often the students are encouraged and advised to undertake efforts to learn by themselves. When they gather some experience, the next step is to give them the possibility to practise self-assessment and peer-assessment. That kind of experience is very important for the preparation for life-long learning. It also contributes directly to the development of the 'learning to learn' competence.

Another very popular and effective method is project-based education. This method is strongly encouraged, for example, by the Austrian Ministry of Education. It defines in the regulation¹³³ the goals of the project-based instruction as follows:

- Autonomous learning and acting;
- Realising one's own skills and needs and developing them further;
- Developing the willingness to act and assuming responsibility;
- Developing a mind that is open to the world and aware of social-historical problems;
- Recognising and structuring challenges and problematic situations and developing creative approaches to solutions;
- Developing communicative and cooperative competences and the ability to deal with conflicts;
- Grasping and designing organisational contexts.

There are of course schools in other countries which use projects in various ways. Some of them have organised all their work on a project basis. Others use projects to look for solutions to specific problems, to investigate topics or to create pieces of art, for example. Projects could be specific events, extramural undertakings. In such cases, external partners are often involved.

International projects – collaboration between schools in different countries – are very specific and very important. Such a project could be at the initiative of an individual school, such as Kolga Secondary School in Northern Estonia which initiated a joint project with a school in Gori, Georgia, that was damaged during the recent conflict. Often the projects are implemented within international programmes like Comenius or the UNESCO Associated Schools Programme. More and more often modern communication technologies are used to facilitate cooperation among schools involved in international projects.

¹³³ Ordinance governing the principles of project-centred teaching (BMBWK, 2001) http://www.bmukk.gv.at/medienpool/6788/pu_ertl_engl.pdf.

In the Czech Republic, commercial consultancy is offered for schools applying to the European Social Fund for funding available within the project ‘Innovative methods and key competences’. That brings a double effect: in so far as the school community (staff and students) receive professional, practical training on project planning and project design and at same time the school designs a project proposal that has a better chance to be successful in applying for ESF funds.

Many examples of using innovative pedagogy to develop key competences can be found in the area of vocational education. In a few countries, vocational education seems to be, in this respect, ahead of general education.

In Germany, efforts are being undertaken to increase in-company training, thereby promoting the acquisition of key competences such as the capacity to work in a team, responsibility, self-organisation and linking content-related knowledge with the ability to apply it.

In Slovenia in VET, the key competences are clearly elaborated and more central to the reforms that have taken place. Here, specifically:

- Students undertake work experience, and wider key competences are assessed by the teacher and the mentor (work supervisor).
- Project weeks promote wider key competences across the learning spectrum. In one example, students studying motor mechanics had two project weeks: one on marketing and the other on repairing a car (interdisciplinary, competence-oriented by definition).
- A module for entrepreneurship has been introduced into the modular curriculum.
- 20% of the curriculum is defined locally and involves the local community.
- Key competences are assessed: a pro forma approach, with the teacher forming a qualitative judgement based on observation and evidence on each wider key competence rather than giving a recorded mark test based.

In addition a particular case is provided by the introduction of entrepreneurship in the modular VET curriculum. It is not compulsory, but an optional module that can be taken by learners on different programmes.

6.12 External support for the promotion of key competences at school level

Schools do not work in isolation. The development of the key competences is supported in various ways by local, regional and national authorities. One effective

method is the promotion of information. Internet-based solutions are often used. In the Czech Republic, the ‘INSPIROMAT’ web portal operates along with a newsletter where one can find a calendar listing all interesting events connected with the promotion of innovation in education.

In Austria, the Ministry of Education has launched an initiative for learning democracy in schools called *Zentrum polis*, an educational Internet platform on politics, human rights and sustainable development. The initiative aims to support teachers when they introduce the above-mentioned topics by providing background information, project proposals, teaching materials, and a database of experts who could be invited as speakers.

Authorities (mostly national) also initiate pilot projects and encourage schools to participate. Added value is brought to such initiatives if the participating schools are in a network. The ‘Classy School’ project in Poland is a good example. The backbone of the project is collaboration among schools using a web platform. Schools that successfully completed various tasks actively participating in the project and sharing experience were awarded the title of ‘Classy School’.

In Hungary, there are networks of ‘Zsolnai schools’ and ‘self-developing schools’. In this country the European Social Fund has been used to finance large scale school development programmes aiming at the development of competences for lifelong learning.

Pilot projects require a long-term commitment from schools. Sometime this is difficult. But there are initiatives which do not require such commitments. Competitions are an example. Again, there are many such projects in all Member States. Just to mention one, in Denmark there is an award for the ‘Entrepreneurial school of the year’.

Another approach is to link key competences with formally recognised qualifications. An example of such an approach is to be found in the United Kingdom. ASDAN – the Award Scheme Development and Accreditation Network¹³⁴ is a nationally accredited awarding body. It offers a wide range of awards for young people of all abilities. Among them:

- Key Skills (including the Wider Key Skills) Levels 1–4
- Basic Skills (Skills for Life/Adult Literacy and Numeracy/ALAN)
- Certificate in Life Skills (Entry Level) Entry Levels 1–3
- Certificate in Career Planning Levels 1–3
- Certificate of Personal Effectiveness (CoPE) Levels 1 and 2
- Award of Personal Effectiveness (AoPE) Level 1

¹³⁴ <http://www.asdan.org.uk/quals.php>.

- Certificate of Personal Effectiveness (CoPE) Level 3
- Certificate of Personal and Social Development (PSD) Levels 1 and 2
- Certificate in Personal and Social Development (PSD) Entry 2 and Entry 3
- Community Volunteering Levels 1–3
- Employability Entry 2 – Level 3
- Functional Skills
- Personal Progress Entry 1

In Austria, it is possible to obtain the Driving Licence for Entrepreneurs after completing four modules. The first module follows the broad concept of entrepreneurship and can be chosen at lower-secondary level. The following modules in upper-secondary education lead to a certificate that is recognised by employers¹³⁵.

In France since 2000, ICT competences are evaluated by a certificate for computer and internet use, B2i (*Brevet informatique et Internet*). In 2006, this certificate was clearly organised at three levels: for primary, lower secondary and upper secondary education. The lower secondary version of B2i became compulsory and was integrated into the evaluation of competences made at the end of compulsory education.

Some countries organise special events dedicated to the promotion of key competences. In Bulgaria, one of the recent initiatives undertaken by the Ministry for National Education started on 26 January 2008 in Sofia under the name ‘First national day of key competences – communication in the mother tongue’. A total of 28 children from all the regions of Bulgaria were divided into four groups in which debates were held. The topics for the debates in the particular groups were as follows: ‘Doubts entail a search for the truth’, ‘Language is the source of misunderstanding’, ‘The price of success’ and ‘The deep sense of unspoken words’. A special jury identified the best participants in the discussions. The Ministry for National Education announced a number of initiatives of this kind, related to each of the key competences concerned. This is the official response to the key competences idea and aims at the propagation and popularisation of lifelong learning and key competences. An appropriate media campaign is disseminating information about the initiative.

¹³⁵ 2004 working paper on entrepreneurship education (Working Group B on Key Competences, 2004) <http://ec.europa.eu/education/policies/2010/doc/basicpaper2004.pdf>.

6.13 Main Issues Arising

The adoption by the European Parliament of the Recommendation on the Key Competences for Lifelong learning was a stimulus for the stakeholders of the education systems in the Member States to undertake a reflection and critical evaluation of the teaching methods and means being used in school practice and, consequently, for innovations in schools. However the process of developing and promoting key competences started decades before the Recommendation was passed by the Parliament.

There is a link between innovative approaches in schools and key competences. Once a school decides to concentrate on key competences it starts to introduce changes and innovation. On the other hand, many innovative projects based on other concepts have contributed to the development of key competences, even if it was not the declared goal. Schools are more eager to experiment with innovation when they enjoy more autonomy in deciding on teaching content and learning methods.

There is no ‘silver bullet’, no universal approach to the promotion of key competences. In the same way there is no single and universal set of competences that could suit everyone and fit into all the different real life challenges. Individualisation is important and it calls for personalised learning. Also context (school social environment) matters as competences should be ‘practiced’ in real life situations during out-of-school activities. It means that the solutions that work perfectly in one school could be completely inappropriate in another.

The ‘let all a thousand flowers bloom’ approach works and brings good effects when it is accompanied by strong evaluation tools and a general evaluation culture. Contacts among schools, exchange of information, promotion of good practice, peer learning and networking help innovative schools.

1. There is plenty of evidence that schools have been developing pedagogical practice aimed at the promotion of key competences for many years. The EU Recommendation on the key competences set the framework based on that rich experience rather than ‘inventing’ a new list of key competences. The adoption of the framework facilitated the further reflection and work on the development of the measures to be used in schools for the effective provision of the key competences. To promote key competences, the project-based approach is often used for teaching and learning traditional school subjects, as well as for organising extra-curricula and out-of-school activities. That approach combines subject-related learning with the acquisition of such key competences like team work, planning, problem solving and communication.

2. School organisation is crucial for the successful provision of key competences. The following elements contribute to that aim:
 - Key competences are more likely to be acquired when the school level curriculum specifies transversal skills and inter-subjects links.
 - School organisation stimulates collaboration among teachers, which is a decisive precondition for cross-curricula, cross-subject approaches.
 - School democracy is instrumental for civic competence and for the culture of innovation and creativity.
3. School level innovations depend on the scope of school autonomy defined in the national curriculum (and other regulations). However schools and individual teachers are sometimes reluctant to use that autonomy. Therefore the authorities should promote, recognise and reward innovation. The open method of coordination and EU Lifelong Learning Programme should be used for that purpose.
4. Consolidating the sustainable effects of pilot projects depends on sound monitoring of the implementation and evaluation of the results. Feedback to the school could be a strong incentive for them to continue their efforts.
5. In many situations, new information and communication technologies (ICT) promote innovations ‘by definition’. Alongside digital competence, ICT may support also the delivery of other key competences such as team work, communication and international cooperation. Examples of projects with an ICT component implemented within the Comenius Programme and in partnerships set up within the e-Twinning initiative provide evidence about how European programmes can effectively support initiatives aimed at key competence promotion.
6. School level initiatives are successfully supported by the measures implemented at regional or national level, like the organisation of competitions, special events, awards, etc... Such measures should not be limited to ad hoc, short-term undertakings. Only systemic approaches and continuation could bring sustainable results.
7. Networking among schools gives an opportunity for peer learning through the exchange of ideas, sharing experience and mainstreaming successful solutions. Recognition of the efforts and achievements by the network members stimulates the continuation of the work. International networking would bring an added value. Such initiatives may be launched and promoted through the open method of coordination.

8. The evaluation of innovative projects should be embedded in more general educational research and development programmes.

There are good examples, particularly in the new Member States, of how the European Social Fund could support projects aimed at promoting key competences. It seems that the countries that have recently accessed the EU utilise more efficiently the new opportunities to use ESF designed to respond to the objectives of the Lisbon Strategy.

PART III: Synthesis, Conclusions and Recommendations

7 A European Space of Competence Development

The most important conclusion that emerges from this analysis is that almost all Member States of the European Union have adopted the development of key competences as a major national education policy goal and many have made remarkable progress in implementing this goal¹³⁶. The objective of identifying those key competences that everybody needs to have a successful life, to become employable in the knowledge economy, to be protected against social exclusion, to become an active citizen in a democratic society and to become an effective lifelong learner was set by the leaders of the Member States of the Union as part of the Lisbon strategy launched in 2000. The recommendation adopted by the European Parliament and the Council of the European Union in 2005 gave a tangible form to this objective, responding to the explicit request of the Member States. This study shows that the key competences recommendations are being actively implemented in the educational systems of the Member States, although this is still a major challenge for several countries.

7.1 Competence development: a shared policy goal

Many of the countries examined in this study started devising and implementing competence development oriented education policies long before the adoption of the recommendations on the European key competences, mostly starting with vocational education and training (VET). The evolution in this respect can equally be described as a bottom-up and a top-down process. Thus, the European recommendations (European Reference Framework) did not trigger the process but gave an overall orientation and support to an already existing and rapidly developing process. The action of the European Union, in accordance with the letter and the

¹³⁶ For a detailed, country by country picture about this see Chapter 3 on Policies and Implementation approaches

spirit of its founding Treaty, has been supplementing the action of the Member States, thus adding a European added-value to it.

There is, of course, a significant difference among countries regarding the speed of advancement in this process. Some started it several decades before the EU recommendations were adopted, typically in the VET sector. The *National Vocational Qualifications* introduced in the mid 1980s in the UK, for example, was based on the analysis of various occupations, and this can be seen as one of the earliest efforts to go in this direction (see, for example, Stanton & Bailey, 2004 or Raffe, 2007). In fact, in many countries the often quite permeable borderlines between vocational training and general education allowed the competence-based approaches, first applied in the vocational sector, to penetrate gradually into the sector of general education.

In several countries this process was enhanced by some related programmes of various international organisations, such as the Council of Europe¹³⁷ and OECD. In fact, the method used in the framework of the influential DeSeCo programme of OECD¹³⁸ – referred to in many country reports prepared for this study – followed the same model as that which was applied in those vocational training systems where qualifications were remodelled on the basis of occupational analyses. In this programme, the aim was to define those competences that are needed for a ‘successful life’ and the characteristics of ‘real life’ were analysed quite similarly to the way the representatives of occupations are analysing real life situations in employment when trying to describe the competences needed. This type of analysis can also be done and is, in fact, being done at the level of individual schools and teachers. The French case study gives an excellent illustration about how subject teachers participating in a school level project made their own analysis and define the competences they think are relevant in real life situations. In doing this, they were building bridges between their subject area and the real life needs of students.

Another picture emerging from the analysis of the country cases is that in most countries a limited but increasing number of schools, sometimes operating under special circumstances, started to devise and apply competence development approaches long before this became part of a formally adopted national policy. Policy formulation and implementation seem to follow the same model of combining

¹³⁷ The Council of Europe played an important part in enhancing foreign language learning and transversal themes such as education for citizenship, Human Rights and other fundamental values.

¹³⁸ It should be noted that the influence of OECD in enhancing key competences and cross-curricular themes came also from other activities such as *The school of tomorrow* among many others and of course PISA.

top-down and bottom-up approaches at the level of the Member States as the one which can be observed at the level of the European Union. The educational systems of the Member States are not homogeneous entities: they consist of schools showing different levels of development and presenting an amazing diversity, even in relatively centralised systems. The decentralisation policies in many countries have sometimes increased this diversity significantly since the 1970s, and particularly the 1980s.

The variety in the speed at which schools progress towards the competence development model also appears clearly in the case studies produced for this study. The authors of the French case stress, for example, that *‘while the French Ministry of Education is slowly implementing a general shift of the compulsory education curriculum towards the achievement of clearly identified competences, instead of traditional mainly content-centred curricula, many actors of the educational system are boldly and convincingly pushing ahead changes of attitude and practices in their schools.’* The Polish study also mentions that *‘in Poland, the shift in teaching towards competences emerged before it even started finding its way into the national curriculum. It was initiated by educational NGOs, whose leaders were Western-trained, inspired by best practices they had observed on study visits.’* The Hungarian country fiche also stresses that *‘much before competence development has become a common European goal there were some relevant initiatives’*, mentioning a network of schools that *‘have been applying a curriculum and a method elaborated by a developer named Jozsef Zsolnai who called this ‘aptitude developing’ method’* as early as the late 1970s.

Very often we find the emergence of competence development approaches in schools without explicit reference to the term ‘competence’. There are many pedagogical innovations that transform the learning environment of schools so that it becomes more oriented towards competence-development. The French case study makes reference to a school level initiative in which teachers *‘agreed on a joint approach of their teaching activities and assessment through a set of disciplinary, cross-curricular and non disciplinary competences, which they intend to identify, develop and assess while delivering the curriculum. The fact that there is not a unique set of competences is obviously not a problem. There are, for example, 11 of them for natural sciences, 14 for the foreign language, 6 or 9 only for sport or history. But all lists of competences show joint competences, common cognitive processes and attitudes. They differ sometimes only by their wording...’*

7.2 Framing key competences development policies

As a result of the variations in the terminology used in the different countries which are analysed in the policy chapter of this study, the formal formulation of policy objectives can be somewhat different from one country to another or even within each member state (for example within the U.K.). Moreover, the objectives related to key competences may vary according to the level (primary, lower or upper secondary) and the type of education (general academic, technological, vocational). But the differences in terminology (key competences or competencies, key skills, ‘*socle commun*’, etc.)¹³⁹ do not prevent an overall process of change showing much convergence towards competence-based curricula, cross-curricular key competences and interdisciplinary activities, transversal themes (such as education for citizenship, sustainable development and digital education), active learning, team-work, personalised education, learning outputs, etc.

In all countries, beyond the differences of the vocabulary used, the educational policies give some importance to the three aspects of a competence, as recommended by the European Reference Framework, i.e. ‘knowledge, skills and attitudes’. However, on the one hand, the relative weight given to each of these varies from one country to another according to the level and type of education and, on the other hand, the interpretation given to ‘attitudes’ in each country can be very different. This is particularly true for the importance given within the policy goals to the ‘values’ and ethical aspects.

If all Member States’ policies take into account the necessity to develop cross-curricular competences, the distinction between subject-based competences and transversal competences is not very clear because all subjects may contribute to some transversal competences. However, a distinction is made between some basic subject-based competences required for all other subjects or activities and competences that do not constitute a specific subject. For example, a basic command of the mother tongue and of mathematics (numeracy) is regarded in all countries as the most fundamental transversal competences, even though they are for the most part related to a specific academic subject. With respect to these traditional priorities, the innovative policies consist in enhancing the contribution of other subjects to the attainment of such basic competences, particularly through interdisciplinary activities. The same could be said about the command of at least one foreign language. On the other hand, digital competence is in all countries

¹³⁹ The term *survival kit* (*trousse de survie*) has been proposed to describe the set of basic competences required to live and work in a rapidly changing and global world. See Michel, Alain (1996): ‘Les compétences de base pour le 21ème siècle », *Futuribles* n° 210, juin 1996, pp. 5-29.

supposed to be developed by the use of ICT in nearly all subjects and in transversal activities. This is the same for social and civic competences. Both digital competence and civic competences can be taught as a specific subject at certain levels of education (primary or lower or upper secondary), but they are acquired through all subjects and transversal activities.

Finally, some other competences are considered in all countries as ‘pure’ transversal competences: learning to learn, cultural awareness and expression, sense of initiative and entrepreneurship. It appears that the difference in the formulation of policies is greater for these cross-curricular competences than for the more traditional ones. The cultural contexts (often related to history) play an important role in this respect. The ‘learning to learn’ competence is considered everywhere as fundamental and crucial, but it is not explicitly expressed as such in many countries, mainly because there is some uncertainty about the best way it can be acquired and how to assess its attainment.

Similarly, the methods by which key competence policies have been introduced within the education systems vary among Member States. In some, it was done mainly formally through legislation and decrees (Belgium, France, Greece, Italy, Lithuania, Luxemburg, Portugal, Slovakia and Spain). In others it was done simply through curriculum change (Austria, Bulgaria, Cyprus, the Czech Republic, Estonia, Finland, Germany, Hungary, Ireland, Malta, The Netherlands, United Kingdom). In Poland the objectives were formulated partly through legislation and partly through a revised curriculum. In Finland and in Estonia the cross-curricular aspect is expressed through transversal themes such as growth of the person, participatory citizenship and entrepreneurship or safety and traffic competences. In Denmark and Sweden, there is no explicit reference to key competences because they have adopted a different approach: steering through goals and objectives. But through the expression of ‘the goals to strive towards’ one can find all the key competences of the European Reference Framework sometimes expressed in a slightly different way. Finally, Latvia and Romania have not yet formally introduced a competence-oriented approach in the curriculum (except for vocational training).

7.3 Linking policy and practice: the art of implementation

Implementing policies of competence development, as shown in Chapter 4 of this report, requires sophisticated implementation strategies. Such policies produce appropriate outcomes only if they reach classroom level learning and teaching

practices so that they open up to more complex definitions of knowledge and they move from the knowledge transmission-acquisition paradigm towards a knowledge construction approach assuming active learners (Sawyer, 2008). The case studies, as well as the various implementation components that appear in the country fiches show that most countries try to improve their implementation strategies through recourse to more complex mechanisms: they combine, for example, top-down and bottom-up elements; they make efforts to align their teaching and assessment culture with the new curricular goals and they try to create mutually reinforcing synergies between changes in the different sub-systems of education (such as general education and vocational training or curriculum implementation and qualifications systems).

In this respect, some countries seem to be more advanced than others. This may depend on their traditions in curriculum thinking, on the level of consensus they could reach between the various players of education policy or on the availability of appropriate financial resources supporting implementation. The adoption of more complex notions of curriculum and the presence of a more sophisticated, multi-level thinking about the way curriculum works may contribute significantly to the success of implementing the policy of competence-development.

For example, in The Netherlands, the representative national centre (SLO) which plays a pilot role in implementing curriculum policy, seems to follow a *multi-level approach*. It makes a clear difference not only between the ‘intended’, the ‘implemented’ and the ‘attained’ curriculum, but also between the various levels of devising and realising curricula: such as the *supra*, the *macro*, the *mezzo*, the *micro* and the ‘nano’ level (Letschert, 2005). This approach is not isolated as the Dutch country fiche shows, it is also applied in the development of teacher competences. The Dutch-Flemish teacher training accreditation body differentiates, for example, between ‘intended learning outcomes’ (the competences that should be acquired during the programme), ‘potential learning outcomes’ (the competences that can be achieved through the actual programme as it is offered) and ‘achieved learning outcomes’ (the competences actually acquired by the students).

The Finnish case study gives another good example of how sophisticated and complex implementation strategies can help the adoption and success of the competence-based approach within the school system. Finland is one of those countries where regulating the teaching-learning process in schools has become multi-level. We can observe here the strong impact of the *supra-national level*. Finland was, for example, an active participant in the OECD DeSeCo project which contributed to deepen the reflection about curricular goals and it is an important international player in developing measurement techniques for complex, higher level competences, such as learning to learn. We can see appropriate processes at *macro*

level (a flexible curriculum framework has been adopted at national level which allows for a great variety of local realisations). We can also see the important role of mezzo-level players (municipal authorities), which control most of the resources needed in a sound implementation process. They have a particularly strong role in defining local curricula in Finland. There is a strong belief in the decisive role of the micro level. School leaders are seen as key players in the development of learning and there is a high level of trust in the capability of the teaching staff of each individual school to determine the most effective professional solutions. And finally, the 'nano' level' is not neglected either as there is strong tendency to support individual learning paths and schools are typically practicing a personalised approach based on individual diagnostics of learning difficulties and on the elaboration of individual pedagogical solutions. All this is supported by a strong communicative and cooperative environment in which there are permanent deliberations about goals and tools to achieve them (see box below).

Insert 7.1. Implementation: Finland

The Finnish model of implementing a competence-based curriculum policy

At national level, consultation on the curriculum is extensive. In a relatively small but wealthy country, national consultation involved curriculum teams and a wide range of municipal and school based stakeholders. (...) ...the really interesting part of the methodology for steering the curriculum towards a competence-based approach lies in the development in each school of its own curriculum statement. The key characteristics are:

- Teachers are involved in the development and review of the school's curriculum statement, under the leadership of the head teacher;
- The school's annual plan is linked in with teachers' own work plans;
- Consultation takes place with the municipality, with parents/stakeholders and there is some cooperation with other schools; Thus there is a link between the specifications of the framework curriculum, including cross-curricular themes and a competence-based approach and the locally organised work of the school and the teachers;
- Thus there is a link between the specifications of the framework curriculum, including cross-curricular themes and a competence-based approach and the locally organised work of the school and the teachers;-
- This is reinforced by the recent introduction of individual learning plans.

Source: Finnish case study.

Creating a multi-level curriculum regulation environment seems to be an important condition to implement a curriculum policy steered towards competence development because otherwise it is not possible to combine quality control based on clear standards and flexibility allowing the emergence of a diversity of applied pedagogical solutions at school level. Successful competence development oriented policies seem to combine the support of a huge number of local level innovations, on the one hand, and the operation of a kind of control mechanism that

makes it possible to block less effective solutions, on the other. The key component of this control mechanism is what we could call, following the terminology of the relevant European recommendation, the quality evaluation system (European Parliament and Council, 2001).

As shown in the previous chapters, a key feature of strong implementation strategies is a simultaneous intervention in the following four areas:

1. The definition of appropriate goals and standards in national documents regulating curriculum;
2. The creation of learning environments that enhance competence development and the use of appropriate pedagogy though supporting innovations and developing institutional leadership;
3. The alignment of assessment and evaluation methods, procedures and frameworks with the goal of competence development;
4. The renewal of the professional development of teachers so that it could effectively enhance the development of relevant teacher competences.

Our analysis shows that we can expect appropriate policy outcomes (e.g. an increasing number and a critical mass of schools being successful in the development of cross-curricular key competences) if a strong national political commitment is combined with appropriate implementation capacities. A key feature of the latter is simultaneous and coordinated interventions in all the four areas mentioned above. It is important to stress again that political commitment in itself expressed through, for example, including the goal of competence development into national strategic documents or explicitly supporting it in government communication, is not enough. If this is not accompanied by well-elaborated and well-orchestrated *implementation strategies*, no appropriate policy outcomes will emerge.

We can describe a country as having strong implementation capacities if it uses deliberately and effectively a variety of instruments in all the four areas, allowing synergies and creating a dynamics of mutually reinforcing forces. The policy landscape of developing key competences of these countries can be characterised by a dynamic interplay of all the elements mentioned (see

Figure 7.1.). Countries which seem to be particularly successful in implementing policies of cross-curricular key competences in their school systems do not neglect any of these elements, and they are capable of shaping them so that they all push the system in the desired direction. This can significantly be enhanced if similar processes characterise the other related sub-sectors of education (namely vocational training and higher education) and if the overall system of regulation allows and enhances the adaptation of schools to the incentives used by governments. This requires a certain level of institutional autonomy and capacities of organisation adaptation at institutional level which are strongly determined by the

quality of school leadership. The figure below may be perceived as supporting a top-down implementation perspective, but this is not our intention. Our case studies demonstrate well that successful implementation strategies not only allow bottom-up developments but they deliberately rely on them.

In the following section we shall summarise the main conclusions that emerge from the analyses presented in the previous chapters, looking particularly at the implementation practices of those countries that seem not only to be committed to put the development of key competences into the focus of their education policies but also, at the same time, are trying to devise effective implementation strategies.

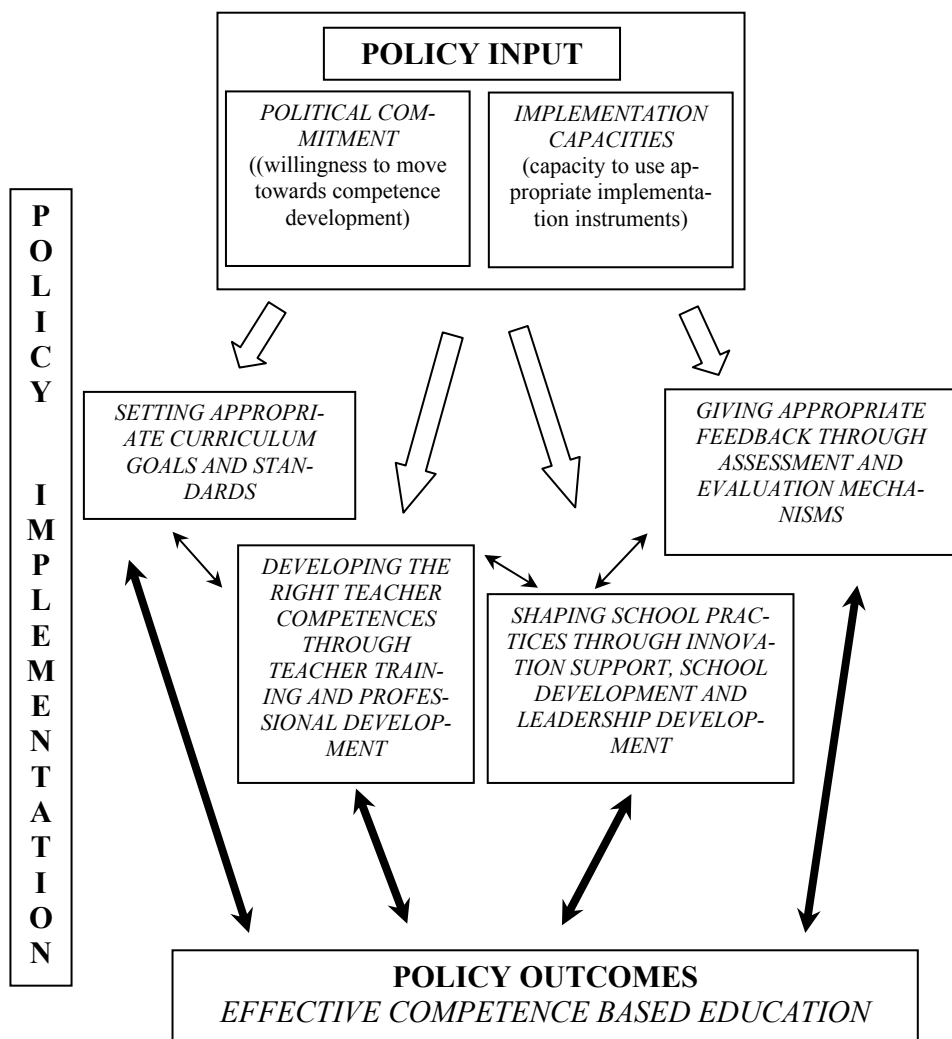
7.4 The new pedagogy of competence development

Practically all countries appear to have recognised that the development of the complex behavioural characteristics called competences requires specific pedagogical techniques. New pedagogies of competence development seem to be emerging and national policies are using various instruments to enhance this development. In fact, such pedagogies have always been present in a limited number of schools and classrooms in every education system, but before the adoption of competence development as a strategic education policy goal they did not receive the explicit and strong encouragement that one can observe today.

Developing cross-curricular competences is a complex pedagogical task that requires creative work based on continuous professional self-reflexion. This can happen only in a flexible organisational environment that can provide stimulation and encourages the professional engagement of teachers. Flexibility is often mentioned in the reports of those countries that make efforts to turn effective competence development into reality. The Belgian country fiche, for example stresses that *‘the new policies to be implemented will encourage the development of differentiated and flexible learning pathways adapted to the different starting points and rates of learning of schoolchildren and students’*. The new Polish core curriculum, according to the country fiche stipulates that *‘the organisation of teaching and learning is flexible and adapted to the children’s needs with many forms of learning by playing and learning by doing’*. The Portuguese country fiche mentions that a key instrument of the implementation of the country’s competence-oriented curriculum policy is a project that focuses on *‘flexible curriculum management’*. A recent curriculum policy document of the Welsh government states that *‘one of the overall aims of the revised curriculum is to reduce prescriptions and to give control and responsibility back to schools and to learners themselves.*

Schools are free to organise and deliver the curriculum in the way that best suits their circumstances and needs. There are no constraints relating to time allocation or organisation of subjects’ (Welsh Assembly Government, 2008).

Figure 7.1. The policy landscape of developing key competences



Several country fiches or case studies seem to confirm that the creation of flexible organisational environments that allow innovations, encourage mutual learning and enhance the emergence of communities of practice that are rich in substantial professional communication is a ‘condition *sine qua non*’ of competence development. Competence development requires a fundamental change in the way pupils and teachers interact, which might be enhanced by national docu-

ments and regulations but cannot be created by them. This can happen even if national documents and regulations do not change and this may not happen even if they change. The French case study, for example, describes a profound transformation of learning environments in a relatively motionless broader regulatory context (see the box below).

Insert 7.2. New pedagogy of competence development: France

A multidisciplinary project of a French lower secondary school

"*Eole* is a multidisciplinary project in the *Collège des Gâtines* (860 students) in Savigny (a suburb of Paris; mainly private housing estate; with about 20% of socially disadvantaged households). The project started two years ago in 2006. The main trigger for this initiative was a recurrent statement that too many pupils did not cope with the expectations of the general schooling conditions. The new school development plan (*projet du collège*) until 2010 stated that one should diversify the methods of teaching/learning according to the diversity of pupils, so that each of them could find out his/her own way to success. (...) The curriculum itself remains untouched in its breadth and depth. But behind the appearances, the rules, expectations and assessments are quite new. The student is more in charge and is totally aware of his/her responsibilities. He/she knows the criteria after which his/her performances are to be evaluated. He/she is indeed expected to auto-evaluate the outcomes of his/her learning activities. The teacher's activities are also different. The tasks have to be essentially managed by the students. The teaching staff proceeds accordingly in his/her preparation work and in the classroom management. In the end the outcome of these activities will be translated in clear terms, shared by the teaching team, the administration and they are understandable to student and their families. (...)

After a one-year of trial (2007–2008), the outcomes of the 'Eole' project are generally positive. The school results of the students have improved: 75% are able to enter the next year in satisfactory conditions, whereas 100% of them could not follow the regular curriculum a year before. Another even more important change for the students considered as low achievers is probably their change of mind. An overwhelming majority feels more confident, motivated and responsible. Most of them declare that they enjoyed this "new" approach. The same general satisfaction was observed for the parents.

Source: French case study.

Most of the school level innovations described in the country case studies could not have emerged in a rigid regulatory environment. However, most countries are aware of the fact that creating a flexible regulatory environment is not enough; there is also a need for active, committed actors who are willing to manage the change process towards more effective competence development. The Polish case study presents, for example, the crucial role of civil society organisations in fostering innovative projects to develop key competences. One of these organisations is the Centre for Citizenship Education which has been running various pilot innovation projects, such as 'Learning Schools Programme'. The participants of this pro-

gramme regarded schools as complex adaptive ecosystems. Although they did not refer to competences explicitly, they changed the organisational culture of schools so that they became better equipped to create a learning environment that favoured the development of competences. Improving leadership and transforming schools into learning organisations are seen in a growing number of countries as the appropriate ways towards effective competence development.

The importance of leadership and appropriate organisational culture has been stressed in several country reports. As schools become increasingly responsible for creating cross-curricular linkages and for creating learning environments that enhance competence development, the characteristics of the school as an organisation and the quality of school leadership become crucial. The Slovenian country fiche underlines, for example, that *'programme development is now a more corporate responsibility at school level'* ... therefore *'much will depend on school leadership'*.

The Hungarian country fiche states that 'recently it has been widely recognised, among developers of curricula and teaching, that the success of development is strongly determined by the organisational characteristics of schools'. As a consequence, in most initiatives/projects aiming at renewing the teaching/learning process, there are explicit elements of school development and leadership development. Some countries are renewing their professional training programmes for preparing head teachers with an aim (among others) of highlighting the responsibility of school-leaders for effective learning (see, for example, Scottish Executive, 2005).

Flexibility is important not only at the level of schools but also of individual pupils. If the responsibility of learners for their own learning and the capability to manage it effectively is to be enhanced, individual learners must be placed in a flexible learning environment that allows for the diversity of individual learning approaches. Efforts to make this possible appear in several countries, especially at the level of upper secondary education. This might also be supported by adapting the assessment methods to flexible individual learning paths. In Finland, for example 'unit-based assessment' is used to ensure that students accumulate the credits needed to pass the school leaving examination.

One of the key conclusions of this study is that the renewal of school level pedagogy for effective competence development – even if the assessment and accountability environment is favourable and effective tools are used to develop the teaching skills of teachers – requires more than flexibility and grass-roots level engagement. The countries that seem to be the most successful in promoting effective competence development pedagogies in their schools are those that maintain and operate effective national systems of research, development and innovation that support directly the competence development movement. For example, the

‘Teaching and Learning Research Programme’ of the United Kingdom mentioned as one of the factors that triggered an important school innovation was established in 2001 with the explicit goal of relating research and practice and ensuring that research is used to enhance learning (Pollard 2007). One of the outcomes of this programme is the formulation of principles that describe pedagogies that are shown by research evidence as effective in skills development (see the Insert 7.3 below). Developing an innovation policy for the education sector and putting it at the service of competence development seem to be particularly effective to implement policies of competence development.

Insert 7.3. Teaching and Learning Research Programme (UK)

Evidence-informed pedagogic principles according to the ‘Teaching and Learning Research Programme’ of the United Kingdom

1. *Effective pedagogy equips learners for life in its broadest sense.* Learning should aim to help individuals and groups to develop the intellectual, personal and social resources that will enable them to participate as active citizens, contribute to economic development and flourish as individuals in a diverse and changing society. This means adopting a broad conception of worthwhile learning outcomes and taking seriously issues of equity and social justice for all.
2. *Effective pedagogy engages with valued forms of knowledge.* Pedagogy should engage learners with the big ideas, key skills and processes, modes of discourse, ways of thinking and practising, attitudes and relationships, which are the most valued learning processes and outcomes in particular contexts. They need to understand what constitutes quality, standards and expertise in different settings.
3. *Effective pedagogy recognises the importance of prior experience and learning.* Pedagogy should take account of what the learner knows already in order for them, and those who support their learning, to plan their next steps. This includes building on prior learning but also taking account of the personal and cultural experiences of different groups of learners.
4. *Effective pedagogy requires learning to be scaffolded.* Teachers, trainers and all those, including peers, who support the learning of others, should provide activities, cultures and structures of intellectual, social and emotional support to help learners to move forward in their learning. When these supports are removed the learning needs to be secure.
5. *Effective pedagogy needs assessment to be congruent with learning.* Assessment should be designed and implemented with the goal of achieving maximum validity both in terms of learning outcomes and learning processes. It should help to advance learning as well as determine whether learning has occurred.
6. *Effective pedagogy promotes the active engagement of the learner.* A chief goal of learning should be the promotion of learners’ independence and autonomy. This involves acquiring a repertoire of learning strategies and practices, developing positive learning dispositions, and having the will and confidence to become agents in their own learning.
7. *Effective pedagogy fosters both individual and social processes and outcomes.* Learners should be encouraged and helped to build relationships and communication with others for learning purposes, in order to assist the mutual construction of knowledge and enhance the achievements of individuals and groups. Consulting learners about their learning and giving them a voice is both an expectation and a right.

8. **Effective pedagogy recognises the significance of informal learning.** Informal learning, such as learning out of school or away from the workplace, should be recognised as at least as significant as formal learning and should therefore be valued and appropriately utilised in formal processes.
9. **Effective pedagogy depends on the learning of all those who support the learning of others.** The need for lecturers, teachers, trainers and co-workers to learn continuously in order to develop their knowledge and skills, and adapt and develop their roles, especially through practice-based inquiry, should be recognised and supported.
10. **Effective pedagogy demands consistent policy frameworks with support for learning as their primary focus.** Organisational and system level policies need to recognise the fundamental importance of continual learning –for individual, team, organisational and system success –and be designed to create effective learning environments for all learners.

Source: TLRP website (<http://www.tlrp.org/themes/themes/tenprinciples.html>).

As already stressed, changing the pedagogical culture and the daily educational practice of schools so that they become effective in developing competences, seems to require the combination of top-down and bottom-up implementation approaches. The most effective solution is, apparently, when school level initiatives are supported and complemented by national development programmes or when such programmes focus, at least in a first pilot phase, on those schools that are committed to innovate and to learn from each other.

This is a very frequent approach used in almost all European countries. In Lithuania, for example, a project entitled ‘Piloting of competences-based curriculum for primary education’ was implemented in 20 primary schools between 2005 and 2007. In Greece, 100 schools participated in a pilot project entitled ‘Economy and I’ that aimed at fostering ‘*the understanding of basic concepts of the modern economy, to cultivate the spirit of entrepreneurship and to open school to the local community*’ between 2003 and 2005. In Germany and Austria, several pilot projects have been implemented during the past years to test the impact of new quality standards and related assessment techniques on the development of key competences. In Hungary, resources from the European Social Fund were used between 2004 and 2007 to develop programme packages for competence development and to test them in a number of innovative schools (see box below). In Romania, ‘The Education 2000+ Centre’ has been running a number of pilot projects, some aimed at competence development. In Northern Ireland, fifteen post primary schools agreed to bring in the curriculum changes according to the revised, competence oriented curriculum a year in advance. These piloting exercises, combining the top-down and the bottom-up approaches are characterised by three key features: (1) the national authorities or a national development centre offers a new pedagogical instrument, (2) a limited number of innovative schools undertake the testing of these new pedagogical instruments on a voluntary basis and (3) the whole

exercise is accompanied by an intensive development of teacher competences through direct training and horizontal learning enhanced by networking.

Insert 7.4. New pedagogy of competence development: Hungary

Supplying and testing competence developing programme packages in Hungary

‘In 2004 – in parallel with the implementation of the National Core Curriculum – a new development initiative was introduced under the umbrella of National Development Plan aimed to develop competency-based programme packages on six competency areas (literacy, numeracy, communication, foreign languages, ICT, social competencies and career competencies. More than 100 schools, operating in specific, cluster-like consortiums called Regional Centres of Kindergartens and Schools volunteered to pilot and implement the programme packages. Each consortium contained primary and secondary schools, the maintainer, and a pedagogical service providing institution in the given region.

A key feature of the piloting and implementation process was the partner-centred approach, which meant joint decision-making, shared and equal responsibility and continuous pedagogical conversations, workshops on the basis of the problems and experience. (...) There was both horizontal and vertical on-going cooperation among the partners. Because of the geographical distance among the partners, horizontally there was a need to organise virtual communication via the project website, which was important to ensure effective communication and to exchange the experience as well. Horizontally there were some so-called ‘consortium camps’ in order to increase professional and personal cooperation, to strengthen face-to-face connections. There were seven such ‘camps’ during the project period (2005–2006). The vertical cooperation from the primary to the secondary level in the curriculum development process was equally smooth and effective.’

Source: Hungarian case study.

This study confirms the view that the European scene of school education is extremely rich in innovations initiated either from the bottom or from the top and that these innovations seem to result in the emergence of a new pedagogy of competence development. Although the spreading of this innovative pedagogy is extremely uneven (there are too many classrooms which have not yet been reached), the number of teachers, schools and developers actively applying and enhancing the new pedagogy is remarkable. There are also many attempts to describe the key features of a pedagogy that enhances the development of key competence or key skills. The German country fiche, for example, describes the pedagogy of competence development as follows: *‘certain types of teaching, such as learning through discovery and understanding by doing, open teaching, a weekly work plan, free work or even pupils’ enterprises, are deemed particularly conducive to the acquisition of key qualifications. In teaching environments of these kinds, the emphasis is less on instruction and the abstract relaying of knowledge and students are given the opportunity to try things out and show what they can do. They can follow the objectives of their actions and learning from the conceptual stage through to the level of realisation. Mistakes are not punished with bad marks, but rather*

serve as learning opportunities, and teaching staff are called upon much more to act as advisors or moderators than as conveyers of subject-specific knowledge’. The ‘*Teaching and Learning Research Programme*’ of the United Kingdom also defined, on the basis of research evidence, the key features of a pedagogy that is effectively developing key skills (see insert above).

7.4.1 Harnessing the powerful evaluation and assessment instrument

The country cases seem to confirm the assumption that policies aiming at competence-based education have two major variants: one focussing on evaluation and assessment, and another focusing on learning environments. The first stresses the importance of well-defined learning outcomes and tries to make sure that they are attained, and the second lays stress on changing the nature of these outcomes so that they become more relevant for real life and work. Evaluation and assessment oriented policies, on the one hand, and learning environment and pedagogy oriented policies, on the other, can both reinforce or weaken each other. In reality, one observes various combinations of these two approaches. In those cases where one observes a good alignment of these two approaches the chances of competence oriented policies being implemented seem to be higher.

Insert 7.5. Assessment: Catalonia

The assessment of key competences in the autonomous province of Catalonia

‘From 2000–2001 to 2006–2007 the Department of Education of the Catalan autonomous government Generalitat developed an internal evaluation on key competences on public and private compulsory schools to inquire into the basic competences that should be taught in the Catalan system. The main objective of the project was to adapt the educative practices to the reality of the social environment in order to improve its quality.’ This assessment exercise was ‘conceived as one opportunity to reinforce the possible detected lacks of knowledge in the cross-curricular key competences before pupils finish the primary or the secondary school’ The feedback schools have received after the analysis of the test results were, in fact, used to improve teaching methods so that the development of key competences be more effective. ‘The results show (...) changes have been more relevant in the field of teachers’ methodology and curricular aspects than in the levels of knowledge acquired by pupils’ but this has been interpreted positively because ‘the outcomes on education will not be different if teacher practices do not change’.

Source: Spanish case study.

There are several cases that show successful efforts to align evaluation and assessment practices with competence oriented pedagogy. For example, the Spanish educational law of 2006 stipulates that ‘*on finishing the second cycle of primary education, all schools will carry out a diagnostic test of the basic competences*

acquired by the students. This assessment (...) is of a formative nature and is intended to guide schools and inform parents and the whole education community' (Ministry of Education and Science, 2006). This measure has generalised the practice developed in one of the autonomous regions (Catalonia) at the end of the 1990s that aimed at giving feedback to schools on their achievements in developing key competences. As is seen in the Spanish case study prepared for this review, the Catalanian experience started with a pilot programme with the participation of a limited number of schools which were applying diagnostic tests elaborated by the regional authorities.

Hungary has implemented a similar system since 2001 when the first 'competence measurement' covering all schools was conducted. The tests used in this exercise were inspired by those used in the first PISA survey and its assessment framework was deliberately competence-oriented. The intention was to measure broader competences, such as problem-solving. The system has deliberately been used as a development tool that gives feedback to schools and helps them identify their strengths and weaknesses so that they could improve their pedagogical practice on the basis of this. The application of the competence-oriented approach in this scheme went far beyond what the national curriculum documents contained. In this case, the alignment of assessment and formal teaching requirements was broken so that assessment became more competence oriented than formal curriculum (which provoked, unsurprisingly, some complaints among teachers: *'what they measure is not the same as what we are supposed to teach'*).

Insert 7.6. Assessment: Hungary

The national assessment of competences in Hungary

'Since 2001 a new system of assessing pupil achievement has been introduced, now called 'National Competence Measurement'. This system allows the yearly assessment of reading and maths competences in certain grades of every pupil in all schools. The tests used in this exercise have been strongly inspired by the test used in the PISA surveys and the assessment framework behind them is clearly competence oriented (the intention is not to measure factual knowledge but broader competences, like problem-solving). In 2004 the new system was included into the law on school education, the development of this system has been financed from the school related projects of the EU funded development programmes and the further development of the system is envisaged in the 2007–13 planning period. The 'National Competence Measurement' is deliberately used as a tool that gives feedback to schools on how successful they are in competence development. It is conceived mainly as a development tool that helps schools to identify their strengths and weaknesses and to improve on the basis of this.'

Source: Hungarian country fiche.

Using assessment as a tool to 'push' classroom level teaching practices towards a more competence-oriented paradigm has been (and is being) used in several

countries as an efficient policy tool. This policy practice has certainly been inspired by the PISA survey which also deliberately broke the synchrony between what is taught and what is assessed, exploiting the particular dynamics of education policy that allows some areas (in this case assessment) to progress more quickly than others (in this case curriculum planning and school level teaching practice). There are, however, countries where these areas seem to be in synchrony and the alignment of assessment with curriculum planning and school level teaching practice is much easier. One of the often-quoted cases is Scotland where, perhaps even more than in the other sub-national systems of the UK, the practice of assessment shows a strong alignment with the definition of curricular goals and their classroom level implementation. The Scottish ‘*Assessment is for Learning*’ (AifL) initiative, which is a government-funded assessment development programme launched in 2002 following broad public consultations, is a particularly complex and sophisticated approach to making competence development effective. This programme has three strands: (1) Assessment FOR Learning (which uses assessment to support classroom learning and teaching), (2) Assessment AS Learning (which uses assessment to promote autonomy in learning, and (3) Assessment OF Learning (which uses evidence gained from assessment to improve school effectiveness). This has created an extremely favourable environment for a continuous development of competence-oriented approaches in the Scottish school system.

The efforts to align assessment, curricular goals and school level practice in the Scottish education system can be demonstrated also by the efforts to assess those competences that are particularly difficult to measure. The country fiche for this study mentions, for example, the practical assessments which make it possible to assess such skills as working with others or complex problem solving real life situations. These are expensive and complicated exercises but they might contribute effectively to the promotion of competence development. According to an official document of the Scottish Government reporting about this exercise ‘*for the assessment of pupils’ collaborative skills when working with others, individual randomly selected ‘target’ pupils were observed by field officers as they participated in group problem solving tasks. Field officers used a checklist to rate the target pupils’ skills in terms of ‘new ideas’, ‘building on others’ ideas’ and ‘motivation’.*’ It is important to stress here, as the quoted document does, that ‘*due to logistical constraints these practical assessments involved relatively small numbers of pupils drawn from a limited sub-sample of the survey schools. Nationally, for each core skill, 200–300 pupils were assessed at each stage, with typically three or four pupils assessed for each different task type in each school*’ (Scottish Government, 2008)

As the Scottish case shows, assessing the acquisition of competences requires sophisticated assessment instruments that go far beyond paper and pencils tests and multiple-choice questions. One of the most remarkable outcomes of this review of country level practices is a picture of the emerging new assessment techniques used at different levels and in different functions (e.g. formative and summative). Countries are apparently experimenting with new assessment methods and they make serious efforts to renew their repertoire of assessment techniques in order to measure the development and acquisition of complex competences. The chapter on assessment of this study gives a rich picture about the new, often very sophisticated techniques that are increasingly used to assess the acquisition of competences (such as real life observations, continuous coursework assessment, student portfolios and e-portfolios, booklets of competences or enhanced tests containing scenario-based open questions etc.). These instruments aim at contextualising knowledge and making assessment more holistic so that the key traits of complex human behaviours could be grasped by the assessors.

Insert 7.7. Assessment: UK

Skills-based qualifications in the UK

‘...skills-based qualifications are available across the UK as discrete units or as part of broader or composite qualifications. (...) In England, Wales and Northern Ireland, there are qualifications in the Key Skills of: Application of Number; Communication; and, Information and Communication Technology. In addition, there are Wider Key Skills qualifications in: Improving own Learning and Performance, Problem-solving, and Working with others. In Scotland, there are Core Skills qualifications in Communication, Numeracy, Problem-solving, Using Information Technology, and Working with others (but not Improving own Learning and performance or Problem-solving as in the other nations in the UK). (...) The Key Skills and Core Skills qualifications were developed and implemented in 2000–2001 and therefore pre-date the recently revised curriculum frameworks in the UK by several years. However, since these revised curricula have modified their formulations of skills, these qualifications no longer fully articulate with the curriculum. Although communication, number and ICT have retained their place in the curricula, the links between Working with Others, the Wider Key Skills and the curriculum are no longer clear.’

Source UK case study.

A remarkable new development in this area is the appearance of new key competence related qualifications. Many countries are redefining their existing qualifications and they are introducing new ones as they develop their new qualifications framework. In those cases where national qualifications frameworks embrace all sub-sectors and all levels of the education system (including school education) and they apply consequently learning outcome oriented descriptors, this process also reinforces competence-oriented approaches in the school sector. This typically

leads to making the requirement standards of school leaving examinations more competence oriented. In some cases – this has happened so far only in the UK – a new competence-based qualification can also emerge. These qualifications are not linked any more with specific subjects. Instead of certifying knowledge or skills in one specific subject area they certify the acquisition of generic competences. In this case pupils may acquire a qualification in a competence area that has never been taught as a separate subject in the school curriculum (see Insert 7.7). Similarly to what was mentioned earlier in connection with the Hungarian national competence assessment system we see the deliberate breaking of the alignment of assessment and formal teaching requirements in order to enhance modernisation.

The success of competence development depends strongly on the way quality evaluation and accountability is operated in school systems. Efforts for effective competence development may be jeopardised or enhanced depending on what kind of feedback, quality evaluation and accountability measures give to schools and teachers. In several countries where agencies of national inspection regularly do school audits or evaluate teachers and schools this exercise is consciously used to enhance the development of key competences. In Flanders, for example, *‘the implementation of cross-curricular key competences is part of every school audit’* (country fiche). Inspections also often conduct thematic reviews focusing on the development of key competences. The national inspection in France conducted a survey and published a 60 page report in 2007 on the assessment of competences through the *‘livret de compétences’* (competence booklet) which was designed to assess the attainment of the key competences set up by the *‘socle commun’* (Inspection Générale de l’Education Nationale, 2007). Such reports, together with commissioned surveys conducted by researchers, contribute to the monitoring of the implementation of policies of competence development.

7.4.2 Pupil competences and teacher competences

The assumption that the most important condition for the effective development of pupil competences is the development of appropriate teacher competences was a starting point of this study. It has been assumed that only teachers who are equipped with the necessary pedagogical tools and who can use them effectively in their daily practice can be successful in developing the key competences of their pupils. Evidence produced by research on teaching and learning shows that key skills and competences can be developed effectively if learning is experiential,

collaborative, results-driven and problem-based¹⁴⁰. Many schools and teachers do not possess a sufficiently rich repertoire of teaching tools to make learning genuinely experiential; collaborative; results-driven and problem-based or they are not sufficiently self-confident in using these tools. It is therefore not enough if countries encourage the development of key competences through setting appropriate goals and requirements in their national curricular standards and they align their assessment approaches and accountability regimes with these goals and requirements. They also have to develop the capacities of schools and teachers for using appropriate pedagogical tools.

Learning to use new pedagogical techniques or tools in a self-confident way and in conformity with relevant quality standards is not easy. This study shows well the diversity of efforts Member States are making in order to enhance the learning of schools and teachers. Four complementary efforts that reinforce each other have been revealed: (1) reforming initial teacher training, (2) improving induction into teaching practice, (3) making in-service training more effective and (4) harnessing the potential of networking and work related professional communication. The study also shows that those countries that seem to have been making the greatest progress in implementing the key competences agenda, do not neglect any of these four areas and follow a coherent approach connecting them.

As for initial teacher training, two key elements deserve to be mentioned here. The *first* is the potential of the Bologna process to enhance competence-oriented reforms in teacher training. This potential lies, on the one hand, in defining appropriate learning outcomes for university-based¹⁴¹ teacher training programmes, stressing those particular teacher competences which are needed for the effective use of the pedagogical tools mentioned above and, on the other, in using accreditation and quality assurance processes to make sure that these learning outcomes are in fact applied in the development and delivery of training programmes. The *second* is the potential in shaping university and school cooperation in a way that allows teacher students to gain rich work-related experiences and to take their learning through these experiences into account when validating their competences.

Several Member States have recognised that the development of appropriate teacher competences require some kind of *work-based learning*. As many of the teaching skills can be learned only through practice, initial teacher training –based typically on a full-time student status that allows limited work experiences –

¹⁴⁰ See, for example, the conclusions drawn from the English ‘Teaching and Learning Research Programme’: (<http://www.tlrp.org/themes/themes/tenprinciples.html>).

¹⁴¹ In this context we use the term university to designate the whole sector of tertiary education.

cannot alone ensure the formation of the appropriate skills. Some countries have created a special status for beginner teachers who are already in a full-time working position but who are still considered as learning their profession. In other countries, where the status of professional induction is not yet formally recognised or valued, we can see intentions to go in this direction. From the perspective of competence development, a key issue is whether the induction period is effectively used for the development of the practical teaching skills of new teachers.

Most countries seem to have recognised the key role of in-service training in the development of the skills of teachers, and many have significantly modernised this sector. The way training is defined seems to be significantly broadened in a number of countries, many now preferring the term '*continuous professional development*' (CPD) to 'in-service training'. This change reflects the efforts to enrich the forms of skills development, including various forms of project-based and innovation-related development or individual coaching. An increasingly recognised form of developing the teaching skills of teachers is to involve them in school based projects linked with some kind of innovation processes that also involve external professional developers and other schools. This not only allows teachers to learn from what other teachers do in other schools, but also to exercise directly their new skills in their own practice.

The growing importance of project-based, innovation-related professional learning that is integrated into the daily work of teachers, as opposed to formalised training provided in specialised training institutions, shows the emergence of a new form of skills development which is sometimes called *network learning*. In a number of countries, national authorities encourage the formation of networks which enhance inter-school communication and accelerate the horizontal transfer of knowledge and experience from one school to another. This type of horizontal, work-based professional learning seems to be particularly important when it comes to competence development and to the development of teaching skills needed for competence development because these skills are very complex, require much tacit knowledge and psychological reinforcement that can only be acquired by observing working cases and trying them out in one's own practice. Professional development aiming at competence development is therefore often organised so that it makes possible the combination of more traditional training, continuous and individualised professional support and daily teaching work in his/her own workplace (see an example from England in the Insert 7.8).

One of the key conclusions of this study in connection with the professional development of teachers for competence development is that the effective learning of pedagogical technologies needed for this is best ensured through learning opportunities that are (1) directly linked to the experiences of teachers and (2) enhanced by horizontal communication with peers who are already successful in

practising these technologies. This requires the creation and maintenance of ‘learning networks’ that provide opportunities for professional peer exchanges. These networks are typically hierarchy-free and depend less on top-down administration. However, they have stable structures and some kind of institutional leadership (Sliwka, 2003). Network learning is a particularly effective way to improve the capacities of teachers to create learning environments that enhance active learning as it was shown, for example, in the Finnish *Aquarium Project* which supported the implementation of curriculum reform in the 1990s (Hellström, 2005). Learning networks often rely on the use information technologies, for example, the case of the Lithuanian ‘Learning Schools’ programme or the Scottish national school intranet programme called ‘Glow’.

Insert 7.8. Teacher competences: England

A local initiative in England

In England, North Somerset Local Education Authority (LEA) has developed a local initiative called *Key Skills for Learning*. Since implementation began in 2006, 51 of the 66 primary schools in the LEA have chosen to participate (...) The LEA has implemented the initiative through an ongoing programme of in-service training for teachers and teaching assistants that emphasises how to teach the Key Skills. Participants receive three days of training and return to school for three months before receiving a further three days of training. They also have access to ‘surgeries’ where they can get advice and support from an LEA adviser. The teaching of the Key Skills is generally characterised by a cross-curricular approach but specific ‘challenges’ provide an opportunity to focus on skills development in particular. A challenge is designed to set a problem for pupils to solve as individuals, in small groups, or in larger groups within a given amount of time that can vary from hours to days. The learning processes in each challenge can vary so that different set of skills are emphasised.

Key Skills teaching methods are at first unfamiliar to teachers, pupils and parents and the effect on pupils’ learning is not immediate. Teachers therefore find the support of colleagues and the LEA to be crucial. The LEA has found that schools find the social skills easier to teach than the other ‘cognitive’ skills. In addition to skills, the challenge also related to the content of a range of National Curriculum subjects. This ‘layering’ was said to make learning more meaningful and help teachers to cover content across the curriculum. The emphasis on independent and collaborative learning means that there is less direction from the teacher and more observation. What teachers see and hear through this observation form the basis of assessment of pupils’ development of the Key Skills. It was said that over time teachers’ observations of pupils’ progress develop to become very acute.’

Source: UK case study.

7.5 The way forward

This study shows that the implementation of the key competences Recommendation is part of the school policy agenda of most Member States, although they differ significantly in how much stress their national policies put on this goal, how much energy and resources they mobilise to achieve it and particularly how elaborated and sophisticated their implementation strategy is. Now, three years after the adoption of the key competences Recommendation and one year before the end of the ‘Education and Training 2010’ process, the community faces the question of how to go forward.

The communication of the European Commission – endorsed by the Council¹⁴² – on improving competences for the 21st century proposed the adoption of ‘*a comprehensive approach to competence development, encompassing curricula, learning materials, teacher training, personalised learning, and assessment techniques*’ and further cooperation in order to enhance this approach (Commission of the European Communities, 2008). This study gives further confirmation to this commitment. It is clear from the information gathered from the Member States in this study that a strong political commitment is not enough to achieve the goal of effective competence development: an implementation strategy based on a comprehensive approach including all the elements mentioned in the communication of the Commission is also needed.

The greatest challenge countries seem to face is how to align all the relevant elements of school policy so that they can effectively enhance competence development. The cases analysed in this study show that the most successful countries go beyond the alignment of the elements listed in the Commission’s communication. They also develop and sustain effective national *educational innovation systems* supporting the emergence and spreading of school level innovations, and they also align their *accountability regimes* with the goal of competence development. On the one hand, they establish flexible regulatory environments that allow and encourage schools to innovate, and, on the other hand, they make sure that their accountability systems do not draw back innovation energies and endeavours. Furthermore, they link the policy of competence development in schools with similar policy developments in other sectors, namely vocational training and higher education. They try to harness, for example, the synergies between the competence-oriented approaches in the school sector, the learning outcomes ori-

¹⁴² See *Improving Competences for the 21st Century: An Agenda for European Cooperation on Schools*, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of Regions, Brussels, COM(2008) 425 {SEC(2008) 2177}.

ented reforms of national qualifications systems and similar reforms in higher education, enhanced typically by the Bologna process.

A carefully designed and appropriately orchestrated implementation strategy, ensuring coherence and harnessing synergies is, however, not enough. The application of effective competence development oriented pedagogies in schools needs appropriate resources. The pedagogy of competence development, with its innovative learning environments, intensive use of ICT facilities, frequent and meaningful project works and teamwork, new assessment methods and various individualised techniques of organising learning is resource-demanding. Countries committed to improving the development of key competences also have to think about where to find the necessary resources and how to use them efficiently.

8 Key competences in the school curriculum and teacher training: Conclusions from the research, current challenges, recommendations

8.1 Introduction

The final chapter of the report draws together the main conclusions of the study of key competences in the school curriculum and teacher training in the Member States of the European Union, identifies some outstanding challenges and makes recommendations. The chapter flows directly from the analysis and synthesis of the study (Chapter 6). In turn, the conclusions and challenges identified are based on the chapters conceptualising cross-curricular key competences (Chapter 1), policy development (Chapter 2) and the three chapters on implementation: assessment, teacher training and practice (Chapters 3, 4 and 5).

The study is based on two premises. Firstly, as the Member States and the European Commission have concluded, successful acquisition of the key competences by all young people is a prerequisite for lifelong learning that is a necessary condition for their well-being and for social cohesion and economic success. This requires new approaches to learning, because a key competence framework calls on different teaching and learning styles, compared to the more traditional curriculum. Secondly, the development of competences across the whole curriculum poses a particular and new challenge for reforms of education policies, governance and practice.

Key competence development is at the centre of the collaborative goals that the European partners have set themselves. It is also linked to the positioning of schools for the 21st Century and reforms needed in the initial training and continuing professional development of teachers. The evidence contained in this report strongly supports the position that the European partners have taken concerning the importance of key competences, and the recommendations contained in this

final chapter of the report suggest ways in which barriers can be lowered and successes can be built on over the period 2010–2020.

The chapter highlights the conclusions that the project has reached concerning the current state of play for the policy development and implementation of key competences across the Member States of the European Union. It then identifies several important challenges that have to be faced. These challenges are variously situated across the European, national or more local levels. Finally, the report makes a number of recommendations for further action and activity, and gives an indication of the stakeholders to whom these recommendations are addressed. The recommendations concern different players, whether European, national or local policy-makers, practitioners and school leaders, research communities or wider stakeholders.

8.2 The main conclusions of the research

The conclusions are set out under headings: policy; linking policy and practice; practice; assessment; teacher education; and, towards pedagogy for competence development. The conclusions are presented as key points of reference: while the information and analysis contained in the chapters provide the evidence from particular countries, the conclusions will not refer to particular Member States.

8.2.1 Policy

The most important conclusion of the study is that most Member States have adopted the development of key competences as a major national education policy goal, and many of them have made progress or are committed to making progress in implementing this goal. However, the limitation to this conclusion is that many countries have not yet travelled far towards working out how best to implement approaches to school policies for teaching and learning key competences, whether these are substantially identified within a core curriculum or through a cross-curricular approach.

The objective of identifying those key competences that everybody needs was set by the governments of the Member States of the European Union as part of the Lisbon strategy launched in 2000. The recommendation on key competences that the European Parliament and the Council of the European Union adopted in 2005 identified and gave prominence to a defined set of eight key competences, re-

sponding to the explicit request of the Member States. Numerous Member States had already worked on key competences: for example in cooperation with the OECD DeSeCo project, which both helped in the development of PISA and had a real impact on countries' developing ideas about key competences in the school curriculum. The shift to learning outcomes across education and training systems is also a favourable environment for the development of key competences. The current analysis shows that key competence formulations are being actively worked on in the Member States, although in a number of countries this is a recent development so far as the primary and secondary school curricula are concerned for compulsory and upper secondary schooling.

Key competence reforms shift school systems from being predominantly input-led and subject-oriented towards curricula which include competences, cross-curricular activities, active and individual learning –as well as a focus on learning outcomes. This links changes that are taking place in schools with learning outcomes approaches that are developing in other sectors, notably in vocational education and training and potentially in higher education. The approaches taken are somewhat different among the Member States and may vary according to the level (primary, lower or upper secondary) and the type (general academic or VET) of education. In fact, the EU Member States do not all necessarily refer to key competences or cross-curricular key competences as such, but most now are formulating and at least beginning to implement similar concepts, such as basic competences or competencies, core skills, key skills, or *socle commun*. Some countries use terms such as core objectives and general objectives.

The common identification of the eight key competences at the European level is a singular achievement that is helping Member States to clarify thinking, and to energise reform. This occurs alongside other developments, notably the reforms in vocational education and training, the Bologna process and the development of the European Qualifications Framework.

Broadly speaking, the competences that Member States are identifying in their policies for schooling are fairly consistent with the eight key competences identified at the European level. A distinction can be made between what UNESCO calls a) learning to know and learning to do, and b) learning to be and learning to live together. Although the key competences developed in the Member States concern knowledge, skills and attitudes (and, sometimes, values or beliefs), they tend to emphasise the more cognitive aspects over the attitudinal. Notably, a few countries refer to health and well-being, and a few refer to a need to develop a sense of self or an understanding of self. This conclusion has implications for teaching, but it also has implications for what is to be assessed. In particular, consideration has to be given to the role of assessment that is in context, and assessment that is context-free. Authenticity is likely to be achieved for broader key competences such

as learning to learn only when the assessment takes place in the learning context. However, the national frameworks tend not to cast light on how different learners learn, nor how you become an autonomous learner.

Member States have introduced the new competences either through changes in legislation, or through curriculum review, or through complementary changes in legislation and in the curriculum. In many cases, competence-based approaches were first applied in the vocational sector, and then penetrated gradually into the general education sector. Often, the key competence approach is initiated bottom-up at the level of individual schools and teachers. Commonly, it is the teachers, school leaderships and local communities or authorities that are building bridges between the subject area and the real life needs of students: schools, like national policy makers, can identify and respond to urgent needs for change. Thus, in many Member States, the European recommendations did not initiate the process, but gave clear shape and support to a bottom-up, on-going process.

Successful policy formulation and implementation follow a model of combining top-down and bottom-up approaches at the level of the Member States. There is, of course, a significant difference between countries regarding approaches being taken and the speed of progress.

There is a wide recognition among policy makers and probably among practitioners that the introduction of key competences into the school curriculum cannot be achieved successfully simply by adding bits to existing subjects, nor by adding on a new subject to an existing, crowded curriculum. Member States are experimenting, variously, with different approaches to adopting approaches to teaching and learning based on key competences. One approach is to identify first the objectives and broad content of the subjects at different stages of the school curriculum and to link these to explicit cross-curricular themes or competences. A second approach is to add a new basis or framework of cross-curricular competences (well expressed in the French term *socle commun*) that both underpin the subjects of the school curriculum and place emphasis on the acquisition of identified wider key competences. A third approach taken is to stand back from the details of existing subjects and pedagogies by considering first the aims of schooling, what attributes and competences successful learners (individuals, young citizens, potential workers or entrepreneurs) should acquire by the end of schooling or a phase and then developing a curriculum appropriate to the 21st Century.

8.2.2 Linking policy and practice

Here, the most important conclusion is that implementing policies of competence development requires sophisticated realisation strategies and a climate of

trust. A key conclusion of this report is that many of the Member States have now reached the stage at which they have to develop tools and actions to translate their policies into practice. This implies shared goals and effective leadership and poses a considerable challenge. Such policies produce appropriate outcomes only if they reach classroom level learning and teaching practices. Teachers have to open up to more complex definitions of knowledge as they move from the knowledge transmission-acquisition paradigm towards a knowledge construction approach, which involves active learners.

As they try to improve their implementation strategies for key competences, most countries develop more complex mechanisms to do so. They combine top-down and bottom-up elements, they make efforts to align their teaching and assessment culture with the new curricular goals and they try to create mutually reinforcing synergies between changes in the different sub-systems of education. In this respect, some countries are more advanced than others. This may depend on their traditions in curriculum thinking, on the level of consensus they reach between the various players for long-term reform strategies, and on the availability of appropriate financial and human resources to support implementation. Identifying several levels in this multi-level strategy provides an important dimension to linking policy and practice. International co-operation between practitioners on developing approaches to key competences, for example through the European Social Fund, includes some interesting projects that have contributed to both innovative curriculum approaches and to altering teachers' attitudes. The table that follows gives an idea of the multiple levels that must have links.

Table 8.1. Multi-level implementation strategy for key competences

Meta level: International organisations such as OECD and the European Union influence conceptualisation, national policy and assessment techniques.
Macro level: A flexible curriculum framework is often adopted at national level, associated with reliable and enabling quality assurance mechanisms.
Meso level: Regional / local authorities control some implementation resources, have a growing role in defining curricula and can develop bottom-up networks.
Micro level: School leaders have a decisive role, and schools have to involve teachers and stakeholders in collaborative learning and working to find solutions.
The nano level: Schools support more individual learning paths, based on personalised diagnostics and methods. Much learning takes place outside school.

At the level of the school, teachers have to be encouraged to innovate and school leaders have to have a significant measure of responsibility and autonomy.

8.2.3 Practice

How to put into practice approaches based on key competences in schools is complex. School strategies aimed at the promotion of key competences in Member States can be grouped around three issues: curriculum; teaching and learning methods; schools' work organisation. In broad terms, the approaches to practice found across Europe fit the following schema.

Table 8.2. Putting key competences into practices: different approaches

School curriculum	Key competences as overarching aims Key competences defined within 'traditional' subjects Key competences promoted across various subjects 'Special' key competence related subjects (Such as IT)
Teaching and learning methods	Project based learning Individual learning plans Group, team work Experimental work and learning Practical experience, usually outside school
Schools' work organisation	Out-of-school activities Involvement of external experts Cooperation of teachers, school leadership Responsibility delegated to the students

As the culture of the school develops, several factors are particularly influential. Several country cases confirm that a condition for competence development is the creation of flexible organisational environments that allow innovation, encourage mutual learning and enhance the emergence of communities of practice. Competence development requires a fundamental change in the way pupils and teachers interact with each other. This might be enhanced by national regulations but cannot be created by them; conversely, this can happen even if national documents and regulations do not change. The task is to develop the organisational culture of schools so that they become better equipped to create a learning environment favourable for the development of competences.

School organisation is therefore an important factor for the successful introduction of key competences. Key features are that the school's curriculum statement identifies key competences, and specifies transversal, cross-curricular approaches, that the school's organisation stimulates collaboration among teachers, and that a culture of innovation and creativity is enabled. These conditions can be encouraged through local networks and require a considerable measure of school autonomy. Implementation measures have to be sustainable rather than ad hoc, and pi-

lots and initiatives should be carefully evaluated so that lessons can be learnt. New information and communication technologies can support these developments considerably.

Thus, improving leadership and transforming schools into organisations for active learning are the appropriate ways towards effective competence development. As schools become increasingly responsible for creating cross-curricular linkages and for creating learning environments that enhance competence development, the characteristics of the school as an organisation, the quality of school leadership becomes crucial. As some Member States emphasise: programme development is now a more corporate responsibility at school level, and therefore much will depend on school leadership. As a consequence, in most initiatives/projects aiming at renewing the teaching/learning process, explicit elements of school development and leadership development are built-in components of making key competence reform work. Some countries are renewing their professional training programmes for preparing school leaders in order to highlight the responsibility of school leaders for effective learning, emphasising the importance of key competences and cross-curricular themes alongside the more traditional teaching of subject knowledge and skills.

8.2.4 Assessment

The evidence shows that national policies aiming for competence-based education have two major variants: one focusing on assessment, and another one focusing on learning environments. The first stresses the importance of well-defined learning outcomes and tries to make sure that they are attained, and the second puts the emphasis on changing the nature of these outcomes so that they become more relevant for real life and work. Assessment-oriented policies, on the one hand, and learning environment and pedagogy oriented policies, on the other, can both reinforce or weaken each other. Across Europe, various combinations of these two approaches are in evidence. An important conclusion is that in those cases where a good alignment of these two approaches exists, the chances of competence-oriented policies being implemented seems to be higher. One country distinguishes between assessment for learning (assessment to support teaching and learning), assessment as learning (assessment to promote learner autonomy) and assessment of learning (assessment evidence is used to improve school effectiveness).

In response to the question ‘What is being assessed?’ the evidence in the country fiches gathered for this project leads to the important conclusion that attempts to assess competence follow one of four approaches.

Table 8.3. Assessing key competences: different approaches

Type 1: Assessing cross-curricular competences explicitly
Type 2: Assessing cross-curricular competences implicitly
Type 3: Assessing subject-specific competences
Type 4: Assessing knowledge rather than competence

The Recommendation of the European Parliament and of the Council on key competences for lifelong learning defines key competences as comprising knowledge, skills and attitudes. The policies of most EU Member States refer explicitly, or at least implicitly, to knowledge, skills and attitudes in their curriculum frameworks. However, whilst the stated aims of assessments may refer to competence, in practice assessed learning outcomes less frequently include attitudes than knowledge and skills. However, several examples of the assessment of attitudes as learning outcomes are available. International assessments also provide helpful examples, including the OECD PISA survey, which assess attitudes as well as competences, at least as explanatory variables. Of more direct interest, the European Commission's Centre for Research on Lifelong Learning (CRELL) pilots of a test to measure learning to learn. CRELL's framework for learning to learn is notable for comprising an affective dimension, a cognitive dimension and a meta-cognitive dimension.

To be authentic, assessment of key competences requires that the assessment is appropriate to the context of learning. This connection is more familiar in vocational education and training than in general education. Assessment of key competences is also likely to require the identification of sub-competences and indicators. Continuous observation and documentation offer the possibility of assessment in real or authentic contexts in real-time. Standardised tests in which instruments use open-ended or task-based questions may be able to recreate these contexts. Furthermore, the continued development of e-assessments may also present new opportunities for context-based assessment. Pencil-and-paper tests are often not appropriate, and have limited validity. Other forms of assessment include: continuous teacher assessment and portfolio assessment, which allows for the introduction of a wide range of evidence including videos, etc. and learning achieved in work experience. Portfolio assessment seems to be a particular area of innovation in relation to the school curriculum in some Member States. Clearly, a competence-based approach to teaching and learning means that the focus of assessment is important, and will probably make new demands on both human and financial resources. This also calls for teachers to have new forms of understanding and skills.

8.2.5 Teacher education

At the policy level, the main driving force for introducing the idea of competences into higher education, and therefore into teacher education programmes, is the implementation of the Bologna process, which is now linked into the European Qualifications Framework and, in many Member States, into the elaboration of National Qualifications Frameworks. This equips countries with a clearer language for describing teachers' competences, such as regular knowledge updating, mastering new teaching and learning methods in IT, foreign language learning, and complementary skills for intercultural environment. At the European level, three core competences for teachers are defined: Working with others; working with knowledge, technology and information; and, work with and in society. It should be noted that in the common European principles for teacher competences and qualifications there is no reference to key competences for life-long learning, as defined later in the reference framework.

As other research shows, structural changes (consistent with Levels 6, 7 and 8 in EQF) in higher education are moving more quickly than the shift to learning outcomes, which the Bologna process also anticipates. Nevertheless, some countries have developed a strong shift towards a competence-based system for the professional education and development of teachers, where education is seen as an outcomes-based process expressed in the competences achieved by the learner. This can be characterised as a shift from 'what you know' to 'what you can do'. In these circumstances, the degrees awarded in higher education are no longer seen simply as proof of subject knowledge (important as this is) and participation and successful completion of a programme, but as the recognition of having achieved certain predefined knowledge, skills and competences. As a prelude, or linked, to teacher education reform, some countries have specified the competences that teachers need if they are to be effective.

Methods such as inter-disciplinary, cross-subject teaching, team-working, personalised learning approaches and project-based work are taught in teacher education and training in most Member States, and this has been the case for some time. All the teachers in training know that these methods exist and they are promoted as a part of the modern way of teaching. However, on the evidence presented in the country fiches, in most of the countries those methods are not linked to key competences. During initial teacher education, in many countries, these methods are not put into a competence perspective.

The country fiches reported on which key competences are treated in initial teacher education, and the tentative conclusions are thought-provoking. Leaving aside the considerable number of countries that make little reference to key com-

petences in their teacher education frameworks, the responses show that social and civic competences are referred to most often. The least frequently referred to is entrepreneurship, followed by mathematical competences and basic competence in science and technology. If this observation is accurate, it reinforces the analysis that the implementation issues, including teacher training frameworks and practice, have not kept pace with the policy frameworks. Furthermore, the evidence indicates that in most countries competences are not yet an everyday part of initial teacher training establishments' routines. Indeed, there is evidence of a resistance to competence-based approaches in higher education: often subject and faculty knowledge-based approaches and key competence approaches are perceived, oddly, as alternatives. There are notable exceptions to this generalisation, particularly where initial teacher education is seeking an appropriate balance between knowledge of disciplines and the development of competences.

The shift towards key competences is more visible in in-service professional development than in initial teacher education. As well as governmental, national agency and local government initiatives, there are many small-scale activities, inspired locally or externally, by academic and non-governmental or non-academic partners, such as NGOs. The EU structural funds also make a contribution. The question is: how to transform those single or small-scale experiences into a systemic change? This also hinges on the response of the key players to the question of the extent to which a key competence approach, which must clearly co-exist with subject- or discipline-based knowledge, calls for a new approach to pedagogy.

8.2.6 Towards a new pedagogy for competence development

An important conclusion of this report is that an opportunity now exists to encourage and enable inter-disciplinary research that can make the new pedagogy for competence development more explicit and more coherent. Member States seem to have recognised that the development of the complex behavioural characteristics called competences requires specific pedagogical techniques. New pedagogies of competence development seem to be emerging and national policies are using various instruments to enhance this development. In fact, such pedagogies have always been present in a limited number of schools and classrooms in every education system. Yet, as this report has shown, the adoption of key competences into national policy frameworks is a relatively recent policy goal. One such research programme concerning effective teaching and learning has identified a number of principles that describe pedagogies which are shown by research evidences as effective in skills development.

Table 8.4. Effective pedagogy in competence development

<ul style="list-style-type: none"> – Equips learners for life in its broadest sense; – Engages with valued forms of knowledge; – Recognises the importance of prior experience and learning; – Requires learning to be scaffolded; – Needs assessment to be congruent with learning; – Promotes the active engagement of the learner; – Fosters both individual and social processes and outcomes; – Recognises the significance of informal learning; – Depends on the learning of all those who support the learning of others; and, – Demands consistent with policy frameworks that have support for learning as their focus.

Source: the UK's TLRP. See insert in Chapter 6.

Developing cross-curricular competences is a complex pedagogical task that requires creative work based on continuous professional self-reflection. Changes in the ways that teachers work are frequently found to be a result of school development projects, for example with the introduction of curricula and programmes seeking to bring in a key competence or active learning dimension. This can happen only in a flexible organisational environment that can provide stimulation and encourages the professional engagement of teachers. Flexibility is often mentioned in the reports of those countries that make efforts to turn effective competence development into reality. One country stresses that the new policies to be implemented will encourage the development of differentiated and flexible learning pathways adapted to the different starting points and rates of learning of school-children and students. In another country, the revised core curriculum, according to the country fiche, stipulates that the organisation of teaching and learning is flexible and adapted to the children's needs with many forms of active and experiential learning. Another insists that a key instrument of the implementation of the country's competence-oriented curriculum policy is a project focusing on flexible curriculum management.

Most countries are aware that creating a flexible regulatory environment is not enough: there is also a need for active, committed actors who are willing to manage the change process, as they move towards more effective competence development. Improving leadership and transforming schools into learning organisations are the appropriate ways towards effective competence development. The importance of leadership and appropriate organisational culture has been stressed in several country fiches. As schools become increasingly responsible for creating cross-curricular linkages and for creating learning environments that enhance competence development, the characteristics of the school as an organisation and

the quality of school leadership become crucial. This makes for an important call on the training and skills of school leaders.

8.3 Current challenges

8.3.1 Arriving at an appropriate and feasible set of key competences

Broadly speaking, it has proved easier for education and training system stakeholders to identify sets of competences for vocational education and training than for compulsory or general schooling. This is because the labour market provides a clear focus for VET, while competences in compulsory and general education are more diffuse, as they are directed to the development and well-being of the growing learner, as well as to wider social and economically related goals. That numerous countries in Europe and beyond have defined the competences (each time in their own way) that learners should gain through their schooling provides a test bed of thought and experience that policy communities can use as they develop, review and refine their identified key competences. The international arena also offers a rich experience, for example through the EU set of eight key competences, the OECD DeSeCo project and the UNESCO formulation. Particular attention has to be paid to the balance between cognitive, attitudinal and wider key competences, to the role of values and beliefs in the formulation of key competences, and to the question of whether and how particular competences should be assessed.

8.3.2 Linking competence-based approaches across sub-systems

The multiplicity of competence formulations that now exist at the national and European levels provide a richness of context, but they also provide a challenge. There is the EQF, often an NQF in existence or in development, the European key competences and the Council of Europe's language framework, as well as nationally identified sets of key competences for the school curriculum. In addition, there is little doubt that the transversal competence component of the Bologna process will grow in importance during the period 2010–2020, as well as the possibility of European competence frameworks that are specific to industrial sectors. Often, these have developed separately. For example, the EQF refers to knowledge, skills and competences across eight levels, while the key competences for lifelong learning refer to knowledge, skills and attitudes, and are not identified at

different levels; the Council of Europe language framework is competence-based, widely used and contains at present six levels.

It would be naïve, inappropriate and unrealistic to argue that these different approaches to defining sets and levels of competences should be standardised. If the definition of key competences is too rigid it cannot be applied flexibly in a wide variety of contexts, and can be counter-productive to opening up new approaches, methods and avenues for all lifelong learners. Nevertheless, a clearer understanding of whether and why frameworks are different should help with coherence. The challenge is to link the bridges between different approaches to competences and key competences. Thus, a challenging but important question is what should be the links (perhaps in five years time) between key competence learning in higher education, upper secondary general education and VET? A worthwhile challenge is to work out how the sub-systems and approaches can be better aligned, without sacrificing their specificity of purpose.

8.3.3 Joining up policy and practice effectively

The key theme in this report concerns the complex challenge of how to link policy aspirations and statements about key competences in the school curriculum with renewed, sustainable practice in schools and across learners' different contexts for learning. Furthermore, different learners learn effectively in different ways. We have concluded that defining the content of a set of key competences may be the easier part, and that implementation and developing the processes that enable innovative forms of teaching and learning that help to form key competences require complex strategies on the part of a range of players at different levels in the education system. The further challenges identified all relate more or less directly to the challenge of linking policy on key competences and practice effectively.

8.3.4 Overcoming some strong traditional and cultural barriers

The shift to key competences raises important questions about the importance of the kinds of knowledge transmitted through traditional school subjects and, behind this, the link to established academic fields of knowledge. A clear conclusion of this study concerns innovation in the school curriculum, and this does create a shift in the approaches taken to school curriculum content, as well as to traditional pedagogy and assessment. The evidence is that this change to the absolute centrality of the knowledge content of traditional subjects often meets with resis-

tance; this may be on the part of both higher education and of teachers whose tradition is within a subject/knowledge specialism. In many countries there are strong cultural attachments to the end of upper secondary examinations that give access university, and other studies have shown that matriculation examinations in general education are particularly resistant to change. In part, this may be due to the reliance on traditional forms of examination, and expressed concerns about the reliability of other forms of assessment.

Although there may be some tension in the shift to key competence approaches, it is not the case that a choice has to be made between this and deepening knowledge and understanding of subjects. Knowledge, skills and attitudes are aspects of the shift to key competences; a deepening of understanding and skills associated with specialist fields of learning form part of this. It is more a question of getting the balance right between the subject-based aspects and the key competence approach. Member States where key competences are being developed most effectively tend also to pay great attention to specialist areas of knowledge in the school curriculum. There is no necessary contradiction in this, since some of the important skills and competences (as well as knowledge) certainly originate in effective subject teaching.

8.3.5 Understanding where Member States are facing particular barriers

Beyond this, it is important for policy makers in national systems and at the European level to understand which barriers are faced in particular national circumstances. Is it, for example, the difficulty of identifying a series of key competences? Is it, on the other hand, building a consensus for the policy to become viable? Or, do the challenges lie in the undeniably complex and long-term process of implementation?

8.3.6 Creating the conditions needed in schools

The data and analysis in this report approach from various angles the multiple challenges that school leaders, teachers, stakeholders and administrations face as schools shift successfully from the traditional curriculum and subjects to a more active, problem-solving approach to teaching and the learning of competences across the curriculum. The four tables contained in this final chapter (multiple levels and kinds of partnership, appropriateness of arrangements for teaching and learning, clear purposes and instruments for assessment, effective pedagogy that is fit for the new purpose) all point up aspects of the complexity that has to be well

managed if the challenge of achieving an effective approach to cross-curricular key competences is to be achieved. Solutions have to be bottom-up within a broad and manageable framework. The evidence is that some European school systems are effectively meeting this challenge, and that at least some schools everywhere are meeting with some success.

8.3.7 Understanding better how (different) people learn

Just as national statements of key competences tend to make the assumption that schools and other establishment will somehow just adjust, so schemes of key skills and cross-curricular key competences describe what the learner should acquire, but take for granted how we learn. Practitioners tend to rely, too, on past experience and knowledge from older research paradigms. Research now gives a greater and suppler understanding about how different learners learn best, and in which stages and contexts. Furthermore, interdisciplinary work on psychological, social and neurological aspects of learning is quickly opening up new areas of knowledge and understanding. The challenge for policy makers and practitioners is to see it as an important part of their role to keep a well informed but critical eye on new understanding about learning processes.

8.3.8 Developing a clearer and coherent pedagogy for competence-based teaching and learning

If it is the case that we should understand well the kinds of organisations and teachers that can create the conditions for the effective learning of key competences, then it is certainly the case that a solid and developing body of knowledge and practice should provide useful guidance to practitioners and school leaders about appropriate pedagogy. Teacher training arrangements will need further reform, as it seems that – at least in some countries – teacher training is not responding to key competence frameworks as quickly as the reforms call for change. Many aspects of this knowledge and understanding are available in the field, and some countries have set up their own interdisciplinary research projects or centres to research appropriate pedagogies for the settings described in this report. However, this knowledge is scattered and perhaps incomplete, and the challenge is now to bring this together in a coherent way, to open up new skills for practitioners and to look critically at what is effective. Given the importance to schools of the new approaches to pedagogy, localised action research could also be built on.

8.3.9 Deciding how to take the EU collaborative work into 2010–2020

A strong conclusion of this report is that the European Commission and its partners in the Member States have made an appropriate policy choice in bringing the acquisition of cross-curricular key competences to the forefront of European policies for lifelong learning. It is to be assumed that the collaborative working method (OMC), which respects the rule of subsidiarity for national education and training system and reflects the differing cultures and systems that exist across Europe, will continue (perhaps in a somewhat strengthened form) over the course of the next decade. In any case, a challenge for the European partners is to decide how best to take forward the priority of the acquisition of key competences in school systems for the period 2010–2020.

8.4 Key competences: Recommendations

This report for the European Commission on key competences in the school curriculum and teacher training concludes with a number of recommendations. While the conclusions and challenges have been analysed by theme, the recommendations will be addressed to specific partners and stakeholders. These are: the European Commission and its agencies; governments in the Member States; regional and local authorities; the research community; professionals responsible for teacher education; and, teachers and school leaders.

8.4.1 The European Commission and its agencies

As this report has recognised, the European Commission has identified that improving learners' competences for the 21st Century is the central goal of a European agenda for European co-operation on schools. This is appropriate, and European countries have by-and-large formulated key competence policies. The point that has to be emphasised here is that Europe has identified that the acquisition of key competences from the earliest stages of education all the way through to adult learning in different contexts is a necessary condition if young people are to have a realistic chance to cope with the complexities and uncertainties that they face in 21st Century living. Furthermore, identifying key competence development as a prime objective for schools links closely with the New Skills New Jobs agenda,

and therefore with strategies for using skills development to enable Europe to emerge successfully from the present economic crisis.

Recommendation 1: The European Commission should base its future action in school education on the acknowledgement of the fact that Member States have reached advanced policy positions in the area of key competences. Therefore, the Commission can now perform a stronger facilitating role in supporting the Member States in their implementation efforts. Using particularly the EU peer learning processes, the Commission should help and **support Member States in their complex project of implementing their key competences policies**. Given the complexity, implementation should be seen as a priority in the period 2010–2020 and this should be recognised as the new priorities for this period are agreed. Thus the Commission (1) should give a high priority to the theme of implementing competence development policies in peer learning programmes and (2) should promote the use of the resources of the Lifelong Learning Programme and the European Social Funds to incentivise and support Member States' efforts to take key competence policies through to implementation.

Implementation of key competence policies is a complex process. Therefore the other recommendations of this report for the European Commission to consider are linked to implementation.

Recommendation 2: The European Commission should **explore the possibilities of a more explicit link between the different existing formulations of competence-based approaches**. This includes the eight key competences for the school curriculum, and the frameworks that have been developed for the EQF and the Council of Europe's common European framework of reference for languages, as well as outcomes-based approaches to higher education and VET. This is because there is now a need to begin to bring a higher level of coherence and compatibility between the European competence frameworks by making bridges between them explicit, in order to bring more clarity to competences for lifelong learning. This implies exploring whether clearer forms of alignment or links should exist, while respecting the specific character of each sector or domain. In so doing, some of the detail of the eight key competences may need refining.

Recommendation 3: The European Commission can contribute significantly to the evidence base for policy and practice. The Commission should **encourage wide-ranging and inter-disciplinary research to bring more coherence to scientific knowledge concerning the theory and practice of teaching and learning for key competence acquisition**. The lifelong learning research strands provide a suitable vehicle to build on work already being developed by international organisations such as OECD, and it can optimise the results of research in Member States (and, possibly, other countries) into aspects such as teaching, learning, as-

assessment and school leadership for key competence acquisition. Several Member States have been developing and implementing their approaches to key competences across the school curriculum for a number of years, so it should now be possible for the Commission to build on the results of this study to launch an impact analysis across several member states, in cooperation with the ministries concerned.

Recommendation 4: The European Commission should **maximise the opportunities for European countries and stakeholders to develop their own peer-learning as concerns the implementation of key competence policies**. The study has provided ample evidence of an extensive fabric of bottom-up developments as well as more systematic key competence developments at the national level: both of these can provide a rich source for peer learning among stakeholders. Since this is quite substantially a bottom-up process, the Commission should bring several levels of activity to bear. This can range from the peer learning process that the Member States engage in on particular priority themes, to maximising appropriate European inter-school links through the lifelong learning programmes and other funded activity, and to support the activity of various thematic networks in this area. The Commission should consult on whether there is a need for re-thinking some of the methods that are used for exchange and development work.

Recommendation 5: **The implementation of key competences in the school curriculum, in teacher training and teacher professional development, in assessment and evaluation mechanisms and in school development and innovation policies should be subject to benchmarking and regular reporting alongside the other priorities in the open method of coordination for education and training, throughout the period 2010/2020**. This monitoring should include the extent to which initial and continuing teacher education and school leadership training are designed and geared to be compatible with an effective approach to key competences.

8.4.2 Governments in the Member States

Governments have the key role in establishing national frameworks for the curriculum –including the approach to key competences –in a more decentralised setting, for assessment and teacher education, as well as for funding and for maintaining appropriate approaches to quality assurance. This report has shown how governments are responding to similar pressures and drivers, but are taking numerous directions in terms of identifying and defining approaches to key competences in the school curriculum. Some are considerably further down their road to

implementation than others. European collaboration through the open method of coordination can assist Member States' efforts.

Recommendation 6: Member States should **consider how to strengthen the links between their sub-sectors of education and training** – that is to say, between higher education, VET, schools and adult education. They should be able to use their national qualifications framework (NQF) reforms to this end. Assessment, quality assurance and evaluation policies should be used to enrich the perspective of competence development. Efforts to align or link better the definition of learning outcomes in terms of competences and to improve the coherence of implementation practices in the various sub-sectors of education, while respecting the specific character of each sector, should be strengthened not only at European level but also at the level of the Members States.

Recommendation 7: Member States should **strengthen linkages and alignment between the different facets of school development**. In practice, this recommendation means that Member States establish at different levels in the system ways to make innovations in school organisation and leadership an integrated part of curriculum innovation and strategies aimed at meeting the needs of all learners, including those who have special educational needs. This is closely related to teacher education and to assessment methods and practices. This calls for a well-developed evidence base for policy and practice, for which countries may need to draw on international as well as national research. Part of the evidence base comprises evaluation and quality assurance mechanisms, and Member States should ensure that whatever system they have for evaluation of school practice and feedback takes prominent account of key competence development.

Recommendation 8: Member States should view the review of their teacher education programmes as part of their strategic approach. Governments should **revise the frameworks for initial and continuing teacher education** in the perspective of competence development, and with the active involvement of all agencies responsible for the professional development of teachers. At the very least, this should entail defining or – where this already exists – the further development of national teacher competence standards, reforming the accreditation and evaluation of teacher training programmes and modernising arrangements for continuing teacher training in the perspective of the development of European key competences.

Recommendation 9: Member States should generate **effective strategies and actions for implementing key competences** in the school curriculum. Although Member States may encounter some lack of understanding and also resistance to putting key competence policies into practice, a key recommendation in this report is that it is not sufficient to develop legislation on key competences or to change

the curriculum framework – the main effort has to be on implementation. As the experience of countries that are to the forefront of implementing approaches to learning and teaching key competences, this is probably best put into practice as a major aspect of **school innovation policies**. This may require the revision of national policies of educational research, development and innovation in the perspectives of competence development.

Recommendation 10: Alongside the recommendations above, Member States should **review and renew their approaches to the assessment of subject-based and cross-curricular key competences**. Some countries have developed successful initiatives in this respect (portfolio assessment, for example, is a promising tool) and this should be an aspect for peer learning and further development. Member States should strive for a better understanding of –and therefore a clearer link between – the learning experience and the assessment methods and criteria. This link will vary according to the approach taken to key competences (areas of learning, core curriculum, goals to be achieved, etc) and the particular key competences that are to be assessed. Assessment of key competences is an aspect that in itself merits more research and evaluation.

8.4.3 Regional and local authorities

As the study has noted, regional, municipal and local authorities have an increasingly important role in most Member States, where a broader curriculum framework is in place and a number of forms of decentralisation are now quite advanced. The regional and local authorities have a pivotal role in providing human and financial resources, but also in engaging the gears for an effective combination of top-down and bottom-up approaches to key competence reforms. In the ‘art of key competence implementation’, they have the key role, unless schools are to be left to go alone.

Recommendation 11: Regional and local authorities should **seek the best ways to maximise the coherence and synergy between the national formulation of key competence strategies, and more local implementation choices**, including overcoming constraints and maximising opportunities. Regional and local authorities should take a leading role in developing appropriate learning organisations and communities of practice that bring together diverse players. At this level the players include school leaders, teachers, local and parental stakeholders and higher education, as well as the administration. Some Member States have developed ways to engage with students as stakeholders, and this should become an increasingly important emphasis.

8.4.4 The research community

Researchers work at the different levels identified in this chapter of the report. The outputs range from new inter-disciplinary knowledge and understanding of how different learners learn best, to locally based action research processes that play a part in setting up and then evaluating innovative approaches to key competence teaching, learning and assessment across small groups of local schools.

Recommendation 12: The research community should **gather and contribute new knowledge and evidence in a number of areas of policy and practice**. This includes:

- Understanding of how learning can be enhanced through multi-disciplinary approaches to research;
- Assembling and developing a more coherent research base for key competences, linking such issues as: the relationship between learning for subject knowledge and for key competences, effective subject-based and cross-curricular approaches to competence development, learning styles, assessment that is fit for purpose.
- Change in the organisation of the school, and of learning, that a shift to key competences entails.
- Enlarging and deepening the understanding of different learning processes and how children and young people learn.

8.4.5 Teacher education professionals

Implementing strategies for key competence teaching and learning depends strongly on the work of teacher training professionals, as concerns both initial and continuing teacher education. Obviously, the organisation of higher education means that there is often an overlap between research and teacher training.

Recommendation 13: **Agencies that are responsible for initial teacher education should be full partners in the policies for developing and implementing approaches to key competences**. This includes making operational NQFs that are compatible with EQF and, therefore, reflect on describing qualifications in terms of learning outcomes.

Recommendation 14: Locally, teacher education professionals should continue their reflection about their role in the process of implementing key competences. **Local continuing teacher training professionals should be active and support-**

tive partners in the development of curriculum, assessment and qualifications policies, as well as in the implementation of key competence policies.

Recommendation 15: The technologies of assessing complex and cross-curricular competences should become a key element of the professional development of teachers and these technologies should be applied also in initial teacher education, when assessing the competences of teacher students.

Recommendation 16: School development and school leadership development, as well as the initial and continuing education of teachers **should be seen as key areas of activities for teacher development agencies.**

8.4.6 Teachers and school leaders

Teachers and school leaders have a decisive role to introduce key competences into the work of the school and the learning of students, thus building bridges between the subjects of the school curriculum and the lifelong learning needs of students. Furthermore, this report has suggested that the implementation of key competence approaches is likely to be more complex than the formation of a policy. In some Member States ways have also been developed to involve young learners and older students in forms of participation such as consultative groups and school councils, as well as a more planned approach to personalised learning.

Recommendation 17: School leaders should involve teachers and stakeholders in collaborative learning and working to find solutions that engage learners as fully as possible in the acquisition of key competences, including cross-curricular competences. This calls for situation of trust and professional responsibility in which teachers are able to both learn and to try out new aims and methods. Several challenges have to be addressed. This includes the right balance between traditional subject knowledge and skills and the purposeful introduction of methods designed around new sets of competences

Recommendation 18: Through collaboration, school leaders should provide a confident environment in which the school's policies and organisational culture engages teachers and other staff, through procedures such as corporate planning and small-scale action research. These factors group around the curriculum, teaching and learning methods, assessment and the wider organisation of the school. The school leaders are uniquely in a position to steer their school into new forms of organisation for learning, through establishing reflective communities of practice.

Recommendation 19: In order to promote key competences, teachers should adapt their professional approach to some new and quite complex strategies

concerning the school curriculum, teaching and learning methods, and assessment. This is best achieved through collaborative learning approaches and a full involvement in the development of the school as a learning community, and through an approach that actively engages the teacher in reviewing and reforming their teaching strategies. The use of evidence and research to reflect on practice has a role to play.

Recommendation 20: Teachers should not see the choice as being between subject knowledge/skills and the acquisition of key competences. Rather, it is a matter of achieving the appropriate balance between subject knowledge and skills, and key competences approaches that can well meet the needs of different learners.

8.5 In summary

Expressed briefly, the study of key competences in the school curriculum and teacher training has demonstrated that there is a diverse but shared policy basis for the growing focus on key competences across Europe.

The study sharpens the conceptual basis for framing competences, connects this to the eight European key competences for the school curriculum and lifelong learning, and links these developments to implementation. The study provides an analysis of the current state of policy and practice across the Member States of the European Union. It shows that some countries are developing an approach that is built specifically on a set of cross-curricular themes or competences, while others are engaged on building a common base or entitlement of key competences. Some countries are exploring the aims and values of schooling and the kinds of competence that successful learners need for the 21st Century, before re-considering curriculum, pedagogy and assessment.

Furthermore, the study emphasises that the implementation of key competences in school practice is a complex and demanding process. This calls for a new pedagogy of competence development, which can already be seen in innovative aspects of theory and practice in Member States. The study has linked teacher competences with learner competences and, finally, has set out key conclusions, challenges and recommendations for the key stakeholders across different roles and levels, with 2010–2020 in mind.

ANNEX 1: Recommendation of The European Parliament and of The Council

**(of 18 December 2006 on key competences for
lifelong learning (2006/962/EC))**

RECOMMENDATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL**of 18 December 2006****on key competences for lifelong learning**

(2006/962/EC)

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Article 149(4), and Article 150(4) thereof,

Having regard to the proposal from the Commission,

Having regard to the opinion of the European Economic and Social Committee ⁽¹⁾,

Having regard to the opinion of the Committee of the Regions ⁽²⁾,

Acting in accordance with the procedure laid down in Article 251 of the Treaty ⁽³⁾,

Whereas:

- (1) The Lisbon European Council (23-24 March 2000) concluded that a European framework should define the new basic skills to be provided through lifelong learning as a key measure in Europe's response to globalisation and the shift to knowledge-based economies, and emphasised that people are Europe's main asset. Since then, those conclusions have been regularly restated including by the Brussels European Councils (20-21 March 2003 and 22-23 March 2005), and in the re-launched Lisbon Strategy which was approved in 2005.
- (2) The European Councils of Stockholm (23-24 March 2001) and Barcelona (15-16 March 2002) endorsed the concrete future objectives of European education and training systems and a work-programme (the Education and Training 2010 work programme) to achieve them by 2010. These objectives include developing skills for the knowledge society and specific objectives for promoting language learning, developing entrepreneurship and the overall need to enhance the European dimension in education.
- (3) The Commission Communication "Making a European Area of Lifelong Learning a Reality" and the subsequent Council Resolution of 27 June 2002 on lifelong learning ⁽⁴⁾ identified the provision of 'the new basic skills' as a priority, and stressed that lifelong learning must cover learning from pre-school age to post-retirement age.
- (4) In the context of improving the Community's employment performance, the European Councils of Brussels (March

2003 and December 2003) stressed the need to develop lifelong learning, with a particular focus on active and preventive measures for the unemployed and inactive persons. This built on the report of the Employment Taskforce, which emphasised the need for people to be able to adapt to change, the importance of integrating people into the labour market, and the key role of lifelong learning.

- (5) In May 2003 the Council adopted the European reference levels ('benchmarks'), demonstrating a commitment to a measurable improvement in European average performance. These reference levels include reading literacy, early school leaving, completion of upper secondary education and participation of adults in lifelong learning, and are closely linked to the development of key competences.
- (6) The report of the Council on the broader role of education adopted in November 2004 stressed that education contributes to preserving and renewing the common cultural background in society and to learning essential social and civic values such as citizenship, equality, tolerance and respect, and is particularly important at a time when all Member States are challenged by the question of how to deal with increasing social and cultural diversity. Moreover, enabling people to enter and stay in working life is an important part of the role of education in the strengthening of social cohesion.
- (7) The report adopted by the Commission in 2005 on progress towards the Lisbon objectives in education and training showed that there had been no progress in reducing the percentage of low achievers in reading literacy at age 15 or in raising the completion rate for upper-secondary education. Some progress was visible in reducing early school leaving, but at current rates the 2010 European reference levels adopted by the May 2003 Council will not be achieved. Participation of adults in learning is not growing fast enough to reach the 2010 reference level, and data shows that low-skilled people are less likely to participate in further training.

⁽¹⁾ OJ C 195, 18.8.2006, p. 109.

⁽²⁾ OJ C 229, 22.9.2006, p. 21.

⁽³⁾ Opinion of the European Parliament of 26 September 2006 (not yet published in the Official Journal) and Council Decision of 18 December 2006.

⁽⁴⁾ OJ C 163, 9.7.2002, p. 1.

(8) The Framework of Actions for the Lifelong Development of Competences and Qualifications, adopted by the European social partners in March 2002, stresses the need for businesses to adapt their structures more and more quickly in order to remain competitive. Increased team-work, flattening of hierarchies, devolved responsibilities and a

greater need for multi-tasking are leading to the development of learning organisations. In this context, the ability of organisations to identify competences, to mobilise and recognise them and to encourage their development for all employees represent the basis for new competitive strategies.

- (9) The Maastricht Study on Vocational Education and Training of 2004 indicates a significant gap between the levels of education required by new jobs, and the levels of education achieved by the European workforce. This study shows that more than one third of the European workforce (80 million persons) is low-skilled whilst it has been estimated that by 2010 almost 50 % of new jobs will require tertiary level qualifications, just under 40 % will require upper secondary schooling, and only about 15 % will be suitable for those with basic schooling.
- (10) The Joint Council/Commission Report on the Education and Training 2010 work programme, adopted in 2004, reinforced the need to ensure that all citizens are equipped with the competences they need as part of Member States' lifelong learning strategies. To encourage and facilitate reform, the report suggests the development of common European references and principles and gives priority to the Key Competences Framework.
- (11) The European Youth Pact which is annexed to the conclusions of the Brussels European Council (22-23 March 2005) stressed the need to encourage the development of a common set of core skills.
- (12) The need to equip young people with necessary key competences and to improve educational attainment levels is an integral part of the Integrated Guidelines for Growth and Jobs 2005-2008, approved by the June 2005 European Council. In particular, the Employment Guidelines call for education and training systems to be adapted in response to new competence requirements through better identification of occupational needs and key competences as part of Member States' reform programmes. Furthermore, the Employment Guidelines call for ensuring gender mainstreaming and gender equality in all actions and for achieving an average employment rate for the European Union of 70 % overall and of at least 60 % for women.
- (13) This Recommendation should contribute to the development of quality, future-oriented education and training tailored to the needs of European society, by supporting and supplementing Member States' actions in ensuring that their initial education and training systems offer all young people the means to develop key competences to a level that equips them for adult life, and which forms a basis for further learning and working life and that adults are able to develop and update their key competences through the provision of coherent and comprehensive lifelong learning. This Recommendation should also provide a common European reference framework on key competences for policy makers, education and training providers, the social

partners and learners themselves in order to facilitate national reforms and exchange of information between the Member States and the Commission within the Education and Training 2010 work programme, with the aim of achieving the agreed European reference levels. Furthermore, this Recommendation should support other related policies such as employment and social policies and other policies affecting youth.

- (14) Since the objectives of this Recommendation, namely to support and supplement Member States' action by establishing a common reference point that encourages and facilitates national reforms and further cooperation between Member States, cannot be sufficiently achieved by the Member States acting alone and can therefore be better achieved at Community level, the Community may adopt measures in accordance with the principle of subsidiarity as set out in Article 5 of the Treaty. In accordance with the principle of proportionality, as set out in that Article, this Recommendation does not go beyond what is necessary in order to achieve those objectives insofar as it leaves the implementation of this Recommendation to Member States,

HEREBY RECOMMEND:

That Member States develop the provision of key competences for all as part of their lifelong learning strategies, including their strategies for achieving universal literacy, and use the 'Key Competences for Lifelong Learning — A European Reference Framework' (hereinafter referred to as 'the Reference Framework') in the Annex hereto as a reference tool, with a view to ensuring that:

1. initial education and training offers all young people the means to develop the key competences to a level that equips them for adult life, and which forms a basis for further learning and working life;
2. appropriate provision is made for those young people who, due to educational disadvantages caused by personal, social, cultural or economic circumstances, need particular support to fulfil their educational potential;
3. adults are able to develop and update their key competences throughout their lives, and that there is a particular focus on target groups identified as priorities in the national, regional and/or local contexts, such as individuals needing to update their skills;
4. appropriate infrastructure for continuing education and training of adults including teachers and trainers, validation and evaluation procedures, measures aimed at ensuring equal access to both lifelong learning and the labour market, and support for learners that recognises the differing needs and competences of adults, is in place;
5. coherence of adult education and training provision for individual citizens is achieved through close links with employment policy and social policy, cultural policy,

innovation policy and other policies affecting young people and through collaboration with social partners and other stakeholders;

HEREBY TAKE NOTE OF THE COMMISSION'S INTENTION TO:

1. contribute to Member States' efforts to develop their education and training systems and to implement and disseminate this Recommendation, including by using the Reference Framework as a reference to facilitate peer learning and the exchange of good practices and to follow up developments and report on progress through the biennial progress reports on the Education and Training 2010 work programme;
2. use the Reference Framework as a reference in the implementation of the Community Education and Training programmes and to ensure that these programmes promote the acquisition of key competences;
3. promote the wider use of the Reference Framework in related Community policies, and particularly in the implementation of employment, youth, and cultural and social policy, and to develop further links with social partners and other organisations working in those fields;
4. review the impact of the Reference Framework within the context of the Education and Training 2010 work programme and report, by 18 December 2010, to the European Parliament and to the Council on the experience gained and the implications for the future.

Done at Brussels, 18 December 2006.

For the European Parliament
The President
J. BORRELL FONTELLES

For the Council
The President
J.-E. ENESTAM

ANNEX

KEY COMPETENCES FOR LIFELONG LEARNING — A EUROPEAN REFERENCE FRAMEWORK**Background and aims**

As globalisation continues to confront the European Union with new challenges, each citizen will need a wide range of key competences to adapt flexibly to a rapidly changing and highly interconnected world.

Education in its dual role, both social and economic, has a key role to play in ensuring that Europe's citizens acquire the key competences needed to enable them to adapt flexibly to such changes.

In particular, building on diverse individual competences, the differing needs of learners should be met by ensuring equality and access for those groups who, due to educational disadvantages caused by personal, social, cultural or economic circumstances, need particular support to fulfil their educational potential. Examples of such groups include people with low basic skills, in particular with low literacy, early school leavers, the long-term unemployed and those returning to work after a period of extended leave, older people, migrants, and people with disabilities.

In this context, the main aims of the Reference Framework are to:

- 1) identify and define the key competences necessary for personal fulfilment, active citizenship, social cohesion and employability in a knowledge society;
- 2) support Member States' work in ensuring that by the end of initial education and training young people have developed the key competences to a level that equips them for adult life and which forms a basis for further learning and working life, and that adults are able to develop and update their key competences throughout their lives;
- 3) provide a European level reference tool for policy makers, education providers, employers, and learners themselves to facilitate national and European level efforts towards commonly agreed objectives;
- 4) provide a framework for further action at Community level both within the Education and Training 2010 work programme and within the Community Education and Training Programmes.

Key Competences

Competences are defined here as a combination of knowledge, skills and attitudes appropriate to the context. Key competences are those which all individuals need for personal fulfilment and development, active citizenship, social inclusion and employment.

The Reference Framework sets out eight key competences:

- 1) Communication in the mother tongue;
- 2) Communication in foreign languages;
- 3) Mathematical competence and basic competences in science and technology;
- 4) Digital competence;
- 5) Learning to learn;
- 6) Social and civic competences;
- 7) Sense of initiative and entrepreneurship; and
- 8) Cultural awareness and expression.

The key competences are all considered equally important, because each of them can contribute to a successful life in a knowledge society. Many of the competences overlap and interlock: aspects essential to one domain will support

competence in another. Competence in the fundamental basic skills of language, literacy, numeracy and in information and communication technologies (ICT) is an essential foundation for learning, and learning to learn supports all learning activities. There are a number of themes that are applied throughout the Reference Framework: critical thinking, creativity, initiative, problem solving, risk assessment, decision taking, and constructive management of feelings play a role in all eight key competences.

1. **Communication in the mother tongue** ⁽¹⁾

Definition:

Communication in the mother tongue is the ability to express and interpret concepts, thoughts, feelings, facts and opinions in both oral and written form (listening, speaking, reading and writing), and to interact linguistically in an appropriate and creative way in a full range of societal and cultural contexts; in education and training, work, home and leisure.

Essential knowledge, skills and attitudes related to this competence:

Communicative competence results from the acquisition of the mother tongue, which is intrinsically linked to the development of an individual's cognitive ability to interpret the world and relate to others. Communication in the mother tongue requires an individual to have knowledge of vocabulary, functional grammar and the functions of language. It includes an awareness of the main types of verbal interaction, a range of literary and non-literary texts, the main features of different styles and registers of language, and the variability of language and communication in different contexts.

Individuals should have the skills to communicate both orally and in writing in a variety of communicative situations and to monitor and adapt their own communication to the requirements of the situation. This competence also includes the abilities to distinguish and use different types of texts, to search for, collect and process information, to use aids, and to formulate and express one's oral and written arguments in a convincing way appropriate to the context.

A positive attitude towards communication in the mother tongue involves a disposition to critical and constructive dialogue, an appreciation of aesthetic qualities and a willingness to strive for them, and an interest in interaction with others. This implies an awareness of the impact of language on others and a need to understand and use language in a positive and socially responsible manner.

2. **Communication in foreign languages** ⁽²⁾

Definition:

Communication in foreign languages broadly shares the main skill dimensions of communication in the mother tongue: it is based on the ability to understand, express and interpret concepts, thoughts, feelings, facts and opinions in both oral and written form (listening, speaking, reading and writing) in an appropriate range of societal and cultural contexts (in education and training, work, home and leisure) according to one's wants or needs. Communication in foreign languages also calls for skills such as mediation and intercultural understanding. An individual's level of proficiency will vary between the four dimensions (listening, speaking, reading and writing) and between the different languages, and according to that individual's social and cultural background, environment, needs and/or interests.

Essential knowledge, skills and attitudes related to this competence:

Competence in foreign languages requires knowledge of vocabulary and functional grammar and an awareness of the main types of verbal interaction and registers of language. Knowledge of societal conventions, and the cultural aspect and variability of languages is important.

⁽¹⁾ In the context of Europe's multicultural and multilingual societies, it is recognised that the mother tongue may not in all cases be an official language of the Member State, and that ability to communicate in an official language is a pre-condition for ensuring full participation of the individual in society. In some Member States the mother tongue may be one of several official languages. Measures to address such cases, and apply the definition accordingly, are a matter for individual Member States in accordance with their specific needs and circumstances.

⁽²⁾ It is important to recognise that many Europeans live in bilingual or multilingual families and communities, and that the official language of the country in which they live may not be their mother tongue. For these groups, this competence may refer to an official language, rather than to a foreign language. Their need, motivation, and social and/or economic reasons for developing this competence in support of their integration will differ, for instance, from those learning a foreign language for travel or work. Measures to address such cases, and apply the definition accordingly, are a matter for individual Member States in accordance with their specific needs and circumstances.

Essential skills for communication in foreign languages consist of the ability to understand spoken messages, to initiate, sustain and conclude conversations and to read, understand and produce texts appropriate to the individual's needs. Individuals should also be able to use aids appropriately, and learn languages also informally as part of lifelong learning.

A positive attitude involves the appreciation of cultural diversity, and an interest and curiosity in languages and intercultural communication.

3. **Mathematical competence and basic competences in science and technology**

Definition:

- A. Mathematical competence is the ability to develop and apply mathematical thinking in order to solve a range of problems in everyday situations. Building on a sound mastery of numeracy, the emphasis is on process and activity, as well as knowledge. Mathematical competence involves, to different degrees, the ability and willingness to use mathematical modes of thought (logical and spatial thinking) and presentation (formulas, models, constructs, graphs, charts).
- B. Competence in science refers to the ability and willingness to use the body of knowledge and methodology employed to explain the natural world, in order to identify questions and to draw evidence-based conclusions. Competence in technology is viewed as the application of that knowledge and methodology in response to perceived human wants or needs. Competence in science and technology involves an understanding of the changes caused by human activity and responsibility as an individual citizen.

Essential knowledge, skills and attitudes related to this competence:

- A. Necessary knowledge in mathematics includes a sound knowledge of numbers, measures and structures, basic operations and basic mathematical presentations, an understanding of mathematical terms and concepts, and an awareness of the questions to which mathematics can offer answers.

An individual should have the skills to apply basic mathematical principles and processes in everyday contexts at home and work, and to follow and assess chains of arguments. An individual should be able to reason mathematically, understand mathematical proof and communicate in mathematical language, and to use appropriate aids.

A positive attitude in mathematics is based on the respect of truth and willingness to look for reasons and to assess their validity.

- B. For science and technology, essential knowledge comprises the basic principles of the natural world, fundamental scientific concepts, principles and methods, technology and technological products and processes, as well as an understanding of the impact of science and technology on the natural world. These competences should enable individuals to better understand the advances, limitations and risks of scientific theories, applications and technology in societies at large (in relation to decision-making, values, moral questions, culture, etc).

Skills include the ability to use and handle technological tools and machines as well as scientific data to achieve a goal or to reach an evidence-based decision or conclusion. Individuals should also be able to recognise the essential features of scientific inquiry and have the ability to communicate the conclusions and reasoning that led to them.

Competence includes an attitude of critical appreciation and curiosity, an interest in ethical issues and respect for both safety and sustainability, in particular as regards scientific and technological progress in relation to oneself, family, community and global issues.

4. **Digital competence**

Definition:

Digital competence involves the confident and critical use of Information Society Technology (IST) for work, leisure and communication. It is underpinned by basic skills in ICT: the use of computers to retrieve, assess, store, produce, present and exchange information, and to communicate and participate in collaborative networks via the Internet.

Essential knowledge, skills and attitudes related to this competence:

Digital competence requires a sound understanding and knowledge of the nature, role and opportunities of IST in everyday contexts: in personal and social life as well as at work. This includes main computer applications such as word processing, spreadsheets, databases, information storage and management, and an understanding of the opportunities and potential risks of the Internet and communication via electronic media (e-mail, network tools) for work, leisure, information sharing and collaborative networking, learning and research. Individuals should also understand how IST can support creativity and innovation, and be aware of issues around the validity and reliability of information available and of the legal and ethical principles involved in the interactive use of IST.

Skills needed include the ability to search, collect and process information and use it in a critical and systematic way, assessing relevance and distinguishing the real from the virtual while recognising the links. Individuals should have skills to use tools to produce, present and understand complex information and the ability to access, search and use internet-based services. Individuals should also be able use IST to support critical thinking, creativity, and innovation.

Use of IST requires a critical and reflective attitude towards available information and a responsible use of the interactive media. An interest in engaging in communities and networks for cultural, social and/or professional purposes also supports this competence.

5. Learning to learn

Definition:

'Learning to learn' is the ability to pursue and persist in learning, to organise one's own learning, including through effective management of time and information, both individually and in groups. This competence includes awareness of one's learning process and needs, identifying available opportunities, and the ability to overcome obstacles in order to learn successfully. This competence means gaining, processing and assimilating new knowledge and skills as well as seeking and making use of guidance. Learning to learn engages learners to build on prior learning and life experiences in order to use and apply knowledge and skills in a variety of contexts: at home, at work, in education and training. Motivation and confidence are crucial to an individual's competence.

Essential knowledge, skills and attitudes related to this competence:

Where learning is directed towards particular work or career goals, an individual should have knowledge of the competences, knowledge, skills and qualifications required. In all cases, learning to learn requires an individual to know and understand his/her preferred learning strategies, the strengths and weaknesses of his/her skills and qualifications, and to be able to search for the education and training opportunities and guidance and/or support available.

Learning to learn skills require firstly the acquisition of the fundamental basic skills such as literacy, numeracy and ICT skills that are necessary for further learning. Building on these skills, an individual should be able to access, gain, process and assimilate new knowledge and skills. This requires effective management of one's learning, career and work patterns, and, in particular, the ability to persevere with learning, to concentrate for extended periods and to reflect critically on the purposes and aims of learning. Individuals should be able to dedicate time to learning autonomously and with self-discipline, but also to work collaboratively as part of the learning process, draw the benefits from a heterogeneous group, and to share what they have learnt. Individuals should be able to organise their own learning, evaluate their own work, and to seek advice, information and support when appropriate.

A positive attitude includes the motivation and confidence to pursue and succeed at learning throughout one's life. A problem-solving attitude supports both the learning process itself and an individual's ability to handle obstacles and change. The desire to apply prior learning and life experiences and the curiosity to look for opportunities to learn and apply learning in a variety of life contexts are essential elements of a positive attitude.

6. Social and civic competences

Definition:

These include personal, interpersonal and intercultural competence and cover all forms of behaviour that equip individuals to participate in an effective and constructive way in social and working life, and particularly in increasingly diverse societies, and to resolve conflict where necessary. Civic competence equips individuals to fully participate in civic life, based on knowledge of social and political concepts and structures and a commitment to active and democratic participation.

Essential knowledge, skills and attitudes related to this competence:

- A. Social competence is linked to personal and social well-being which requires an understanding of how individuals can ensure optimum physical and mental health, including as a resource for oneself and one's family and one's immediate social environment, and knowledge of how a healthy lifestyle can contribute to this. For successful interpersonal and social participation it is essential to understand the codes of conduct and manners generally accepted in different societies and environments (e.g. at work). It is equally important to be aware of basic concepts relating to individuals, groups, work organisations, gender equality and non-discrimination, society and culture. Understanding the multi-cultural and socio-economic dimensions of European societies and how national cultural identity interacts with the European identity is essential.

The core skills of this competence include the ability to communicate constructively in different environments, to show tolerance, express and understand different viewpoints, to negotiate with the ability to create confidence, and to feel empathy. Individuals should be capable of coping with stress and frustration and expressing them in a constructive way and should also distinguish between the personal and professional spheres.

The competence is based on an attitude of collaboration, assertiveness and integrity. Individuals should have an interest in socio-economic developments and intercultural communication and should value diversity and respect others, and be prepared both to overcome prejudices and to compromise.

- B. Civic competence is based on knowledge of the concepts of democracy, justice, equality, citizenship, and civil rights, including how they are expressed in the Charter of Fundamental Rights of the European Union and international declarations and how they are applied by various institutions at the local, regional, national, European and international levels. It includes knowledge of contemporary events, as well as the main events and trends in national, European and world history. In addition, an awareness of the aims, values and policies of social and political movements should be developed. Knowledge of European integration and of the EU's structures, main objectives and values is also essential, as well as an awareness of diversity and cultural identities in Europe.

Skills for civic competence relate to the ability to engage effectively with others in the public domain, and to display solidarity and interest in solving problems affecting the local and wider community. This involves critical and creative reflection and constructive participation in community or neighbourhood activities as well as decision-making at all levels, from local to national and European level, in particular through voting.

Full respect for human rights including equality as a basis for democracy, appreciation and understanding of differences between value systems of different religious or ethnic groups lay the foundations for a positive attitude. This means displaying both a sense of belonging to one's locality, country, the EU and Europe in general and to the world, and a willingness to participate in democratic decision-making at all levels. It also includes demonstrating a sense of responsibility, as well as showing understanding of and respect for the shared values that are necessary to ensure community cohesion, such as respect for democratic principles. Constructive participation also involves civic activities, support for social diversity and cohesion and sustainable development, and a readiness to respect the values and privacy of others.

7. Sense of initiative and entrepreneurship

Definition:

Sense of initiative and entrepreneurship refers to an individual's ability to turn ideas into action. It includes creativity, innovation and risk-taking, as well as the ability to plan and manage projects in order to achieve objectives. This supports individuals, not only in their everyday lives at home and in society, but also in the workplace in being aware of the context of their work and being able to seize opportunities, and is a foundation for more specific skills and knowledge needed by those establishing or contributing to social or commercial activity. This should include awareness of ethical values and promote good governance.

Essential knowledge, skills and attitudes related to this competence:

Necessary knowledge includes the ability to identify available opportunities for personal, professional and/or business activities, including 'bigger picture' issues that provide the context in which people live and work, such as a broad understanding of the workings of the economy, and the opportunities and challenges facing an employer or organisation. Individuals should also be aware of the ethical position of enterprises, and how they can be a force for good, for example through fair trade or through social enterprise.

Skills relate to proactive project management (involving, for example the ability to plan, organise, manage, lead and delegate, analyse, communicate, de-brief, evaluate and record), effective representation and negotiation, and the ability to work both as an individual and collaboratively in teams. The ability to judge and identify one's strengths and weaknesses, and to assess and take risks as and when warranted, is essential.

An entrepreneurial attitude is characterised by initiative, pro-activity, independence and innovation in personal and social life, as much as at work. It also includes motivation and determination to meet objectives, whether personal goals, or aims held in common with others, including at work.

8. **Cultural awareness and expression**

Definition:

Appreciation of the importance of the creative expression of ideas, experiences and emotions in a range of media, including music, performing arts, literature, and the visual arts.

Essential knowledge, skills and attitudes related to this competence:

Cultural knowledge includes an awareness of local, national and European cultural heritage and their place in the world. It covers a basic knowledge of major cultural works, including popular contemporary culture. It is essential to understand the cultural and linguistic diversity in Europe and other regions of the world, the need to preserve it and the importance of aesthetic factors in daily life.

Skills relate to both appreciation and expression: the appreciation and enjoyment of works of art and performances as well as self-expression through a variety of media using one's innate capacities. Skills include also the ability to relate one's own creative and expressive points of view to the opinions of others and to identify and realise social and economic opportunities in cultural activity. Cultural expression is essential to the development of creative skills, which can be transferred to a variety of professional contexts.

A solid understanding of one's own culture and a sense of identity can be the basis for an open attitude towards and respect for diversity of cultural expression. A positive attitude also covers creativity, and the willingness to cultivate aesthetic capacity through artistic self-expression and participation in cultural life.

ANNEX 2: Country Case Studies

Cross-curricular key competences and teacher education. Introduction to the country case studies

Background and purpose

The European Commission's *cross-curricular key competences and teacher education* project developed a set of country fiches detailing the implementation of key competences in each of the 27 EU Member States. The project built on these fiches by using a range of other sources to develop country case studies for a selection of Member States.

The case studies demonstrate a range of approaches to the implementation of cross-curricular competences in the school curriculum and teacher training. They provide an additional level of detail that has helped the project to explore implementation issues more fully. The project's final report has drawn on these case studies to generate conclusions and recommendations for the European Commission and Member States.

Scope and countries

The case studies sought information on all aspects of the policy cycle in relation to the school curriculum and teacher education: from policy formulation and implementation to resultant teaching practices and in turn, the impact on learner outcomes.

The project team selected six Member States for the case studies on the basis of recent, related research on *The shift to learning outcomes: policies and practices in Europe* (CEDEFOP, 2009) and the project team's expertise and access to contacts and information in these countries.

The case study countries and their allocation to the project team were as follows:

- Finland – Tom Leney, QCA;
- France – Alain Michel & Bernard Platel, EIESP;
- Hungary – Vilmos Vass, University of Pannonia;

- Poland – Magdalena Krawczyk & Jerzy Wiśniewski, CASE;
- Spain – Marta Arànega, University of Barcelona;
- UK – David Pepper, QCA.

QCA was responsible for coordinating the project team's production of these country cases studies.

Method and product

Information for the case studies was collected for analysis from various sources. This included literature referenced in the country fiches, additional literature identified by the authors of the case studies and, where additional clarification was required, interviews were conducted with other national experts. Each country case study presents an analysis of the implementation of key competences or similar concepts using information gathered from the various sources.

The content and emphasis of the case studies varies according to the unique circumstances arising from the national context of each country. However, for each country there is an introduction to the policy framework and details of specific examples of implementation-whether these arise from 'top-down' or 'bottom-up' initiatives. This has enabled the case studies to contribute to the overarching analysis in the final report, its conclusions, and its recommendations for the European Commission and Member States.

Finland: Key competences in the school curriculum, redefining the curriculum and making change work

Author: Tom Leney, Qualifications and Curriculum Authority, UK

Overview

Successive reforms to the school curriculum and to the organisation and governance of schools in Finland are innovative. Two elements of the reforms provide the focus of the case study.

Firstly, a shift has occurred in the definition of the school curriculum. The national school curriculum now comprises a broad framework. It is framed as a core curriculum with clearly stated aims and learning outcomes expectations that give shape to subject-based skills. The national curriculum also identifies cross-curricular themes that identify broader skills for each stage of compulsory schooling and upper secondary school. As in other countries, this is a marked move away from the detailed and content-based curriculum, where knowledge and skills were seen as the products and property of particular subjects.

Secondly, the governance strategy for putting curriculum reform into practice is a strong feature of the rather holistic approach that Finland has attempted. Many countries make curriculum reform by issuing the new framework or regulations, and then expect the school leaders, teachers and stakeholders to do their part, often with a small amount of in-service training attached and, perhaps, some guidance in print or on the national website. The Finnish approach to implementation is to involve all the teachers collaboratively to develop the school curriculum in their own location. It is at the level of the school and the school curriculum that planners aim to bring the features of the national curriculum framework to realisation. Strategies for involving the teachers are in place.

The identification of the national curriculum framework with its emphasis on subject and cross curricular knowledge and skills is the result of extensive consultation, but can be described as a top-down approach. This is complemented by the

requirement that each school develops and reports on its own curriculum, by involving teachers and local stakeholders. This can be described as a decentralised or bottom-up approach.

Focusing on key competences, this case study shows how a strategy is in use to try to bring about curriculum reform in practice in the country's schools.

The core curriculum – locating key competences in the development of the Finnish school curriculum

Although subjects and teaching hours are still prescribed for the different phases of schooling, and text books must have government endorsement, Finland has moved a long way from the time when the national curriculum was a collection of subjects whose contents were identified in detail.

The national curriculum was first established in 1970. It has undergone several main reforms. These can be summarised:

1970: First national core curriculum was introduced, to replace selective and differentiated curricula of the previous selective system. A strong emphasis on equity and access was reflected in prescriptive identification of a content-based curriculum with detailed orders and centralised guidance.

1985: Reform abolishes streaming of pupils and opens up progression routes for all. The municipal aspect of identifying the school curriculum is given more prominence, as decentralisation begins.

1994: Reform establishes a decentralised curriculum, giving authority to the municipal and school level, abolishing the school inspectorate and envisaging teachers as having an active role in deciding the school curriculum.

2004: Reform stipulates a somewhat more specified curriculum than the previous reform, and redefines the notional hours per subject. The emphasis is still on equity but now on a more personalised approach to learning. The core curriculum comprises subject-based knowledge and skills, but also cross-curricular themes and skills. Engaging the teachers and school community actively in developing the school curriculum is a key aspect of the strategy. The core curriculum applies throughout the age range of schooling, but in a differentiated way to pre-school, basic (comprehensive) education and to upper secondary general and vocational education.

It is justifiable to conclude that through these reforms, key competences have shifted from being assumed and subsumed within individual subjects to having a

prominent place in guiding teaching and learning, and the development of the school curriculum. The Finnish way, however is to retain the safety net of identified subjects and teaching hours (schools can amalgamate and coordinate subjects as they see fit) and text books must be approved.

Defining the school curriculum – the place of key competences

The Finnish National Board of Education is the ministry's agency for the curriculum.

Finland participated actively in the OECD designing a school curriculum (DeSeCo) project, and numerous sources describe that this had a formative effect on how the core skills or competences were conceptualised. Of course, Finns draw public and private confidence from the high ranking that the country has achieved in successive PISA surveys. This means among the top ranking in the world, including a smaller than average distribution curve describing high and low performing students.

The matrix of key competences that the DeSeCo project developed is as follows.

Insert A2.1. DeSeCo key competences

Competency 1: Using tools interactively	
1A	The ability to use language, symbols and text interactively
1B	The ability to use knowledge and information interactively
1C	The ability to use technology interactively
Competency 2: Interacting in heterogeneous groups	
2A	The ability to relate well to others
2B	The ability to cooperate
2C	The ability to manage and resolve conflicts
Competence 3: Acting autonomously	
3A	The ability to act within the big picture
3B	The ability to form and conduct life plans and personal projects
3C	The ability to assert rights, interests, limits and needs

This is a rather more thematic approach to identifying competencies (OECD's preferred term) compared to the more pragmatic and easily identifiable key competences that the EU developed. This is the EU's listing of eight key competences.

Insert A2.2. EU's eight key competences

Communication in the mother tongue	Learning to learn
Communication in the foreign languages	Entrepreneurship
Mathematical competence and basic competences in science and technology	Interpersonal, intercultural and social competences and civic competence
Digital competence	Cultural expression

Perhaps it is the subtlety of the OECD's approach that led Finland to identify key competences in its national curriculum. Some key competences as outcomes expected from within the subject-based curriculum. This would apply to those of the left hand column of the EU matrix. On the other hand, broader key competences tend to be identified in the Finnish approach in the curriculum's identified cross curricular themes, rather than in the subject-based curriculum. The broader key competences that the Finnish system seeks to develop in learners are suggested by the names of the cross-curricular themes.

For the last cycle of compulsory schooling, the following cross-curricular themes are identified:

1. Growth of the person
2. Cultural identity and internationalism
3. Media skills and communication
4. Participatory citizenship and entrepreneurship
5. Responsibility for the environment, well being and a sustainable future
6. Safety and traffic competences
7. Technology and the individual

The extract from the core curriculum that follows (see Insert A2.3) shows how the key competences for the 'safety and traffic competences' theme are specified.

For all upper secondary pupils in both the general and vocational pathways the cross-curricular themes are:

1. Active citizenship and entrepreneurship
2. Welfare and safety
3. Sustainable development
4. Cultural identity and knowledge of cultures
5. Technology and society
6. Communication and media competence

The national core curriculum document specifies the first of these themes in the way, presented in the Insert A2.4.

The cross curricular themes are intended to establish challenging situations that emphasise the social aspect of learning, values, and the development of the individual learner towards identified knowledge, skills, attitudes and competences. They are also intended to be organising elements that enable schools to link different learning areas, through the school's own identified curriculum.

Insert A2.3. Safety and traffic extract

The goals of the "Safety and Traffic" cross-curricular theme are to help the pupils understand the physical, psychological and social dimensions of safety, and to guide the pupils towards responsible behaviour. Basic education must give the pupil age-appropriate abilities to act so as to promote safety in a variety of activity environments and situations

OBJECTIVES

The pupil will

- learn to recognize safety and health risks, to anticipate and avoid dangerous situations, and to act so as to promote health and safety
- learn to foster non-violence and to act constructively when bullying occurs
- learn to act appropriately in accident and crisis situations
- learn to act safely and responsibly in traffic
- learn to have an impact on the safety of the school environment, including the traffic environment
- get to know the welfare services in society.

CORE CONTENTS

- protecting oneself from accidents, intoxicants, and crime in one's own living environment
- environmental and occupational safety
- action models that promote health, safety, non-violence, and peace
- dimensions of violence in the immediate community and wider society
- key traffic regulations and various traffic environments
- considerate traffic behaviour, safety of the traffic environment, and safety equipment
- mapping out dangerous places in the immediate environment and improving safety
- services that promote safety
- home-school cooperation in promoting safety

Insert A2.4. Active citizenship and entrepreneurship extract

The objective of the cross-curricular 'active citizenship and entrepreneurship' theme is to educate students to become contributing, responsible and critical citizens. This means participation in and influence on different areas of society from political, economic and social activities to cultural life. The levels of participation are local, national, European and global.

The objectives are for students to

- consolidate their knowledge of human rights and the operating principles of democratic society;
- be able to form their own justified opinions and discuss these with respect for other people's opinions;
- be familiar with various participation systems in society and their procedures;
- be ready to participate in the creation of common good for their local community, municipality of residence, society and living environment as individuals and in groups and to influence decision-making in society;
- adopt proactiveness and enterprise as their own operating methods;
- be familiar with the different forms, opportunities and operating principles of entrepreneurship;
- understand the significance of work to individuals and society;
- be familiar with the means of influence available to consumers and know how to exercise these.

The main focus in the implementation of the cross-curricular theme must be on practical exercises and on the creation of personal experiences of participation and influence. In addition to the school's own active efforts, such a study environment may be developed in co-operation with other bodies operating in society, different organisations and business enterprises.

Assessing key competences

In accordance with the Basic Education Act, pupil assessment aims to guide and encourage study and to develop pupils' self-assessment skills. The Finnish National Board of Education issues national criteria for pupil assessment which relate to schoolwork, the learning process and pupil conduct.

Pupil assessment has two different roles. The first is (the above-mentioned) educational guidance and encouragement. This is known as continuous assessment. It is based on each pupil's own learning and growth processes.

The second role of pupil assessment is the final assessment of basic education, on the basis of which pupils are selected for further study on leaving compulsory comprehensive level education. Both general and vocational upper secondary education have selection criteria. Therefore, this assessment must be nationally comparable and it must treat pupils equally. For the purposes of this assessment, rec-

ommended assessment criteria have been prepared for the grade ‘good’ (8) in all common subjects.

The subject based curriculum is described in terms of objectives/intended learning outcomes, broad specification of subject, and assessment.

Pupils also receive reports at the end of each school year (and may, in addition, receive one or more intermediate reports). In the first seven years forms of comprehensive (basic school) education school, assessment may be either verbal or numerical. In the upper secondary phase unit-based assessment is the method to ensure that the student accumulates the credits needed to matriculate. In addition, for general upper secondary matriculation the student has to sit a number of terminal examinations. For upper secondary VET, which is school- and workshop based with extensive periods of work experience now introduced, ‘demonstration assessment’ is being introduced based on the statements of competence or learning outcomes requirements that define the vocational modules.

However, no assessment measures are specified for the cross curricular themes.

Decentralisation, clear frameworks and empowering the teachers: How Finland is trying to modernise curricula and pedagogy

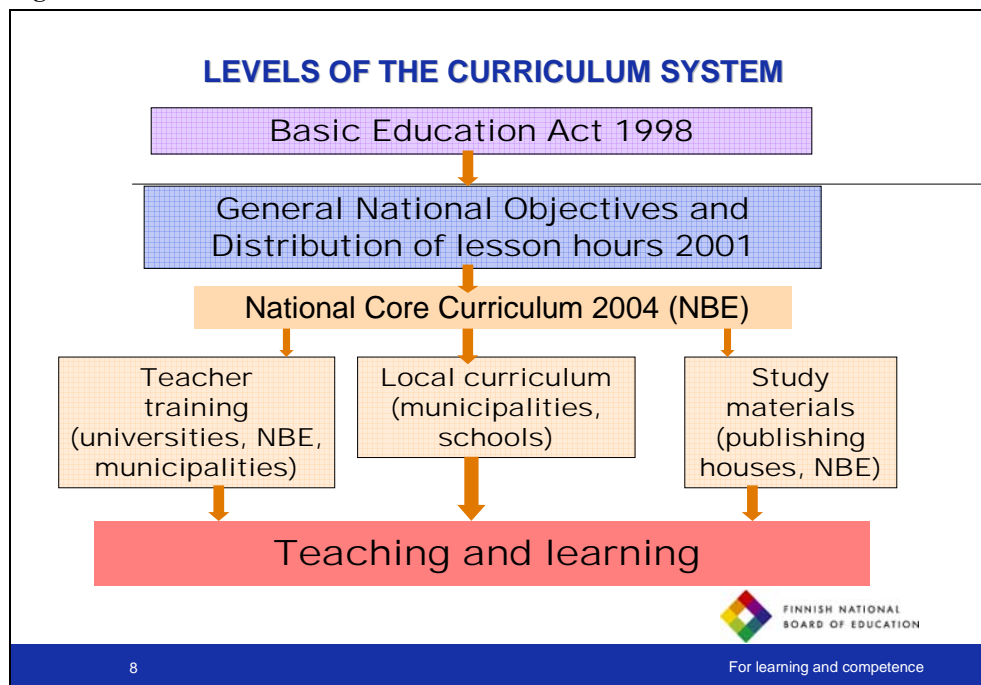
The decentralised system is based on a national framework, and is described in a ministry of education slide as shown on the Figure A2.1. This diagram illustrates how three factors – teacher initial and continuing training, the municipal and more importantly the school curriculum and authorised published materials – combine to put the framework curriculum into practice, with its core of subjects and cross-curricular themes.

Encouraging communities of practice – the Finnish way of generating change

At the national level, consultation on the curriculum is extensive. In a relatively small but wealthy country, national consultation involved curriculum teams and a wide range of municipal and school based stakeholders. This is shown below in the Figure A2.2.

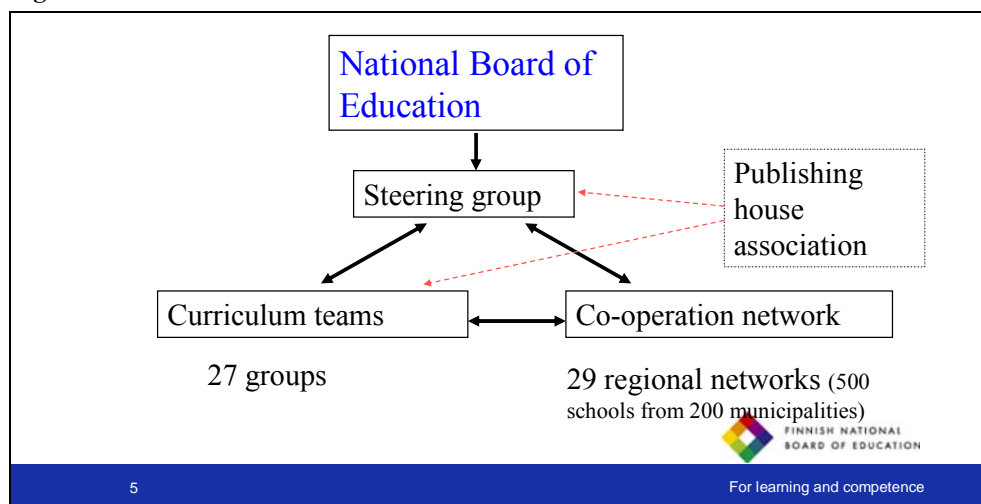
This methodology was intended to achieve a wide consensus and to generate broad ownership and support. It describes how the top down aspect is intended to be mediated through consultation and participation.

Figure A2.1. Decentralisation scheme



Source: Irmeli Halinen, Director, General Education 2005, PowerPoint.

Figure A2.2. Communication scheme



Source: Irmeli Halinen, Director, General Education 2005, PowerPoint.

The role of teachers and school leaders

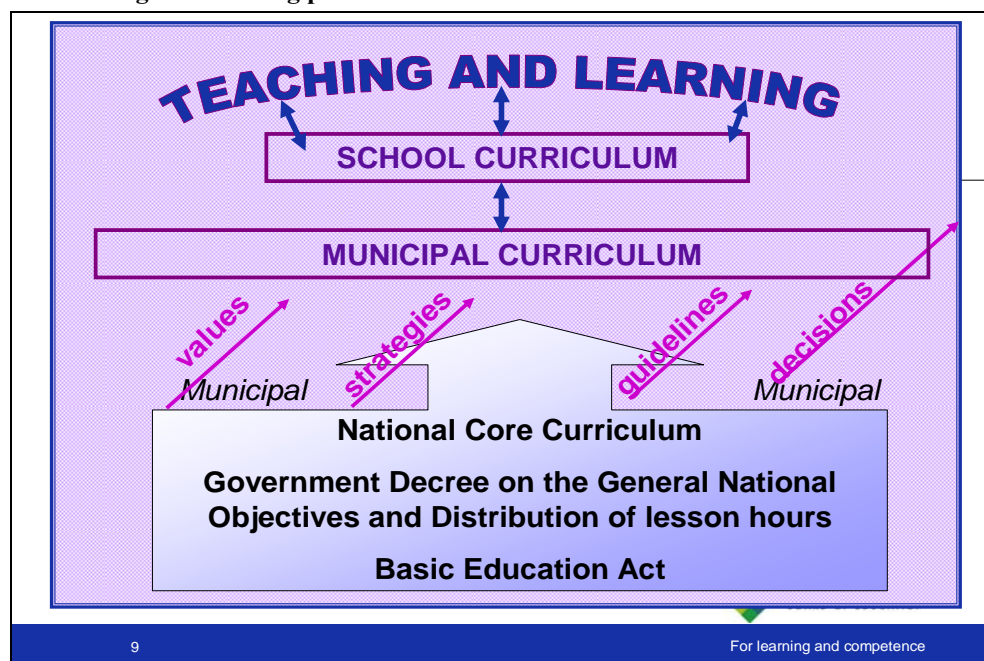
For this study, the really interesting part of the methodology for steering the curriculum towards a competence-based approach lies in the development in each school of its own curriculum statement.

The key characteristics are:

- Teachers are involved in the development and review of the school's curriculum statement, under the leadership of the head teacher;
- The school's annual plan is linked in with teachers' own work plans;
- Consultation takes place with the municipality, with parents/stakeholders and there is some cooperation with other schools;
- Thus there is a link between the specifications of the framework curriculum, including cross-curricular themes and a competence-based approach and the locally organised work of the school and the teachers;
- This is reinforced by the recent introduction of individual learning plans.

Again, the interrelationship of the school curriculum, the planning of teachers and the teaching and learning processes can be shown in a diagram (see Figure A2.3).

Figure A2.3. Interrelationship of the school curriculum, the planning of teachers and the teaching and learning processes



Source: Irmeli Halinen, Director, General Education 2005, PowerPoint.

Initial and continuing teacher training

The official view that is taken is that effective implementation of such a collaborative curriculum requires, foremost, highly trained and professional teachers working in effective communities of practice. Arrangements for initial and in-service training reflect this. In particular:

- Teachers are qualified up to the Master's level. This gives both a subject and pedagogical base that is sound.
- In addition, teachers are expected to be aware of research and in dissertations etc to begin to make use of the evidence base for improving practice and professionalism.
- In-service training is organised locally, including a number of key themes that are decided on at national level to assist reform and national priorities.

Evaluation in the Finnish system

In terms of evaluating the work of schools:

- Each school and each municipality prepares a self-evaluation annually. This mechanism is also seen as a developmental tool;
- Major national and municipal initiatives are evaluated;
- Periodic samples of about 5000 learners are taken and Finland participates in PISA;
- The Finnish National Board of Education evaluates the outcomes and success of the education system on the basis of these reports. A government agency, the Evaluation Council, supports this activity.

There is no system of widespread or blanket testing. There is no system of external inspection, except where schools request an external evaluation.

Conclusions to the case study

In the Finnish case, key competences are embedded in the subject-based and cross curricular themes of the core curriculum. The competences are clearly stated through a range of subjects and themes, although there are no criteria for assessing the broad key competences specified in the cross-curricular themes. The core cur-

riculum provides a national framework based on consultation. It is the local school curriculum that is intended to generate a competence-based approach to teaching and learning. Specifically, the teachers work collaboratively with the head teacher on the school curriculum statement, which both reflects and is reflected in their programmes of work. For this to be possible, high levels of professionalism on the part of the teachers are seen as a key ingredient, and this is reflected in the priority given to teacher training.

How effectively this mechanism for implementing teaching and learning of the broader key competences works would need further examination. The effectiveness of the Finnish approach to competences such as language, number and scientific competences is demonstrated in the results of successive PISA surveys.

France: Cross-curricular Key competences: policy, pedagogic practice, assessment and teacher training

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Introduction

The purpose of this case study is to sum up the information included in the country fiche and in the three concrete examples which were selected to illustrate the way cross-curricular competences (CCC) can be effectively implemented at the three levels of the school curriculum. The case studies are: 1) EOLE (compulsory education: lower secondary); 2) ICT (primary and secondary education); and 3) EUROV (European project at upper secondary level).

The policy for developing cross-curricular competences is not recent. Among the top-down initiatives one could quote the following cross-curricular activities:

- at compulsory school level: the development of ‘cross-curricular themes’ in 1985, then the ‘parcours diversifiés’ (diversified pathways), then called ‘travaux croisés’ and more recently, ‘itinéraires de découverte’ (discovery pathways).
- at upper secondary level: the ‘projets d’action éducative’ as from 1979, the ‘travaux personnels encadrés’ (lycée général et technologique) and the ‘projets pluridisciplinaires à caractère professionnel’ (lycée professionnel) since 1998.

All these multi-subject activities, where groups of 3 to 5 students choose to carry out a project with the help of teachers of at least 2 different subjects and are required to produce an output (report, video document, exhibition,), have been organised in order to:

- link the knowledge learned in various subjects,
- develop active learning and motivation to learn,
- develop some cross-curricular key competences, such as: autonomy, teamwork, creativity, management of a project over time, relevant use of

ITC, awareness of environmental problems, health education, citizenship, etc,

- Enhance the teamwork of teachers of various subjects and promote new relationships between teacher and students.

Other rather traditional activities that aim at developing key cross-curricular competences are:

- education for citizenship,
- education for sustainable development,
- education for media,
- education for ICTs (technical, social and cultural aspects)
- Comenius projects.

However, until recently, the French national curriculum was, to a very large extent, dominated by a pedagogical approach that gives priority to knowledge rather than competence and to academic subjects. The cross-curricular activities had only a marginal status and very little importance in the assessment of students' achievement.

But in the last few years under the influence of European initiatives, of international surveys on students' achievement (IEA, PISA, etc.) of the OECD DeSeCo activity and of some UNESCO reports, important steps were adopted in order to give more importance to the notion of competence. In this respect, the word 'competence' was officially used for the first time in 2005 in a law on education. The Education Act of 23 April 2005 stipulates in its article 9 that compulsory education must provide each pupil with the means to attain a common foundation of knowledge and competences (*'socle commun de connaissances et de compétences'*) which is considered as necessary to go further into education, build up one's personal and professional future and succeed in one's social life. The *socle* includes five competences: three are subject-oriented (command of the French language, command of basic elements of mathematics and sciences, command of at least one foreign language) and two are cross-curricular (humanist and scientific culture allowing for a free exercise of citizenship, command of usual ICT). The attainment of the *socle* must be assessed and taken into account for the progression of each pupil. Moreover, every three years the Government must present a report to the Parliament about the extent to which the *socle* is implemented through the curriculum and about its command by the pupils at the end of compulsory education.

Another interesting step is proposed by the article 34 of the 2005 Education Act: after agreement of the recteur, each school is allowed to experiment innovations in the curriculum, notably for cross-curricular activities, during five years,

with the obligation to assess their outcomes before continuation. This allows for more bottom-up initiatives that are likely to develop cross-curricular key competences.

A decree of 11 July 2006 gives a definition of the notion of ‘competence’, which is influenced by the European report of November 2005 about key competences for lifelong education and training. A ‘*compétence*’ is defined as ‘a combination of basic knowledge for our time, abilities to use it in various situations, but also of attitudes necessary on a life span’. This definition is quite different from the traditional meaning of *compétence* in France, i.e. a know-how which means ‘to be able to do something’. At the same time, the decree of July 2006 gives a more detailed definition of the basic competences of the *socle*: seven competences are proposed instead of five in the Education Act of 2005 and eight in the European report on key competences of 18 December 2006. These seven competences are:

- command of the French language,
- command of a foreign language,
- command of the basic elements of a scientific and cultural culture,
- command of basic ICT
- humanist culture,
- social and civic competences,
- autonomy and the ability to take initiatives.

The main difference with the eight competences proposed at the European level is the absence of the ‘learning to learn’ competence.

In order to assess students’ achievement in these competences score grids were proposed in an experimental booklet called ‘*Livret personnel de connaissances et de compétences*’ (decree of 14 May 2007). In this booklet, different skills are proposed for each of the seven basic competences and must be assessed at the end of the second year of primary education, of the last year of primary education, of the first year of lower secondary and, finally, at the end of the last year of lower secondary education. For example, if we consider the most innovative competence – autonomy and ability to take initiatives – three main sub-competences are proposed, each of which includes particular skills or abilities:

- to develop one’s autonomy and critical thinking (which includes itself three dimensions : 1) to manage to organise school and homework by planning and anticipating activities, and to know how to look for and select useful information; 2) to have some knowledge of the economic environment, various jobs and the required training or education to be able to be recruited; 3) to be able to decide about career choice)

- to be aware of one's body and the ability to develop one's physical capacity by practising some sport (three dimensions to be assessed: 1) To be aware of the main needs of one's body; 2) to be aware of one's resources and limits; 3) to be able to appreciate the impact of physical activity; 4) to be able to swim).
- to take initiatives (2 dimensions to be assessed: 1) to show curiosity, motivation and creativity through activities organised or agreed by the school; 2) be able to pursue individual and collective projects).

The implementation of the *socle commun* is still at an experimental stage, with many schools using the opportunities offered by article 34 of the Education Act of 2005 to experiment new activities or alternative organisation of the time schedule in order to develop cross-curricular competences (see example 1: EOLE).

Apart from this very important change regarding compulsory education, the other big move towards cross-curricular key competences concerns the use of ICT and digital culture. As it is stated in the country fiche and in the example 2 of this case study, it concerns primary, secondary and tertiary education, with the concept of new certificates attesting the levels of qualification attained in this field. One should insist more here, in order to complete the overall picture, on two cross-curricular activities in which many schools and teachers were involved over the last decade: education for media (with a focus on the ability to understand how information is an artefact and the way it is built up, to interpret semiotic aspects of images and advertising, to exercise some critical thinking about figures, charts and other data delivered by the media, etc., all contributing to education for citizenship) on one hand, and education for sustainable development on the other. Both are implemented at all levels of the curriculum.

We should also mention the initiatives taken to include in the *socle commun* some basic competences in understanding the economic world, particularly with respect to money, credit and debt. The present economic situation will probably enhance the efforts already accomplished in this area.

Finally, it is worth mentioning what has been achieved through Comenius projects concerning cross-curricular competences. The example 3 about EUROV illustrates at upper secondary level how a Comenius project can contribute to enhance key cross-curricular competences and motivation to learn.

There is no doubt that the French education system today gives much more importance to key cross-curricular competences than it used to and that it will be more and more the case in the perspective of lifelong learning and a rapidly changing world. However, there is still a debate about the importance which should be given to such competences with respect to more traditional ones such as a good command of the French language and of basic mathematics. Some recent out-

comes of French testing surveys showed a significant decline of these more subject-oriented competences, which gave new arguments to teachers or parents in favour of more traditional pedagogical approaches. That is why it is particularly important to show that the efforts made to enhance key cross-curricular competences are not at all in contradiction with the effort to improve basic literacy and numeracy, but are quite complementary. In this respect, however, more research and development must be carried out in order to design a more relevant and efficient use of ICTs and better understand their impact on students' achievement.

Case Study 1: EOLE

'Key competences, on the cutting edge of fight for equity and efficiency in French middle schools. Cross-curricular projects: the appropriate solution against recurrent low achievement.'

While the French ministry of education is slowly implementing a general shift of the compulsory education curriculum towards the achievement of clearly identified competences, instead of traditional mainly content-centred curricula, many actors of the educational system are boldly and convincingly pushing ahead changes of mind and practices in their schools. The example described here presents a rather acute understanding of what is at stake for all categories of staff. The science teacher standing for the present project in a suburban middle school (collège) near Paris shares the main concern of today's educationists with the vast majority of her colleagues: how could their pupils benefit better of the time and effort they have been investing in their teaching mission from the very first day when they started devoting themselves to their young public? As François Muller, from the *Rectorat* of Paris observed, 'The map of innovating projects coincides at 80% with the map of schooling problems'. (<http://innovalocal.scola.ac-paris.fr>).

The present innovation has been implemented on the basis of voluntary team work with colleagues who think alike. The ongoing initiatives have in common a **competence-based educational approach**. And it seems to work. How and why? The following reviews of experience should tell us more.

'EOLE' is a multidisciplinary project in the *Collège des Gâtines* (860 students) in Savigny (a suburb of Paris; mainly private housing estate; with about 20% of socially disadvantaged households). The project started two years ago in 2006. The main trigger was a recurrent statement that too many pupils did not cope with the expectations of the general schooling conditions. The new school development plan (*projet du collège*) until 2010 should diversify the methods of teach-

ing/learning according to the diversity of pupils, so that each could discover his own way to success. Eole is one solution for a 4th form (*classe de quatrième*), third year of lower secondary school, amongst other solutions for other target groups. The main features of this form are the usual ones at the same level of schooling: same time table, same subjects, and same selection for the next year. Main differences: 21 students only making up a homogeneous group of mainly low to very low achievers are learning the curriculum through a project centred approach, e.g., ‘the understanding and protection of the environment’. A partnership with the nearby airport of Paris (Orly) is the backbone of extra curricular activities.

The selection of the 21 students is the first and critical step in this project. Students apply ‘voluntarily’ for the project. 100% of them are in great difficulty. If they engage in the ‘Eole’ project, they write a personal letter of intent, some kind of contract, endorsing the objectives and rules of the form.

The 10 teachers involved have previously agreed on a joint approach of their teaching activities and assessment through a set of disciplinary, cross-curricular and non disciplinary competences, which they intend to identify, develop and assess while delivering the curriculum. The fact that there is not a unique set of competences is obviously not a problem. There are, for example, 11 of them for natural sciences, 14 for the foreign language, six or nine only for sport or history. But all lists of competences show joint competences, common cognitive processes and attitudes. They differ sometimes only by their wording. For example, in four different subjects the following competences can be easily related to one another. Sciences: ‘select and extract information from a document’; History: ‘search for information in a document’; French: ‘search a document according to a given target and quote the origin of the information’; Technology: ‘sort out and coordinate information’. Search for, identify, select an info, its origin, measure, evaluate, compare, summarise, present, express, orally, spatialise, graphic representation, synthesis, think scientifically, chronologically, solve a problem, deduce, induce, use a tool, digital, memorise, ... plus jointly all aspects of Competence 7 of the Common Platform: ‘Autonomy & Initiative’ (speak in public, auto-evaluation, live together, respect others, know one’s needs and limits, be creative, motivated, manage or co-manage a project, listen to a piece of advice, make a decision, understand the world of economy and be aware of opportunities).

A first test in each subject will give the students a fairly precise indication of where they stand at the beginning of the school year in relation to the degree to which they master each competence. Three possibilities are offered so far: the competence is mastered, in the process of being mastered, and not yet mastered.

The September indicators showed: 10% mastered the 11 competences identified for natural sciences, 25% not yet, 65% in the process. A result which is both

realistic and encouraging, two years away from the ultimate assessment due at the end of compulsory education. From this initial evaluation on, the rest of the school year unfolds quite ‘normally’.

The curriculum itself remains untouched in its extension and depth. But behind the appearances the rules, expectations and evaluations are quite new. Students are more in charge and are fully aware of their responsibilities. They know the criteria according to which their performances will be evaluated. They are expected to auto-evaluate the outcomes of their learning activities. Different also are the teacher’s activities. The tasks have to be essentially managed by the students. The teaching staff proceeds accordingly in their preparation work and classroom management. In the end the outcome of these activities will be translated in clear terms, shared by the teaching team, the administration and they are understandable to the students and their family.

All subjects are perhaps unequally adaptable to the approach by transferable competences. Subjects such as Sports, Sciences, and French might, in this respect, be more suitable than others. According to the science teacher of the EOLE project, his or her subject is by nature adapted to a problem solving approach where each activity has a practical effect on the student’s daily and social life. AIDS, first aid, safe handling of chemicals, GMO and healthy food, sexuality, etc. are topics which can make learning attractive and lead to concrete comprehensive activities.

After a one-year trial period (2007–2008), the outcomes of the EOLE project are generally positive. School results of these students have improved: 75% are able to enter the next form in satisfactory conditions, whereas 100% could not follow the regular curriculum a year before. Another even more important change for the students considered as low achievers is probably their change of mind. An overwhelming majority feels more confident, motivated and responsible. Most of them declare that they enjoyed this ‘new’ approach. The same general satisfaction was observed for the parents.

Still in progress, with a better grid of criteria and better targeted evaluation procedures, the project is fully integrated in the overall innovative policy of the school beside other projects: cross-curricular support groups targeting specific ‘not yet mastered’ competences at every stage of the *collège*; a special science project where students’ initiative is a key element in the pedagogy delivered in each section by one teacher in charge of three joint subjects: natural sciences, physics and technology. The ‘Gâtines’ middle School is located in a rather quiet private estate housing suburb, half an hour from Paris. 21% of the 860 pupils belong to socially disadvantaged families but they range slightly above the average achievement level in the area for their entry test exams. 70% access general high school (*lycée général et technologique*).

Case study 2: ICT development in schools: fostering new ways for the implementation of cross-curricular competences

ICT competences have been fighting their way into the French educational system for the last 40 years. The process is not yet complete and should not be before 2010. But the way ICT competences have been included in the general school activities and programmes offers a good example of a decentralised and innovative approach; hence, quite an original example indeed in the French educational tradition. ICT learning has gained its full acknowledgement in the framework of basic competences though it was never considered a proper discipline, with its separate specialised teaching force, marks and exams. ICT provision has always been handled as a trans-curricular set of skills and knowledge shared throughout the curriculum and delivered progressively year by year during the schooling period. This pragmatic evolution brought into the system its share of contradictions. And the system itself is often on the verge of confusion. But it does work somehow. And this positive outcome could lead the way of the overall trend to address the whole of the curriculum via the acquisition of competences instead of programme chapters (see 'le Socle commun', the common foundation of knowledge and skills for compulsory education). This case study will try to highlight the specific developments and some changes already induced by ICT in education, or still to come.

Some incidental questions are legitimate if we want to infer from this rather isolated field of ICT education to the rest of the educational spectrum. In other words, it would be interesting to understand why the approach by competences is taken for granted in the field of ICT, while it is hardly considered for other areas of education. Is it related to the nature of the subject – totally transversal as a tool to be applied to all other areas of human activities? Can it be explained by the absence of academic entity and clearly acknowledged professional and corporative staff to 'own' the field? Competences offer two very different entries: they can be, especially with regard to technical skills, very narrow in their definition and result in quite simple tests that discriminate between 'can' and 'cannot'. ICT practices and evaluation depend on these kinds of operational competences. This extreme model of such an approach is the emblematic figure of young 'IT-freaks' who are intuitively in control of rather complex processes linked with their practice of technology, whilst they are totally unable to understand what is going on and can even less explain their performance in relation with existing areas of structured knowledge and activities. This leads to the often denounced situation where the traditional and still working model of education is reversed, where a clumsy and clueless teacher is confronted with successful IT-teens whose fingers work faster than their mind. But despite this fear of seeing the educational *status quo* put up-

side down by ICT, long term efforts have been made to keep up with the challenge of ICT learning, without affecting its innovative dimension.

Within the new 'socle commun', ICT has been given a fully acknowledged status. It incorporates one of the seven main competences that build the 'socle', described as 'working and critical knowledge of information and communication technology'. And it is clearly stated that the imprint of ICT in education goes far beyond technical skills. Social, cultural and ethical aspects of ICT competences are largely emphasised in policy papers. But ICT carry a lot of innovative solutions for the immediate future of education, e.g. a more intuitive way of learning or a more active and better shared structure of exchanges in the teaching process, between teacher and learner, the group, the world outside the school, the information sources and the learner.

Brief historical review

The beginning of the implementation of ICT in schools goes back almost 40 years ago (1972). Ever since, the developments in this field address teachers and learners, theory and practice, and hardware provision and curriculum delivery. In 1981, 10,000 computers were installed in upper secondary school; teachers were seconded to up to one year training programmes and applied computer activities were developed after the classes. In 1985, the national IPT ('*Informatique pour tous*') development was launched. Middle and primary school teachers were involved and practices were developed for teaching the curriculum. Technology, including computer practice replaced the former handwork session in lower secondary schools. Computer technology entered the *baccalauréat*. Since 2000, ICT competences have been evaluated by a certificate for computer and Internet, B2i (*Brevet informatique et Internet*). In 2006, this certificate is now clearly organised at three levels, for primary, lower secondary and upper secondary education. The lower secondary issue of B2i became compulsory and was integrated into the evaluation of competences requested at the end of compulsory education. In parallel, another certificate, C2i, was developed for students in higher education with a special, compulsory version for future teachers.

Main trends and innovations

Beyond the technical aspects, the ICT domain offers a complete set of innovative measures centred on acquisition and evaluation of clearly identified and functionally organised competences. The full spectrum of these competences is exten-

sively described and published. It is now available to learners and teachers in a very transparent way, primarily on the Internet. Everyone can rely now on a stable set of skills and objectives to be fulfilled, which is coherent across the progression leading from beginners to advanced level. The five main domains of competences are common to all levels. They are:

- mastering an IT working environment;
- adopting a responsible attitude;
- creating, producing, processing and exploiting data;
- being informed using documentation;
- communicating and exchanging.

Increasingly complex objectives are proposed at the three levels of school education and assessed by the B2i certificates. There will be seven to nine different areas of competences (instead of 5) for C2i specific certificates at university level. But the inner logic of the references is one and common for all users. This priority for competences before curricular knowledge put ICT at the forefront of the reform of the description of compulsory education, with the *'socle commun'*. This development therefore contributes to the implementation of new paradigms in education:

- greater autonomy of the learners: the learners (and their family) are fully informed from the beginning about the extent of the field, they participate in defining the tasks and the objectives and can trigger the assessment process every time they think it is appropriate;
- teamwork and cross-curricular approach become necessary for teachers. No single teacher or discipline can cope with the challenge of developing one's essential ICT skills;
- both learners and teachers rely on a common resource to exercise and evaluate the performances. Extensive documentation with case studies, FAQs, instructions and reference grids are available on line.

Outcomes

Evaluation is clearly, so far, the most innovative aspect of the ICT development in education. In many ways, it sets new criteria in the learning process. The most striking change is that the learners now decide at their own pace to acquire knowledge and skills. They will subsequently be evaluating their own performance. The record of their performances is kept in their personal portfolio where each specific skill is validated, step by step, both by themselves and the teaching staff. Teachers

will accompany this process, propose tasks and share them among the different domains of the curriculum, identify obstacles, recommend appropriate solutions and in the end deliver or not the adapted certificate. Since 2008, the certificate B2i for the *collège* is officially part of the concluding exam for all students.

Although statistics on the general level reached by college leaving students are not yet available, an overwhelmingly positive consensus can be observed not only with the young learners but also among the other stakeholders in the educational world. What statistics show is a national hardware equipment rate that is not far from the European average (one PC for eight students instead of 8.8); computer practice in schools above the one in the rest of the society; rapid increase in the use of ICT for procedures dealing with the administrative side of education (school swaying, marking and statistics). However, relatively few teachers are using their computer on a regular basis for teaching purposes (66% compared with 74% as an average for Europe). And access to the Internet is less frequent in schools (51% compared to 65% outside schools).

Policy and training issues

The full implementation of B2i at upper secondary level (*lycée*) could bring further the idea of digital portfolio, develop and deepen the abilities to a pre-vocational level and, in the end, certify the extended abilities and attitudes that could encompass the outlines of a true ‘digital culture’ in education. But there are still a few other concerns regarding the consolidation of ICT rationales in education:

- Hardware provision is still hindered by centre-periphery conflicts. French legislation does not state clearly if IT equipment is a structural investment or maintenance expense. In one case the state has to pay. Otherwise the regions are in charge. This confusion has to be clarified to ensure equity and efficiency between discontinuous local trial projects.
- It is not yet clear if ICT offer better learning: although computer technologies are now well disseminated, there is not yet measurable evidence of their impact on education at large. Impact on teaching methodologies and student achievement still has to be clarified.
- A technical liability/ equity/ efficiency threshold has to be overcome. The rapid evolution of the technology and the variety of local options and standards create a sense of insecurity for many teaching and administrative staff. ENT (environnements numériques de travail) should correspond to a unified set of norms throughout the country.

- Initial and continued training is still an issue for education staff. The C2i/2 is an extended version for teachers of the ITC certificate requested at university level. Since June 2008 this certificate assesses 27 ITC competences (23 of which must be positively validated). Most of them apply specifically to teaching situations, on site or via a network. In place for future teachers, the upgrading of abilities of already active teachers has still to be implemented. By the same token a distinct status should be designed for the key persons in charge of ITC developments at regional and local level.
- The adapted resource is not yet available. All together the market of digital educational software represents about 10M€ per year. It is a tiny share of the yearly public expenses for schoolbooks: 320M€.

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<http://www.educnet.education.fr/textes/reglementaires/b2i.htm>.

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<http://www.c2i.education.fr/>.

Case study 3: ‘EUROV’- An international project developing key competencies

EUROV is a COMENIUS PROJECT involving six schools from six countries: France, Germany, Italy, Poland, Portugal and Spain. It is called ‘EUROV’ as the aim of the project is the collaborative conception of a European *rover*; i.e. an exploring robot which can be monitored at a distance via Internet. This project simulates the functioning of a multinational joint venture aiming at the conception of a technical project such as those carried out by the European Space Agency. EUROV is directly inspired by the spatial techniques used by NASA to explore the planet MARS.

The French school (Lycée Louis Armand) is an upper secondary school, specialised in vocational and technological training in industrial fields, and located in a rather disadvantaged suburb of Paris (Nogent-sur-Marne). It includes 1000 students and 180 staff (in teaching and non-teaching fields). This Comenius project

involves 40 students and nine teachers which started in 2005 and received financial aid from the local authorities and some firms.

The main target is to have six groups of students coming from six European technical schools working together on a common project: to build up a *rover* which can be monitored at a distance via Internet. The tasks have been shared by the six teams:

- France: conception and production of the mechanical parts of the rover,
- Poland: computer software and multilingual glossary;
- Italy: camera control and web interfacing;
- Spain: design of batteries using solar energy;
- Germany: communication of data between the rover and the computer;
- Portugal: monitoring of engines and reception of data sent by the captors.

A collaborative platform on Internet was regularly used by the teams to communicate, mainly in English. The output: six rovers were produced, a multilingual glossary (in eight languages), a website: <http://www.eurov.org> and a forum at Nogent-sur-Marne in May 2008. Each school can now use its own rover and explore the five other schools through Internet, pilot the rovers, and receive images and all kinds of data.

For the French school, the main impact concerned the students and teachers directly involved in this project, but also the whole school by creating a dynamic of innovation. As for the key competences of students, it particularly developed their motivation to learn, their ability to communicate in English, team work, intercultural communication, project management, efficient use of ICT, ability to innovate, to take initiatives and make realistic decisions, and to take account of environmental constraints and sustainable development.

100 % of the students involved in this project passed the national *baccalauréat* examination.

Hungary

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General phenomena of the Hungarian content regulation system

In the past five years (2003–2008) the Hungarian content regulation system has become more competency-based and complex. The first revision of the National Core Curriculum (NCC) began in 2003. In the content regulation system the NCC is the highest level regulatory and strategic document concerning the competences of the various levels of curricula. Because of the decentralised education system, there is great autonomy concerning the selection of content on the basis of the NCC at school level. The main priorities of the first revision of the NCC were:

- to strengthen the effectiveness of skills development;
- to increase the innovative capacities of schools;
- to promote interdisciplinary, cross-curricular educational programmes;
- to focus on affective areas of education, such as motivation, attitudes, emotions etc;
- to ensure that cooperative learning, differentiated education and motivating teaching methods (debates, projects, drama pedagogy, games etc.) play a more significant role in educational practice.

In 2003, because of these priorities, the NCC focused on competences relating to ‘communication, narration, decision-making, rule abidance, focusing on essence, life management, cooperation, problem-solving, critical thinking and handling complex information’.¹⁴³ A competency list was compiled on the basis of the results of the international surveys (PIRLS, PISA, IEA), which used the experience of local innovations of the last 20 years. Behind the competence list there were some important factors, such as research work on cognitive development, concepts and skills, as well as the experience of the implementation of the previous National Core Curriculum from 1998 to 2002.¹⁴⁴ The second revision in 2007

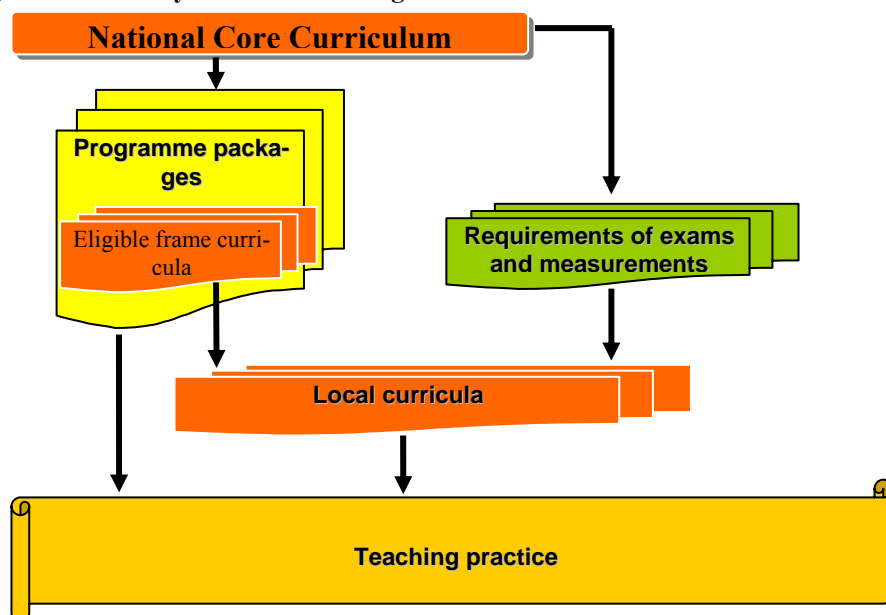
¹⁴³ *Hungarian National Core Curriculum* (abridged version). Ministry of Education, 2003. Budapest.

¹⁴⁴ Benő Csapó: *Tudás és iskola*. Műszaki Könyvkiadó, Budapest. 2004.

focused on the concept and structure of the key competences¹⁴⁵, adding some cross-curricular fields and providing descriptors of the key stages.¹⁴⁶

One of the most remarkable experiences was – in order to be effectively implemented – the need to organise the curricular support system. The curricular support system contains: framework curricula and patterns, programme packages, methodological and assessment tools, textbooks and in-service training. Because of the clear, evident task, the content regulation system was changed from the two-tier (national and local level) to the three-tier format, while preserving the advantages of the former system. (See Figure A2.4).

Figure A2.4. The system of content regulation¹⁴⁷



¹⁴⁵ The NCC-2007 is based on: Key competencies for lifelong learning. European Reference Framework. European Communities, Brussels. 2007. The Hungarian NCC-2007 contains nine key competencies: (1) communication in the mother tongue (2) communication in foreign languages (3) mathematical competence (4) basic competencies in science (5) digital competence (6) learning to learn (7) social and civic competencies (8) sense of initiative and entrepreneurship (9) cultural awareness and expression

¹⁴⁶ See: Gábor Halász: *Cross-curricular key competencies and teacher education*. The Hungarian Country Fiche.

¹⁴⁷ See: Vilmos Vass: The competency-based content regulation system in Hungary. In: *The integrated person. How curriculum development relates to new competencies*. Ed. Jos Letschert. CIDREE 2004 Yearbook.; Irén Vágó – Vilmos Vass: The content of education. In: Education in Hungary 2006.

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At the first level there is the National Core Curriculum. Its main function is to outline the common values and principles, indicating the curricular and educational strategies, to regulate the competences. An additional important task of the NCC is to identify the key competences, cross-curricular fields and the cultural domains. The NCC needs to create coherence and consistency between the three levels of the content regulation system.¹⁴⁸

At the second level, on the basis of the experience of curriculum implementation, there are two components of the supporting system. The first is responsible for curricular support for teachers via the different types of frame curricula. The task of this component is to transfer the strategy, common values, key competences, cross-curricula and the developmental tasks of the cultural domains of the NCC to the local level. This means that the eligible curricula need to give patterns to the school. Concerning the effectiveness of implementation, it is necessary to consider educational support as well. There are several components of the programme packages which can enhance the quality of educational culture and create methodological repertoires: (1) pedagogical concept, (2) curriculum, (3) system of modules, (4) the tools to organise learning, (5) the tools for assessing outcomes of learning and (6) support services.¹⁴⁹

At the third level, there are local curricula on the basis of school education programmes. There are three techniques to develop local curricula: (1) The school may adopt a preliminarily completed framework curriculum; (2) The school may build some parts of the frames curricula into the local curriculum and (3) The school may create its own local curriculum on the basis of previous innovations.¹⁵⁰

The top-down case

In 2004 – in parallel with the implementation of the NCC-2003 – a new development initiative, the Human Resource Development Operational Programme (HEFOP), was introduced under the umbrella of National Development Plan I. The HEFOP 3.1 programme (Developing skills and competences necessary for lifelong learning) aimed to develop competence-based programme packages (see

¹⁴⁸ *Hungarian National Core Curriculum* (abridged version). Ministry of Education, 2003. Budapest.

¹⁴⁹ See: Gábor Halász: *Cross-curricular key competencies and teacher education*. The Hungarian Country Fiche.

¹⁵⁰ See more: *Hungarian National Core Curriculum* (abridged version). Ministry of Education, 2003. Budapest.

components above) in the competence areas of: (1) literacy, (2) numeracy, (3) communication in foreign languages, (4) ICT, (5) social competences and (6) career competences. There were three types of each competence area: (1) focusing on the cultural domains of the NCC-2003, (2) focusing on cross-curricular aspects and (3) focusing on extra-curricular activities.¹⁵¹

More than 100 pilot schools were involved which operated in a specific, cluster-like consortium format called Regional Centres of Kindergarten and School (TIOK) which piloted and implemented the programme packages. Each consortium included primary and secondary schools, the maintainer, and a pedagogical service-providing institution in the given region. Each partner institution of the consortium or cluster has launched local innovative programmes since 1992, which were a significant criterion for selection into the cluster. One was the 12 consortia operating in the Northern-Alföld and headed by Móricz Zsigmond Secondary School in Kisújszállás.¹⁵²

Northern-Alföld is the lowest economy capacity region in Hungary with a really high socio-economic status index. There are huge differences between the schools and between the pupils' performance. 11% of the total population can speak one foreign language, mainly German and English, while 87% of the minorities belong to the Roma population. The unemployment rate is the third highest in Hungary (7.8%). Of the younger generations (between 15–29 years of age) more than one third is part of the workforce. The social and the economic conditions are below national living standards. There are 7,800 registered unemployed young people who obtained their degrees recently. This is 3% higher than the national average. Because of the above-mentioned data and processes, one of the key questions of economic prosperity in this region is to raise as far as possible the level of pupils' competences and the quality of education. There is a strong correlation between the effectiveness of education and training and economic growth. The Knowledge economy requires high level education based on the development of key competences.

¹⁵¹ See: Gábor Halász: *Cross-curricular key competencies and the teacher education*. The Hungarian Country Fiche.; see the website of the programme: <http://www.sulinova.hu>; Mérlegen a kompetencia alapú fejlesztés 2005-2007. Sulinova kht. Budapest.

¹⁵² The partners of the consortium were: The City Kindergarten in Jászberény, Vasváry Pál Primary School in Tiszavasvári, Bárdos Lajos Primary School in Hajdúszoboszló, Primary School, House of Cultural Education, Institution of Basic Cultural Education in Szandaszőlös, Arany János Primary School in Kisújszállás, Hámori András Primary, Vocational and Secondary School in Tiszafüred, Karacs Ferenc College, Vocational and Secondary School in Püspökladány, Jász-Nagykun Szolnok County Pedagogical Service Institution in Szolnok, The maintainer in Kisújszállás. See more: www.kisujtiok.hu.

The title of the project was: *The development of the pedagogical culture for the sake of our pupils' future*. There were some important steps in the planning process. (1) It was necessary to share the vision of piloting the programme packages. (2) The first key issue was to strengthen the role and interests of the maintainer to ensure the sustainability of the project. (3) This means establishing and maintaining effective communication and cooperation among the partners of the consortium.

There were two important tasks during the first phase of the piloting process: (1) to increase the knowledge background of the participations through effective and conscious knowledge management processes (e.g. training sessions, seminars, workshops on curriculum development, pedagogical methods and tools) and (2) to collect information about the current issues of the HEFOP 3.1 project. The aim of the consortium was not only piloting and implementing the programme packages, but also increasing the pupils' chances to become active members of the employment market and facilitating the needs and motivation for lifelong learning.

The main feature of the effective piloting and implementation process was the partner-centred approach, which means joint decision-making, shared and equal responsibility and many continuous pedagogical conversations, and workshops on the basis of the problems and experience. The feeling of interdependence was strong via the mutual respect, support and promotion of the participating institutions and their staff members. Other notable values were innovation, flexibility, cooperation and an up-to-date pedagogical approach.

There was both horizontal and vertical on-going cooperation among the partners. Because of the geographical distance, horizontally there was a need to organise virtual communication via the project website, which was important to ensure effective communication and to exchange the experience. Horizontally there were some so-called 'consortium camps' in order to increase professional and personal cooperation and strengthen face-to-face links. There were seven such 'camps' during the project period (2005–2006). The vertical cooperation from the primary to the secondary level in the curriculum development process was equally smooth and effective.

The main project activities were as follows: (1) Establishing the database for the participating 100 teachers in order to make a diagnosis and SWOT-analysis about the capacity of the testing and implementing process, and to structure and plan the project; (2) Creating the frame of the project management for the communication network and mutual cooperation; (3) Setting up the website to exchange information and ensure professional and social accountability; (4) Increasing capacity via the pedagogical and technical tools in order to pilot and implement the programme packages; (5) Assessment and evaluation at two levels: (i) summative and formative-diagnostic assessment of the pupils, (ii) assessment of the teachers'

attitudes concerning their motivation during the testing and implementation process; (6) Publishing the experience and the results in the Regional Newsletter, in some books and on CDs; (7) Trainer training: altogether 28 teachers in the consortium were trained in trainer competences in a number of workshops; (8) Mentor training: 48 teachers of the consortium have become qualified mentors; (9) Dissemination: the consortium organised seven conferences in order to disseminate the results in each city of the participating member institutions; (10) Team building camp with 100 teachers in Berekfürdő; (11) Participating in national conferences, seminars and workshops which covered almost 6,000 training hours and (12) Testing and implementing 42 programme packages and summarising the experience and the results in the project document.

To sum up the top-down case, there are some key results and experience of the testing and implementation process which were both specific and general. As a result of the project work, the professional and communication network is working after the testing and implementation period in the following formats: e.g. peer-observations with post-lesson discussions, mutual visits and exchange of pedagogical advice, or organising mutual professional workshops on special educational topic. The consortium is planning to continue this mutual cooperation and plans the new project on the basis of the previous one under the umbrella of National Development Plan II. The consortium works as a Professional Learning Community which offers positive added value to both the pupils and the teachers, to plan and implement the competence-based programme packages.

There are also some evidence-based positive results: (1) The pupils' competences have increased mainly in literacy, social competences and learning motivation; (2) The teachers' competences have been increased in skill and curriculum development, cooperative learning and assessment techniques; (3) The growth of the quality of human resources and the educational tools for developing competences; (4) High quality of school management and leadership; (5) Increased capacity of dissemination and multiplication of the results and experience which is the 'engine' of future cooperation with other institutions and consortiums and (6) Sustainability of the results and experience of the testing and implementation of competence-based programme packages which can generate and strengthen new innovations.

The bottom-up case

The Hungarian content regulation system has been decentralised since 1993, when the Education Act regulated the creation of school educational programmes

with local curricula.¹⁵³ This meant a balance between the National Core Curriculum and local curricula. After all, it is necessary to provide effective and flexible space for local innovation. In the middle of the 1990s there was an innovative mainstream in order to develop school educational programmes on the basis of the profile, local circumstances, values, curricular aims, contents, requirements, assessment procedures, etc. There was a high level of adaptation of the curricular frames and patterns when creating local school curricula. Otherwise, almost 25% of the schools (estimated data) developed their own local curriculum on the basis of the previous innovations.

The Centenary Primary School and Vocational School started the innovations in 1992 when projects of interdisciplinary education and curriculum development began with the support of the Foundation of the Modernisation on Education (KOMA). The Innovative Curriculum Team (five teachers and the head of the school) designed and implemented a programme based on skills development and on an interdisciplinary approach to tackle the problems of the existing fragmented subject structure and a lack of relevant knowledge. The project focused on pupils' activities and required motivating teaching methods, team work and effective skills development.

The second innovative phase started in 1994 and focused similarly on skills development and interdisciplinary education. The theoretical and practical base of the project was the Multiple Intelligences (MI) international programme by Howard Gardner. The Innovative Curriculum Team established four MI topics: Air, Water, Earth and Fire. These placed the emphasis on learning, communication, cooperation and problem-solving competence areas. Every Innovative Curriculum Team member organised a sub-group with four teachers in order to develop an interdisciplinary project on each topic. As a result of these two innovative processes an increased knowledge of curriculum development, strengthening team work among the teachers, and a renewed educational culture in the staff were all clearly observable.

In 1995 the third innovate phase was of the school educational programme and the local curriculum started developing. On the basis of the previous processes, the so-called Local Curriculum Council was established with 21 teachers, three parents and the head of the school (61 teachers of the staff). The Local Curriculum Council worked on common values and aims, the different subject areas and feasible integration, the numbers of lessons, the priorities of the teaching and learning methods and tools, and the main principles of assessment. The outcomes of developing the school educational programme and the local curriculum were the follow-

¹⁵³ Education Act 1993. LXXIX. 44-48.§.

ing: 12 different meetings, four regional workshops on the experience and one conference organised, task forces in the staff set up, and two publications. The new school educational programme and the local curriculum were finally introduced in 1998.

In 1999, the fourth innovative phase, the international project on International Network of Innovative Schools (INIS) organised by the Bertelsmann Foundation in Germany, began. The knowledge background was based on school self-evaluation (Scotland) and accountability (Canada) studies. There were about 80 schools participating from eight countries to analyse the innovative processes in order to develop their own self-evaluation system. The analysis was built on specific dimensions and performance indicators. For instance, the main dimensions were: Leadership, Learning and Teaching. In other words, analysing the Learning and Teaching dimension meant focusing on local curriculum, learning and teaching methods, assessment techniques, homework and extra-curriculum. The main qualitative and quantitative research methods were interviews, questionnaires, checklists and research portfolios. There were 150 pupils and 28 teachers in the projects in the Centenary School. Parallel. With the work of this seven-year international project, a national quality assurance programme started in Hungary as well. This was a 'lucky meeting' between the international experience and the national needs. The school quality assurance and development programme has been in operation since 2000.

The fifth innovative phase was launched in 2007 and involved: (1) developing a differentiated and personalised learning curriculum in some subject areas (Mother tongue and literature, Maths, Biology, Arts, History, English); (2) focusing on key competences (mainly Learning to learn). As for the latter, via a half-year long training workshop on this topic, the teachers practised curriculum planning, development and assessment for learning. Now the team of teachers are trained and qualified to exemplify consistency in lesson planning, working on formative assessment techniques and supporting and developing learning repertoires.

To sum up the top-down and the bottom-up cases, there are some common phenomena on the basis of the experience and the above-mentioned processes. First of all, at the beginning of the innovation it is necessary to ensure the knowledge background (national and international) and diagnose the starting situation. Secondly, it is necessary to plan and operationalise the process of curriculum development, organising the network focusing on some competences and project areas. The techniques and tactics of the small steps are really effective in order to execute a 'bigger jump' from the legal curriculum to the applied one. Thirdly, there is an obvious need to disseminate the experience and the results in order to communicate the best practices, to publish 'what works' in and outside the class-

room and to increase teachers' self-confidence. Finally, continuous curriculum evaluation is an important part of the competence-based development process. There are two levels of this curriculum evaluation: (1) an analysis of the coherence and consistency of the curriculum and (2) the creation and strengthening of a feedback and assessment culture at both the macro-level of the education system and at school level. From the top-down and the bottom-up cases, the main message is evident: to move from teaching-centred education to learning-focused development.

Poland

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Introduction

In the early 1990s, the education system was modernised in line with the in-depth political and economic changes. Introduction of new curricula was the most important component of the educational reform. The change was spread over a number of years. The concept of key competences appeared many times in the documents, although initially without using this term. Later, with popularisation of the idea within the international educational debate (Council of Europe, DeSeCo, PISA), it was more precisely defined. In the newest version of the curriculum base to be introduced in schools in September 2009, there is a direct reference to the set of key competences, as defined in the Recommendation of the European Parliament.

Official documents cannot fully reflect and shape school life. This depends upon the skills and commitment of the staff, cooperation with local communities and many other factors. NGOs played an extremely important role in developing and fostering innovative solutions facilitating the learning of new competences. Hence, a debate on key competences was conducted along the two main routes: the official, relating to the formal reform framework and the non-official focusing more on school practice.

In the early 1990s, Polish education faced significant financial difficulties as a result of the transformation of the economy. At the time, the Ministry of Education adopted the ‘minimum’ curriculum, reducing the number of teaching hours under the mandatory curricula designed for individual school grades. Since, at the time, the curricula were universally criticised for being overloaded (mainly with detailed, encyclopaedic type information) the Ministry decided to ‘slim down’ the curricula. At the same time, schools (and local governments) were provided with a certain margin of freedom to define the curricula they implemented. Several teaching hours were left for the head teacher to use in order to meet specific school needs. However, in order to ensure that a coherent curriculum was implemented in individual schools, a certain ‘minimum content’ needed to be specified for the teacher to pass on to students. Thus, a minimum curriculum was developed as core

knowledge – the most important content, necessary and common to all curricula implemented in Polish schools. This raised concerns that nothing over and above the minimum would be provided, thus reducing the curriculum contents significantly. In the discussion on the scope and function of the minimum curriculum, the concept of key competence was never used, even though the discussion, for all practical purposes, focused on the issue.

Once these temporary changes were introduced, work began on the development of an overall reform of the curricula. The ‘Curriculum Concept for General Education in Polish Schools’ was announced in 1991 to define ‘official minimum curricula’ as the ‘educational content to be obligatorily included in each and every curriculum admitted for application at schools’. The document did not refer to competence (consequently there was no mention of key competences).

Centrally defined and inflexible curricula by no means encouraged a search for new solutions and innovation and references to competence, instead it favoured narrowly defined (easier to grade) skills and knowledge.

The discussion which broke out at the time included calls to define key competences (although the precise term was not used) as basic education contents instead of only knowledge and information.

As late as 1995 the Ministry of Education began the implementation of the Project ‘Kreator’, supported by EC PHARE funds, to ‘include key competences into the teaching process’. Certainly, these competences needed to be defined. The symposium of the Council of Europe ‘Key competencies in Europe’ (Bern, March 1996) brought inspiration. The discussion carried out during the symposium and the conclusions became a starting point for proposing the following list of key competences of the KREATOR Project:

- Planning, organisation, and assessment of self-learning;
- Effective communication in various situations;
- Effective team work;
- Problem solving in a creative way;
- Efficient use of computers and IT.

The Project was implemented by a group of teachers working in teams in several Polish towns. Owing to their commitment, the Project, from the outset, focused on practical results. A number of guide-books were prepared, describing ways to introduce key competences, to organise classes and school operations, and to grade.

It is worth quoting an extract from one of these guide books:

If, in your school, you want to undertake a task of including key competences into your teaching, remember some issues that seemed important to us.

- *Think, together, what do your students need key competences for? Develop a school's own tasks looking into actual needs of your school students after graduation and what you can and want to give them instead of looking into regulations only. Doing anything against self is, in majority, a loss of time and serves no purpose.*
- *Remember, if you require your students to use their key competences you have to use them themselves in the first place. We have, many times, found ourselves breaking rules of discussion or effective team work. We are aware that it is more difficult for teachers to communicate with students than for students to communicate between themselves.*
- *Teacher's work style, its role during classes, is the most important. Key competences can be acquired by students exclusively when performing their tasks independently. The so-called 'hints' are only to cheat our own conscience and make true learning, practically, impossible for students. This change of our own role can become a nightmare but without it we will only change boards with beautiful slogans while the essence will remain the same.*
- *We do not have to move away from skills and knowledge in subject teaching if we want to shape key competences. Each group task should begin with an understanding of one's role in a team; each exchange of views should follow the rules of effective communication. If a teacher, after the task is performed asks not only for results but also for methods applied, the students will get used to thinking in terms of the learning process. This reflection becomes – for both the student and the teacher – a source of planning the key competence development.*
- *Assessing the use of key skills by the students is the most important and, at the same time, the most difficult process. There are no ideal methods of assessing the key skills. Teaching staff in each school has to agree upon their own ways and means. This debate has its own and extremely high value in itself that justifies undertaking efforts in the area of key skills at schools.*

When EC PHARE financing stopped, the team was dissolved and the process of defining key competences was discontinued. The Project results were used only to a minor extent in further curriculum reform work.

Examination of Student Skills performed, in 1998, by the research team from the Centre for Science Policy and Higher Education was another interesting undertaking. Research focused on the following key competences:

- Searching for and processing of information;
- Critical thinking;

- Communication;
- Mathematical literacy.

The survey covered two age groups: 14–15 and 17–18 and in total ca. 2000 students from 69 schools.

It was only a pilot, with selected key competences to be continuously monitored, but this turned out not to be the case. When the survey results were published in 1999, preparations for the PISA Programme were well under way. The Programme turned out to be a universal (also providing international comparisons) monitoring tool. Unfortunately, neither the results of the pilot survey nor the debate on the PISA concept and measurement tools found any major reflection in expert discussions or in a broader public debate on the design of the educational reform in Poland.

The International Adult Literacy Survey (IALS) generated much greater reaction. Its most important effect was, perhaps, the introduction of the notion of ‘literacy’ in the language of the debate – referring to the continuum of various levels of text use and processing. Earlier, the Polish language only used the notion of ‘illiteracy’. There was no notion describing the various competences of persons who were not illiterate.

In 1999, the overall educational reform was implemented to cover the changes in the educational system structure, programme, assessment, management, and financing.

The following reform assumptions were adopted:

- *Education (moral education, upbringing) and teaching should become an integral part of work of a school;*
- *Schooling should preserve proper proportions between transfer of information and development of skills and upbringing;*
- *The student is the subject of education; hence, student development needs should constitute the point of entry for the education process instead of subject requirements – equivalents of academic knowledge;*
- *Education has another important objective i.e. providing students with fluency in, at least, one foreign language and computer skills.*

Changes were expected to remove a surplus of encyclopaedic information from curricula and focus schools’ attention on the development of independent thinking and obtaining, selecting, and processing necessary information. The schools were assumed to be able to use various curricula which were available on the market or self-developed.

The main document was the 'Basic Curriculum for General Education' (*Podstawa programowa kształcenia ogólnego*) which defined what had to be common for all students after introducing the different curricula.

The basic curriculum was expected to contain the 'canon of basic teaching contents' defining 'competences and skills to be mastered by a student' and 'attitudes to be supported by teaching and education'. In the introduction to the document, the authors stated: 'Sets of mastered knowledge, skills and attitudes developed can be referred to as competences'. This way, the notion of 'competence' found its way, for the first time, into an official document. Nonetheless, besides the above quotation, the term 'competence' was never used in the basic curriculum. Descriptions of requirements equivalent to competences that may be considered 'key', can be found in different parts of the document: e.g. in the Introduction, which describes the general tasks to be performed by a school, it says: 'School should develop skills of thorough and team work and teach independence'. At the same time, in the part relating to the teaching of Polish language, there is the following provision: 'Introduction of students into the learning technique and providing them with independent brain work tools'. This provision seems to be also included in parts relating to other subjects, but it is not the case.

'Basic curriculum' described what a student should master at individual levels of education. However, it did not provide guidelines on how this should be achieved. Teaching curricula and text books were developed on the basis of the 'Basic curriculum'. Schools each year obligatorily adopted an 'upgrading programme'. However, it is difficult to assess the extent to which provisions of the Basic curriculum were implemented with respect to key competences. This is measured, to a minor extent, by examinations conducted at the end of each stage of education. Inspectors who oversaw teaching were more inclined to check whether a school had an 'upgrading' programme than to check how it was implemented.

The overall reform of the education system triggered a lively public debate focusing, primarily, on the purpose of the system structure change and introduction of gymnasias (lower secondary schools). Introduction of external, state examination system raised emotions. The debate also covered questions such as: which books should be included in the required reading canon and should maths be a mandatory subject in the maturity examination. Lesser importance was attached to the issue of broader description of tasks to be performed by schools and there was no mention of key competences.

Base curriculum became the object of severe criticism. Five years after its introduction, the Ministry requested an independent expert team to assess its performance and to prepare draft amendments. Without going into detailed compara-

tive analysis of both documents, we would like to point to a change in approach towards key competences. In the introduction to the draft new base curriculum we can find the following assumptions:

‘The primary task of a school is to prepare young generations to creative participation in the open, democratic society. To every student schools offer education balancing incentive to be inventive and attachment to traditional values. Main components of this education include:

- *A rich repertoire of implementation strategies for students to use resources of instrumental skills and knowledge (understanding of reading and listening to texts in both Polish and a foreign language, mathematical and logical reasoning, computer fluency) to develop own problem solving projects,*
- *Skills regarding cooperation with others to seek and improve problem solving techniques, including discussion skills and the matter-of-fact attitude towards criticism,*
- *Rooting in the Mediterranean axiological tradition, including appreciation of values such as freedom, justice and patriotism’.*

Further in the introduction the authors formulated certain guidelines for schools to operate in order to foster values and attitudes related to key competences.

‘The school educates students i.e. integrates teaching and upbringing into a single process. The school is a community open to opinions of students, their parents and local communities; applies democratic procedures of dispute resolution. Teachers cooperate between one another to ensure that all students receive fair education. They support values they teach with their own behaviour and attitudes’.

The descriptions of requirements designed for various subjects (similar to the effective Basic Curriculum for General Education) included provisions that, in a way, defined key competences.

History: *‘School shall provide students with the opportunity to embark upon independent individual, and team research activities’.*

Maths: *‘Responsible thinking skills i.e. uttering certain judgments, justified by deduction, critical analysis of information and challenging erroneous thinking by provision of appropriate examples.’*

Physics: *‘Research attitude: skills in the area of observation, asking questions, performance of experiments, and drawing conclusions from confirmed facts.’*

Experts sought to arrive at a clear definition of the tasks to be achieved by the document, assuming that whatever teachers were trying to teach was designated, primarily, by the examination requirement standards. Hence, the base curriculum should clearly define these requirements. With this approach, it is difficult to refer

to key (i.e. general, comprehensive and, often, difficult to measure and assess) competences.

The draft triggered a public debate but, due to political changes, no amendments to the effective law were prepared.

Many earlier proposals and conclusions drawn from the discussion have only recently been applied. After nearly one year of work by the expert team, a new base curriculum was prepared which should be implemented as of September 2009. The document referred directly to a set of key competences defined in the Recommendation of the European Parliament¹⁵⁴, with the development of key competences being defined as the prime educational objective.

‘Contemporary educational research identifies three main areas of education: reading skills with understanding, mathematical literacy and skills in reasoning appropriate for science jointly defining student’s preparation to embark upon further professional and educational paths irrespective of the profile. Polish students produced satisfactory results only in reading literacy; in the remaining two areas results achieved by Polish students deviate from the averages for developed countries members of the OECD. According to the survey results, insufficient development of independent thinking skills of students is the major weakness of the Polish education system. At the same time, broadly defined reasoning skill is, today, necessary, since it gives the graduates of universal education abilities in the following areas: logical thinking, effective operation in the contemporary world of excessive information, and understanding of the surrounding world. Schools should develop reasoning skills while the basic curriculum should stimulate the teachers to perform this task.’

The precise definitions of key competences are listed further on in the document:

Major skills obtained in the course of general education include, as follows:

- *reading – defined as understanding skill, the skill of using and reflective processing of written texts, including texts of culture, leading towards achievement of one’s own objectives, personal development, and active participation in social life;*
- *Mathematic thinking – skills to use math tools wherever required by the demands of everyday life and ability to formulate judgments based upon mathematical thinking;*

¹⁵⁴ Proposed base curriculum for general education also takes into account the Guidelines of the European Parliament and the Council of 18 December 2006 regarding key competences in the life-long learning process (2006/962/WE)

- *Scientific thinking – skill to use the scientific knowledge to identify and solve problems and to formulate conclusions of scientific nature based on empirical observations regarding nature or the society;*
- *Communication skills in mother tongue and foreign languages both in writing and speech;*
- *Efficient use of modern information and communication technologies;*
- *Ability to search for, select, and critically analyse information;*
- *Ability to recognize own educational needs and learning needs;*
- *Team work skills.*

Obviously, certain competences will be acquired by students if the school is able to ensure appropriate development conditions. The best text books or the wisest programmes will never teach team work if the teacher fails to encourage these activities. Will that happen? The future will tell.

NGOs perform an extremely important role in proposing and fostering innovative projects to develop key competences.

In Poland, the shift in teaching towards competences emerged before it even started finding its way into the national curriculum. It was initiated by educational NGOs, whose leaders were Western-trained, inspired by best practices they observed when they went on study visits. Several new powerful organizations were established in the early 90s, such as the Polish Children and Youth Foundation (PCYF, *Polska Fundacja Dzieci i Młodzieży*), the Centre For Citizenship Education (CEO, *Centrum Edukacji Obywatelskiej*), the Junior Achievement Foundation of Poland (*Fundacja Młodzieżowej Przedsiębiorczości*) and many others working on a smaller scale. They carefully crafted their programmes and sought financial support and media coverage.

One of the most innovative examples of seeking external help was the Centre's for Citizenship Education campaign *Classy School* ('*Szkoła z klasą*', pun intended). It was co-run by the Centre and Poland's biggest daily newspaper, '*Gazeta Wyborcza*'. The idea, the pedagogic framework and the guidance were provided by education specialists from the Centre, but all the operations were carried out at and by *Gazeta Wyborcza*. The aim was to promote the initiatives of students, of individual teachers, but also at the school level. The campaign, planned for ca. 400 schools involved over 5000. Because of its success, several editions were undertaken, the later ones revolving around particular skills (Lego, Cogito, Ago – I Read, I Think, I Act) and developed into the complex, multi-stage system of facilitating change in education, with sub-programmes directed to the whole schools, individual students, informal student groups, individual teachers, and student-teacher teams. The successful participants (the ones that completed all the

tasks chosen from the variety offered and which passed the evaluation) were able to receive further training in the ‘Classy School Academy’.

Two especially innovative features of the programme were its ‘on-line-only’ character (all the tasks were reported via on-line forms, most communication via e-mail) and social control as a main form of validation (the reports were the only basis for evaluation at the secretariat, after being accepted they were published on the web. No one formally checked what really happened at school – but all the community knew what the school said it did). Never before had Polish schools ‘gone e’ on that scale nor was so much trust placed in them.

The Centre also runs several other comprehensive programmes promoting innovation at schools (improving teaching, school environment, school leadership). One of them is The Learning Schools Programme (*SUS*, ‘*Szkoła ucząca się*’) which stresses the school ecosystem. These programmes do not refer to key competences explicitly, but address them in different areas of school life, e.g. the formative assessment module promotes learning to learn and a sense of initiative.

Another programme that explicitly promoted competence-based teaching was PCYF’s Life Skills for Employability (2006)/Life Skills: Social Skills Coaching (2007, both editions in Polish under the Life skills – *trening umiejętności społecznych* programme. It was a Polish edition of an international programme run by International Youth Foundation and supported by General Electric. (In Europe, the programme is also run in Hungary. The coverage is not country-wide though – GE chooses to support the development of cities where it has its headquarters: Gdańsk and Łódź in Poland). The programme is directed to vocational and technical secondary schools. As PCYF reports (Annual Report 2006), students are trained in three areas: ‘*personal development, understood as a skill of an appropriate evaluation of one’s resources, setting goals and leadership; problem solving, consisting of communication skills, ability to reach agreement and conflict management; and finally development of work-related skills, understood as the ability to work in teams, work ethics, self-evaluation capacity and ability to take risks, project management, and time & money management*’. The programme consists in teacher training and offers syllabi that may be adapted and used in trainees’ schools and provides micro grants for students’ individual projects (for groups of at least five).

In 2006–2007, 54 teachers were trained, 1,100 students covered and 34 student projects financed (210 teachers and 4000 students planned by the end of 2009).

As PCYF reports, the most noticeable students projects were the: ‘*creation of a recording studio, construction of a prototype of mobile telephone charger for bicycles, photography workshops which ended with exhibitions, activities for kids from orphanages and renovation of a single mother home*’ (Annual Report 2007).

One more very innovative feature of the programme is the emphasis on coaching. This is a new method, which is quite absent in the Polish educational system. The teachers learn how to coach and this framework might also be used after the end of the programme.

The PCYF/GE programme has the most explicit link to the concept of skills/competences, although it is in contradiction with the traditional ‘academic’ skills.

At present, there are hundreds of NGOs implementing nationwide programmes directed at change in education, besides the largest ones described above. Those programmes already set their objectives in terms of key competences, using both subject-based and transversal ones.

They include:

- The Institute for Mathematical Education (<http://www.dyskalkulia.pl/>)
- The Educational Association of Zielona Góra Civilitas (<http://www.civilitas.org.pl/>)
- The Education for Democracy Foundation (<http://www.edudemo.org.pl/pl1/index.php>)
- Wyspart (www.wyspart.pl)
- The Foundation Science for Environment (<http://www.ndsfund.org/>)
- The Stefan Batory Foundation (<http://www.ndsfund.org/>)
- The Gdansk Education Foundation (<http://www.gfo.pl/>)
- The Polish Consumer Federation (<http://federacja-konsumentow.org.pl/>)
- The TP Group Foundation (<http://www.fundacjagrupytp.pl/>)

In conclusion, school practice is changing. New methods (e.g. project-based teaching, working in teams) and techniques (e.g. creative group techniques, such as brainstorming) are widely known and used (sometimes overused at the expense of merit). What it lacks is a comprehensive conceptual background, the language to be used to describe that practice. That would give the actions in schools the much needed flexibility. But even with those tiny flaws, the school practice is far ahead of the national curriculum and even of policy. The direct reference to key competences in the basic curriculum which will be introduced in September 2009 is therefore a positive development. The implementation measures for this new curriculum, including any changes to assessment, will be specified in due course. These measures will be crucial for schools’ reactions to the changes and, in turn, their impact on outcomes for learners.

One could say that the key competences in Poland are present at the micro level (at schools) and at the macro level (general policy documents) but there is no

transmission/articulation between policy and schools. Filling this gap will be difficult with no suitable language, which can only be created by the wide debate, both pedagogical and public.

A case of such debate was CASE-inspired 'Polityka' report (issue 47/2007, Nov.27): 'What Skills for XXI Century', which was based on the discussion between the former ministers of education and CASE experts. The publication was preceded by an Internet survey, in which readers were asked to comment on the skills and competences that were most needed today. The results were fairly surprising, with skills ranging from foreign languages, driving and co-operation to bribing (39% of over 1,500 participants said they wished they knew how to bribe). The respondents agreed that the competences theme was the most important issue in education for the years to come.

The good news is that EU Structural Funds can facilitate communication between policy level and schools. The example of that is the call for projects 'Development of students' key competences' ('Human Capital 2007 – 2013' Operational Program/Priority 3/Measure 3.3/Sub-measure 3.3.4.) This call is, however, focused on 'traditional', subject-based competences: maths, science, ICT and foreign language. The successful 19 projects offered organisation of additional – after school or out-of-school – activities. That would contribute to the knowledge and skills of some students but probably would not change school culture and the provision of key competence in 'mainstream' school education.

Yet this particular call might create the missing link between the 'official' action of the educational authorities and the work of NGOs: the Ministry of Education commissions projects carried out by NGOs.

As there is still ESF funding foreseen for the further promotion of the key competences in Polish education, there will be further calls for proposals. It is to be hoped that more attention will be given to the cross-curricular key competences.

Spain

Authors: Marta Arànega Gallart and Jordi Planas

Introduction

The country's legal situation

Following the passing of the Constitution of 1978, Spain created a unique system of regional autonomy, known as the 'state of the autonomies'. The second article of the Constitution grants the right of self-government to the regions and nationalities that compose the Spanish nation. The State is divided into 17 Autonomous Communities, 50 provinces, and municipalities. The regions considered distinctive for linguistic, cultural or historical reasons have been granted a greater transfer of powers from central government (Departments such as education, culture, and housing). The Autonomous Regions now have responsibilities for education and training that consist of implementing and developing the national standards and regulating the non-essential aspects of the education and the vocational training system, as well as executive and administrative powers to manage the system in their own regions. Note that the Ministry of Education and Science is responsible at the national level, but each Autonomous Region has its own Education Administration.

Law on education

A reform process is currently taking place. It began on 3 May 2006 with the passing of the Ley Orgánica de Educación, LOE (Organic Act of Education). The Act will be gradually implemented over five years, starting in 2006/07 and finishing in 2009/10. According to the stipulation of this Law, curriculum refers to the objectives, basic competences, contents, pedagogical methods and assessment criteria of each area of education regulated by the current Law. The basic contents of the core curriculum require 55% of school hours in Autonomous Communities with co-official languages and 65% in those without. The new law claims to introduce the Lisbon objectives and to reach the results established by the Education and Training 2010 Programme.

Despite good government intentions, the semi-decentralised educational Spanish system makes difficult a complete simultaneous deployment of a law under the same conditions. This entails that some measures and good practices will start to be developed and implemented in some Autonomous Communities whilst not in others.

The case study presented here is an example of how these occur in the educational Spanish system.

The case study

This case study presents an analysis of the evolution of the policy formulation, implementation, practice and impact of cross-curricular competences in Spain.

Before the new Act on Education mentioned above, the evolution of the ‘key-competence’ concept and the implementation of cross-curricular key competences were first introduced in the Autonomous Community of Catalonia¹⁵⁵. Years later, other Autonomous Communities started to join the initiative, and finally, the implementation of cross-curricular key competences was extended by law to the whole Spanish territory. On the one hand, the document focuses on the curricular aspects, and on the other, issues of management or initial and in-service teacher training are also analysed.

The introduction of the Key Competences in the curricula: The Catalan case

What, Why, When & Who: From 2000–2001 to 2006–2007 the Department of Education of the Catalan autonomous government (*Generalitat*) developed an internal evaluation of key competences in public and private compulsory schools to inquire into the basic competences that should to be taught in the Catalan system. The main objective of the project was to adapt the educational practices to the reality of the social environment in order to improve its quality.

How & Where: This project was regulated by the Act of 1997, writing and distributing the specific methodology to develop the project, and containing materials

¹⁵⁵ Catalonia is situated in the northeast part of Spain. The Autonomous Community of Catalonia covers an area of 32,114 km² and has an official population of 7,210,508 of which immigrants represent an estimated 12.3%. The official languages are Catalan, Spanish and Aranese.

to facilitate the process of this internal evaluation. This assessment is carried out through a compendium of external exams called Diagnostic Assessment set by the Catalan Higher Council of Evaluation and distributed by the Catalan administration of the Department of Education. Despite the fact that pupils in compulsory school have continuous and final assessments designed, prepared and evaluated by their teachers, the Department of Education thought that an external assessment could help to improve lacks of knowledge in the key competences. The Diagnostic Assessment evaluates linguistic, technological and scientific competences as well as those related to nature. It comprises six exams:

- Oral expression
- Written expression
- Written comprehension
- Calculus
- Solving problems
- Search and use of information

The tools¹⁵⁶ collect information about three important issues:

- The models of pupils' assessment in schools
- The action of teachers
- The management of the results of this evaluation through the assessment of the key competences.

These materials help to promote the debate between teachers (coordinators, head teachers) and all the members and institutions involved in education (public institutions, inspectors, administration, private associations, technicians, experts and universities) and also guide the reflection on how to improve the educational practice.

During the first few years, the assessment was carried out in each Catalan school following a very normative protocol: the exams were passed on the same day, at the same time, and with the same questions. But in the last few years some changes were introduced. For instance, the exams were distributed on-line, were sat on the day chosen by the school, and after correction, the results were returned by e-mail with the pertinent comments.

In 2000–2001 the exams only assessed the knowledge of pupils in the 4th year of primary school. From 2001–2002, this assessment was also introduced in the 2nd year of secondary school. The Diagnostic Assessment in the 4th year of primary

¹⁵⁶ This web contains examples of exams, groups of work, and all the necessary tools such as documents, pilot programmes, and tutelage, to know more about the key competences in the Catalan system of education. <http://phobos.xtec.es/xarxacb/prescb.htm>.

school and in the 2nd year of secondary school is seen as an opportunity to reinforce the detected lacks of knowledge in cross-curricular key competences before a pupil completes primary or secondary school. Note that primary school lasts for six years and secondary school for four, therefore each cycle has another two years after the Diagnostic Assessment to improve results.

Only a few schools took part in the pilot programme at the beginning of the implementation of this evaluation programme (2000/2001 and 2001/2002). The experience accumulated by those schools became very useful at the time of the general implementation and so they monitored other schools with the help of experts and technicians (2002/2003–2005/2006). In the last school years, the Department of Education of the Catalan Government was able to distribute the exams to the schools all over the Catalan territory.

The results show how there have been some improvements in six years; nevertheless, changes have been more relevant in the field of teachers' methodology and curricular aspects than in the levels of knowledge acquired by pupils. The findings stress how important it has become to change methodologies in order to teach changing goals. The outcomes of education will not be different if teacher practices do not change. The following passage extracted from two interviews¹⁵⁷ illustrates this statement:

(...) pupils, although be able to do some specific exercises because they knew the processes to resolve or to answer the questions (mathematics or linguistics problems), they could not give correct responses because did not understand the wording.

In short, this global assessment has made evident the need to change some crucial aspects of the Catalan school system, such as the way knowledge is transmitted to young people or the methods used, as well as what kind of knowledge is considered necessary in order to become an adult citizen in the realms of theories, practices and emotions.

Sharing experience

All these proposals and changes are also applicable by extension to the rest of the Spanish system. Other Autonomous Communities such as Illes Balears, Islas Canarias, País Vasco, or València, thanks to the studies carried out in Catalonia, decided to introduce this kind of assessment in their systems in order to become

¹⁵⁷ Interview with C.M., head of the curricular area of compulsory education in the Department of Education of the Catalan Government. Interview with M.B., head of secondary at Vedruna Gràcia School, Barcelona.

more familiar with the new European parameters in terms of education. This initiative has facilitated the reception and implementation of the new Spanish Organic Law of Education, LOE 2006.

Evolution on identifying key competences

- The first study on the Identification of the Key Competences on finishing compulsory secondary school was published in 2000 in collaboration with the FREREF, and coordinated by the Catalan Higher Council of Evaluation. Catalonia started the research and later, the Illes Balears and the Islas Canarias joined the project as external participants. The research concluded with the identification of the key competences in five areas of the curriculum: the language, mathematics, technical and scientific, social and labour areas
- National Conference on Education 2000–2002, coordinated by the National Higher Council of Evaluation, established the gradation between primary and secondary of the key competences identified in the five areas of the study in 2000 and general guidelines emerged for their assessment.
- The next step was to identify the key competences of those areas that had not been explored before: information and communication technologies (ICTs), and artistic and physical education. In 2002, the National Higher Council of Education began the study of the identification of the key competences in ICTs which was coordinated by the Universitat Autònoma de Barcelona and in which the Autonomous Communities of Asturias, Castilla-La Mancha, Illes Balears, Islas Canarias, Murcia, País Vasco, and València also took part. Aragón and La Rioja joined the project only during the initial period. Finally, in 2003, researchers of two Catalan Universities started the coordination of the project to identify the key competences in artistic and physical education with the support of Murcia and Illes Balears.

From the Region to the State

All the studies carried out between 2000 and 2005 were very useful in providing the central government with reliable findings concerning the identification of the key competences in the Spanish educational system. Both the methodology, established by experts, and the sample, representing 10 Autonomous Communities, helped to approach the results of the real needs detected in schools. Progress-

sively, school community has internalised and become familiar with the learning practice through the idea of key competences and the need to introduce them into the national curriculum.

One of the most important innovations of the new Spanish Law of Education LOE was the introduction of the cross-curricular key competences and the way they will be assessed. Apart from the continuous and the final assessment, there will be a Diagnostic Assessment in compulsory school. The methodology designed to implement this Diagnostic Assessment will be more or less the same as that described above and was used by the Catalan Department of Education from 2000 to 2006, but one expects that there will be variations because of the diversity of the Autonomous Communities. For instance, there will not be a fixed day or a fixed time to assess pupils. Despite these modifications, the periods chosen to pass the exams have been maintained. So this assessment will be done on completing the 4th year of primary education, and another Diagnostic Assessment will be carried out on completing the 2nd year of compulsory secondary education. These assessments, which are the responsibility of the Education Administrations, are also of a formative nature and are intended not only to guide schools and inform parents, but also to provide information about the situation of the students, the teaching institution and the education system itself, encouraging the adoption of relevant measures to overcome possible shortcomings.

Note that the Act will be gradually implemented over five years, starting in 2006/07 and finishing in 2009/10.

Introduction of the Diagnostic Assessment

The goal is to improve the quality and equality of education, to guide educational policies and to increase the transparency and efficacy of the education system.

Exams will analyse pupils' skills and competences, i.e. their capability to put into practice the knowledge learnt in real life and to solve practical problems in everyday life.

The first assessment will be carried out in spring of 2009. It will assess competences in linguistic communication, maths, knowledge and interaction with the physical world, as well as the social and the citizen competence. The students will pass oral and written exams under different forms (tests, open questions, or short answers). The exams for each competence will take 50 minutes.

Moreover, the study will consider the social economic and cultural reality of the students as well as that of the school centre because the goal is to know how all the factors of the education system work. Following this idea, questionnaires of

context will also be passed to students, teachers, and head teachers of all the participating schools.

For these exams, there will be a random selection of schools in each Autonomous Community (17), and in each selected school, a group of 4th level primary school students will also be selected at random. Some 900 schools and 27,000 students will participate in the assessment.

During the school year 2008/2009, the Ministry will coordinate, in collaboration with all the Autonomous Communities, a pilot assessment to test the model of the exams and the proceedings. 106 primary schools and 84 secondary schools will participate. And during the school year 2009/2010 2nd level secondary school pupils will also take part in the assessment¹⁵⁸.

Focusing on the key ICT competence

Three key competences are basically the most outstanding in Spain: knowledge of the new information and communication technologies (ICTs), communication in a foreign language (English), and the introduction of 'Education for citizenship'. Obviously, the other five cross-curricular key competences are also very important but they have not been so outstanding in the Spanish process of implementation of the key competences because of their long tradition in the curricula. The public administration and the Autonomous Communities have promoted different programmes to improve and accelerate the achievement of these three key competences. Nevertheless, one has been much more developed and disseminated than the others – it is ICTs. The following programmes endorse it:

- The Technical Committee of the Information and Communication Technologies was created in 1999 to improve ICTs in schools. Later, from 2002 to 2005 a programme called IeE (Internet in the School) was developed. And between 2005 and 2008 the programme IeA (Internet in classroom) was created that consists in connecting all the educational centres, training teachers, educational contents, methodological support for teachers, and options to reinforce learning nets. INGENIO 2010 is another programme of the Spanish Government, based on a European initiative, to achieve economic development based on the knowledge and extension of ICTs to all society. One of the tools of the programme is the

¹⁵⁸ <http://www.mepsyd.es/horizontales/iniciativas/educacion-ciudadania.html>.

Plan Avanz@ (Advance Plan), whose objective is to converge with the EU and the Autonomous Communities in the use of ICTs.

An example of the use of ICTs in a rural school in the Autonomous Community of Valencia was chosen to illustrate the implementation and impact of these programmes. The extract is selected directly from the web, so it is related by the teacher himself.

Insert A2.5. TIC in a rural school

Introduction and description of the school

The school of Alcalali is in the Merina alta, to the North of Alicante. It is a rural school, located in the field, without courses per age but with all the pupils of different levels studying together in the same classroom. From an early age the pupils have a global image about education in the school, the contents of courses are studied in a global and progressive way (they anticipate them to their level and retake them in subsequent levels), and beside the academic contents, they always have somebody to help or to be helped by, which develops their self-esteem and trains them to become responsive and supportive. On the other hand, the support materials (library, video, Hi-Fi equipment, computers, etc.) are placed in classroom corners and can be used as tools when needed, and not only during closed weekly periods.

In order to compensate for the cultural lack in little villages, the school has been declared as 'compensatory education' and 'singular action' which gets priority treatment in demanding resources. In fact, there is a long time that we are carrying out a Project of Priority Active Education (PAEP) all together with seven other schools of neighbouring villages (Benigembla, Castell de la Serrella, Murla, Parcet, Sagra, Tormos and Vall de Laguar). It is in the frame of this project that the Computer Classroom takes place allowing pupils to use new technologies.

Internet in the classroom *versus* lessons of Internet

First three-month period

At the beginning of the school year it was taught to pupils of the 2nd and the 3rd cycle of primary school how to switch the navigator programme on and off (Nescape 3.0), how to check e-mails, and how to print letters. They were also taught to send e-mails and to manage the address book.

While they were initiated into the more basic techniques of the e-mail, and after have visited some webs of villages, schools, football clubs, etc., pupils decided to design our own web.

This academic year we have connected the school to the internet, as a pilot experience, to study our training possibilities. These lines will illustrate the use that pupils have made of the internet.

Internet in the classroom

Three pupils of the 3rd cycle researched in the library and wrote a paper about the more relevant data of Alcalali: Description, History, Monuments, and School. Once redacted, my students and I did not know how to introduce information with the appropriate format, so we asked the server technicians for help, and they did it for us. We wrote the texts in Word in Spanish and in Valenciano, but not in English because of the young age of the pupils and their low level of English. Once they learnt to attach files in the e-mail, they mailed them to the server.

Students of the 2nd and 3rd cycle met several friends through e-mail: E, 26 years old, a journalist of a journal of Costa Rica; R, 19 years old, a student in Mexico; and J, a student at the University of Barcelona who knew us through our web site. From middle October to Christmas, pupils of the 4th level had sent a total of 55 e-mails, and the pupils of the 3rd level 7 had received a similar quantity. Each of the sent e-mails had been written in notebooks and corrected by me. The attempts to maintain regular electronic correspondence with other schools came to nothing because other pupils take one or more weeks to answer, which did not motivate Alcalalí's students. Through contacting these schools directly it was detected that other schools only have one hour of computer time per week, with designed and fixed activities by teachers, so that their access to the internet was neither daily nor free. Moreover, Alcalalí's e-mails were much longer than those of other students.

When students met people from Costa Rica and Mexico, they decided to write dossiers about those countries using different search engines and web sites. Dossiers were completed with explanations about the American discovery and colonisation.

Second three-month period

The subject 'Knowing the environment' had a theme about Spain. After two sessions of work, pupils suggested creating a thematic web site where they could upload all the data they had to study. Then, we decided that first of all we had to share the research work and draw up a written report. Meanwhile, we had to try to get information about how to create web sites. We looked on the net and after some proofs done with the basic HTML we managed to learn how to create a simple web.

The next step was to design the organisation of the different pages composing the web. Later on, we collected images, photographs, background screens, interesting addresses, etc. Then all we had to do was to create the website, check it, correct it, and so on.

Nowadays the web is still under construction (there is only a computer and there are three students). Nevertheless, it is possible to visit the web site in order to learn about the project, its contents, and the skills developed by the pupils:

<http://www.arrakis.es/~paepalca/paep/alcanali/index.htm>.

The motivation of the students is optimum and as a teacher I am delighted with the work done. They hope to transmit the same feelings to parents and to the Administration.

Focusing on Teacher Training: The example of the Key Foreign Language Competence

In the Catalan Autonomous Community, a project called *Plan to promote English* was implemented whose main goal is to provide nursery, primary, and secondary school teachers with the competence to speak English. Three levels of knowledge were established. The first is the level necessary to teach English, so teachers have to hold a degree in English and be fluent. The second level is that necessary to teach other subjects such as Education for Citizenship or Social Sciences in

English with a correct command of the language. And the third one is the lowest level which implies that the teacher has to have a minimum level in order to be able to communicate in English through simple structures when necessary (i.e. in exchanges, cultural visits, etc).

In order to facilitate the learning process, teachers are easily accepted in the Catalan EOI's (Official Schools of Languages) where the learning, teaching and assessing system is that proposed by the Common European Framework for Languages. 80 special intensive courses have been offered consisting of 80 hours concentrated in one month (July). Moreover, 250 places are also offered in order to stay for three weeks in England, also taking intensive courses. Even if many teachers were interested in the project, learning a new language takes time and results are not as immediate as they should be. Nevertheless, data show that there will be an improvement concerning the knowledge of foreign languages of Catalan teachers which will impact on students' training.

United Kingdom: Cross-Curricular Key Competences And Teacher Education Project

Author: David Pepper, QCA

The UK education system

The first point to note about the ‘UK education system’ is that there is no such education system. Scotland has always had its own system and the recent devolution of powers to Wales and Northern Ireland created new systems separate from England. As a result, all four of the nations that make up the UK now have their own curriculum, assessment and teaching frameworks therein. This has given rise to some divergences in policies across the UK but, as will become clear, the ongoing processes of reform in each of the nations indicate a similar direction of travel. This case study provides an opportunity to compare the extent to which these reforms relate to national interpretations of the European reference framework of key competences.

Methodology

The information that provides the basis of this case study was drawn from the UK fiches that were developed specifically for the implementation of the key competences project. In addition to information drawn directly from the fiches, sources that were referenced in the fiches were followed up for more information. Interviews with policy makers also yielded useful information for the case study, particularly for qualifications. A study visit to a local authority and a school provided additional material for the case study, particularly in relation to local initiatives relating to the curriculum and pedagogy. Information from these various sources was analysed and is presented here according to a structure that follows the policy process from the formulation of policy frameworks to their implementa-

tion and then their evaluation in terms of their impact on practice in schools and outcomes for learners.

Frameworks

Across the UK, curriculum, assessment and teacher training and development frameworks are being revised and implemented following evaluations and consultations. There will continue to be centrally defined frameworks but schools and teacher training providers are increasingly expected to interpret them in their local context and to meet the needs of their learners. This approach is of particular significance for teachers in England, Wales and Northern Ireland after decades of more detailed central control. The recent focus has been on the curriculum, with each of the nations beginning to implement revised frameworks in 2006 (Wales), 2007 (Northern Ireland), and 2008 (Scotland and England). These changes to the school curriculum will see content continuing to be mainly organised through subjects or broader areas. Yet there is a new emphasis on integrated skills development across the curriculum in all parts of the UK as the following extracts from the country fiches suggest (Insert A2.6).

Insert A2.6. Frameworks revision across the UK

England: If young people are to be prepared for the future they need to develop essential skills and qualities for learning, life and employment. These include skills that relate to learning in subjects as well as other more generic, transferable skills.

Wales: The curriculum subjects have been revised and restructured. The purpose of this change is to identify the skills for each subject and the range of contexts, opportunities and activities through which these skills should be developed and applied.

Northern Ireland: The revised curriculum emphasises the totality of pupils' experiences across the curriculum and challenges teachers to make meaningful links beyond their subject emphasis. Subjects no longer stand alone with their own discretely defined areas of knowledge and skills. Rather they are set out as strands within Areas of Learning which share common curriculum objectives, key elements and skills outcomes.

Scotland: The new curriculum areas are not intended as structures for timetabling. They are simply the organisers for setting out experiences and outcomes. 'Experiences' set expectations for the kinds of activities which will promote learning and development. 'Outcomes' set out what the child or young person will be able to explain, apply or demonstrate.

These extracts also demonstrate a new emphasis on learning through experiences in Scotland and Northern Ireland. This is also visible in England, where

guidance has been produced for secondary schools on developing ‘compelling learning experiences’ which are real and relevant contexts for learning where learners are actively engaged and take responsibility for their own learning. The potential of the emphasis on experiences in these parts of the UK is to make connections and develop skills across the curriculum. In each of the nations a link is made to learning outcomes, which will help teachers and learners to have clear aims, to organise learning, to assess learning and to evaluate provision.

By now it should be clear that in reference to the school curriculum, the terminology of ‘skills’ is generally preferred to the terminology of ‘competences’, which is more usual in vocational education and training. In addition to subject skills, the formulation of cross-curricular skills in the school curriculum varies across the UK. However, each of the systems includes communication; number; and, information and communication technology (ICT). The new *Skills Framework for 3–19 year olds in Wales* incorporates these three skills plus *developing thinking* (particularly planning, developing and reflecting). In Scotland, these three skills are incorporated into the four capacities of the new curriculum, namely: *successful learners, confident individuals, responsible citizens and effective contributors*. In addition, these capacities imply and detail a range of related skills, attitudes and values. In England, as reforms progress, the three *Key Skills* are increasingly referred to as *Functional Skills*. In Northern Ireland, they are simply known as the *cross-curricular skills*.

In both England and Northern Ireland, there is also a set of broadly cognitive and social skills which are identified as: *Personal, Learning and Thinking Skills* (PLTS) in England and *Thinking Skills and Personal Capabilities* (TSPCs) in Northern Ireland:

Insert A2.7. Sets of broadly cognitive and social skills

PLTS in England	TSPCs in Northern Ireland
Independent enquirers	Managing information
Creative thinkers	Thinking, problem solving and decision making
Reflective learners	Being Creative
Team workers	Working with Others
Self-managers	Self-Management
Effective participators	

There are some notable similarities in these two lists of skills and, as in Scotland; they seem closely related to the overall aims, objectives or capacities of the curriculum. There are also similarities between the *capacities* in Scotland, the *aims* in England (successful learners, confident individuals, responsible citizens) and

the *objectives* in Northern Ireland (to develop the young person as an individual, as a contributor to society, as a contributor to the economy and the environment).

A different set of terms is used in relation to teacher education. The frameworks in England and Wales comprise a set of standards for teacher training and professional development. These standards define the required *attributes, skills, knowledge and understanding* for teachers in England or *values, practice, knowledge, understanding and skills* for teachers in Wales. In Scotland and Northern Ireland, *competences* perform similar functions to the standards in England and Wales. The competences define the required *values, practice, knowledge, understanding, skills and application* in Northern Ireland and *specific competences, knowledge, awareness and attitudes* in Scotland. However, in general, cross-curricular teaching and learning are largely absent from the four teacher training and development frameworks.

Yet the school curriculum also contains *cross-curricular themes* as in England. As reform progresses, are increasingly called *cross-curriculum dimensions* which:

‘...provide important unifying areas of learning that help young people make sense of the world and give education relevance and authenticity. They reflect the major ideas and challenges that face individuals and society... They can provide a focus for work within and between subjects and across the curriculum as a whole’.

These dimensions are: identity and cultural diversity, healthy lifestyles, community participation, enterprise, global dimension and sustainable development, technology and the media, creativity and critical thinking. This differs from the approach in Scotland and Northern Ireland where similar themes are integrated into broad areas of learning that comprise the basic building blocks of the curriculum. For example, one of Northern Ireland’s areas at primary level is *Personal Development and Mutual Understanding* and is composed of *personal development and health*; and, *mutual understanding in the local and wider community*. At secondary level, this becomes *Learning for Life and Work* containing: *personal development*; *home economics*; *local and global citizenship*; and, *employability*). However, England’s cross-curriculum dimensions are similar to *learning across the curriculum* in Wales, *knowledge and understanding of: Wales, Europe and the World, Personal and Social Education, Careers and the World of Work*.

Implementation

The four nations within the UK are taking a number of measures to implement the curriculum. These measures can be described as taking three forms: the cur-

riculum framework's status (statutory or recommended), teacher development (training, guidance or collaboration), and evaluation (assessment, inspection, surveys, case studies).

The national curricula in England, Wales and Northern Ireland are statutory, including the cross-curricular skills they specify. The curriculum framework in Scotland is non-statutory and has the status of recommended guidelines. In fact, all of the UK fiches suggest that guidance for schools and teachers on organising the curriculum, teaching and learning is an important aspect of implementing cross-curricular skills. England has followed Northern Ireland in developing a 'big picture of the curriculum' which encourages schools to consider all the components in and around the curriculum, including cross-curricular skills. England has also developed specific guidance on cross-curriculum dimensions and on progression in personal, learning and thinking skills. In Northern Ireland, there is guidance for development and progression in thinking skills and personal capabilities and 'connected learning' or 'thematic units' across the curriculum. In Wales, there is a new skills framework that provides guidance on developing skills across the curriculum. Like England, Scotland is planning to produce new guidance on cross-curricular themes.

In Scotland, meeting the ambitions for A Curriculum for Excellence involves schools in working in partnerships with other schools, colleges, universities, employers, youth work, the voluntary sector and other partners. In Northern Ireland, a Partnership Management Board (PMB) is the strategic planning group set up to manage the implementation of the Northern Ireland Curriculum and Assessment Arrangements. The PMB Implementation Policy was independently evaluated by the National Foundation for Educational Research (NFER) Northern Office, which is pending publication.

There were surprisingly few references to cross-curricularity in the teacher training and professional development frameworks of the UK's nations. The references to teaching across the curriculum and related knowledge, skills or competences were mainly limited to literacy, numeracy and ICT. However in Wales there were also references to planning and teaching problem-solving and creative skills through the study of all subjects in the curriculum. In Scotland teachers are required to have an awareness of the contribution made by their subject to the wider curriculum. However, it is also important to consider the role of teacher training providers, their use of new curriculum documentation as part of their training and trainee teachers' practical experiences in schools. Indeed, primary schools have tended to take a more thematic, cross-curricular approach to the curriculum through the delivery of the curriculum by one class teacher. The organisation of secondary schooling with individual subject teachers and qualifications that are predominantly subject-based would seem to pose more obstacles to cross-

curricular teaching and skills development. Further, the fact that many teachers in England have requested guidance on making links between subjects may mean that teacher training and development arrangements could do more to prepare teachers for cross-curricular ways of working. In Northern Ireland, training in the assessment of the cross-curricular skills of communication, number and ICT is being provided.

Assessment for learning (which is to say, a particular evidence-based approach to formative assessment) has been emphasised in policies across the UK for some time. Clearly teacher assessment plays an important role in assessment for such formative purposes (Scotland also sees an important role for learners' own record of their achievements and skills by drawing on a range of evidence). Teacher assessment is also a requirement for reporting at key points during primary and lower secondary education across the UK. In addition, only England continues to make widespread use of national standardised tests but even it is now beginning to move towards more use of teacher assessment.

In England, Scotland and Wales, the assessment requirements relate to attainment level descriptions for primary and secondary education that are based around subjects or areas and skills are embedded therein. As a result, learners' skills are assessed and reported within subjects and areas. In Northern Ireland, a different approach is taken. Although schools are required to develop learners' skills through the minimum content of each area, the 'levels of progression' for primary and lower secondary level are based around skills. These skills therefore form the basis of assessment and reporting requirements at these levels. The levels of progression for using ICT, for example, can be found here:

http://www.nicurriculum.org.uk/docs/key_stage_3/assessment_reporting/ks3_uict.pdf.

At the end of lower secondary education, the proximity of qualifications changes the nature of the curriculum. This is because qualifications generally relate to subjects rather than skills (or competences). However, similar skills-based qualifications are available across the UK as discrete units or as part of broader or composite qualifications. These are illustrated in the table below. In England, Wales and Northern Ireland, there are qualifications in the Key Skills of: Application of Number; Communication; and, Information and Communication Technology. In addition, there are Wider Key Skills qualifications in: Improving own Learning and Performance, Problem Solving, and Working with Others. In Scotland, there are Core Skills qualifications in Communication, Numeracy, Problem Solving, Using Information Technology, and Working with Others (but not Improving own Learning and Performance or Problem Solving as in the other nations in the UK). The colour-coding in the Table A2.1 below identifies similarities across these different qualifications.

Table A2.1. Qualifications across the UK

England, Wales, NI	England, Wales, NI	Scotland	England (new)
Key Skills	Wider Key Skills	Core Skills	Functional Skills
Communication Number ICT		Communication Number ICT	- in English - in Maths - in ICT
	Working with others	Working with others	
	Improving learning* Problem solving		

* In full: Improving own learning and performance.

The Key Skills and Core Skills qualifications were developed and implemented in 2000–1 and therefore pre-date the recently revised curriculum frameworks in the UK by several years. However, since these revised curricula have modified their formulations of skills, these qualifications no longer fully articulate with the curriculum. Although communication, number and ICT have retained their place in the curricula, the links between Working with Others, the Wider Key Skills and the curriculum are no longer clear. Thus Northern Ireland, there are cross-curricular skills and TSPCs in the curriculum and then qualifications in Key Skills and Wider Key Skills. In England, Functional Skills are replacing Key Skills in the curriculum and qualifications but whilst PLTS are replacing Wider Key Skills in the curriculum, there will continue to be Wider Key Skills qualifications but not PLTS qualifications. Although the development of PLTS will be encouraged as part of the new diploma qualification, current guidance for teachers on progression in PLTS relates to the ‘recording’ of these skills rather than their assessment. Indeed, the outcomes for each of the PLTS would need further definition for this to be possible.

In England, the transition from Key Skills to Functional Skills qualifications also means a change in the way these skills are assessed. Key Skills qualifications are available at ISCED Levels 1 to 4. At Levels 1 and 2, they are assessed through national multiple-choice tests. At Levels 3 and 4 they are assessed through scenario-based open questions (50%) and a portfolio (50%). Functional Skills are assessed through task-based tests with short answer questions rather than multiple-choice tests or portfolios. The purpose of this change seems to be to provide a more ‘holistic’ assessment and it would also seem to simplify the assessment. The use of task-based questions at all levels rather than multiple-choice questions at some levels may also increase the authenticity of the assessment of skills in context. This is important given the end of the requirement for a portfolio of learners’

work. However, it should be noted that current plans will see the three Wider Key Skills continue to be assessed through a portfolio of learners' work. One final point to make in relation to the assessment of Functional Skills is that the awarding bodies which will develop the specific qualifications will use a common set of principles but are being encouraged to be innovative, for example, by using e-assessment and on-demand assessment. Learners would therefore be able to take the assessment conveniently and as soon as they are ready. An alternative mode of assessment arises from the example of Northern Ireland, where trainee teachers and qualified teachers use an e-portfolio to compile evidence and reflections on their development against the teacher competences. Such an e-portfolio could also be used by learners with the support of their teachers.

This is a good point at which to consider other qualifications- the qualifications in subjects that predominate. Two aspects are important. Firstly, the skills content within each subject qualification, particularly cross-curricular skills. Secondly, the ways in which the assessment of subject qualifications can, like any assessment, engender certain cross-curricular skills. In relation to the first point about content, GCSE and A level qualifications are framed in terms of knowledge, skills and understanding. Although these subject skills are likely to be applicable beyond the rather permeable boundaries of each subject, they are not generally thought of in cross-curricular terms and teaching is therefore focused within subjects rather than across them. However, there are some A level subjects which could be seen as inherently cross-curricular in nature. The A level in General Studies is perhaps the most obvious example, requiring knowledge, skills and understanding drawn from across the range of curriculum. The relatively new A level in Critical Thinking, which explicitly includes meta-cognition or learning to learn competence, is another example. A different type of example relates to digital competence. This is assessed and therefore required in some GCSE and A level subjects (for example, ICT, Art & Design, Design & Technology, Media Studies) and encouraged in others (for example, business studies or science).

In relation to the second point about assessment, the 'high stakes' nature of GCSE and A level qualifications means that a high degree of central control is exercised. This has clear implications for the modes of assessment and there is a strong preference for external testing over coursework. This preference is reported as militating against independent learning and favouring teacher-directed work. Concerns over plagiarism (particularly using the Internet) led to the recent removal of coursework from A level and the replacement at GCSE of coursework with 'controlled assessments' (which involves writing up in a teacher-supervised classroom environment). However, learners will be able to undertake a project at ISCED Level 1, 2 or 3 as part of the new diploma qualification or as a free-standing qualification. The extended project is intended to help students learn to

manage their own learning, which has an obvious link to the learning to learn competence in the EU reference framework of competences.

The emphasis within GCSEs and A levels on skills rather than competences also has implications for the breadth and depth of learning required by the assessment. The assessment of these qualifications is ‘compensatory’, which is to say that attainment is based on performance averaged across the broad assessed domain. This contrasts with more vocationally related qualifications that emphasise competence. Here, competence refers to mastery of the application of knowledge and skills in a specific context. The assessment therefore requires ‘mastery’ of all aspects of the specific assessed domain.

Approaches to assessment in other parts of the UK, although formative rather than summative, are also instructive. Self-assessment and also, in Northern Ireland, peer assessment are seen as having an important role to play in combination with teacher assessment. Learning how to assess themselves and each other is seen as helping learners to develop their cognitive and social competences. In Scotland, a link is also made to attitudes and the positive effect on motivation that this involvement in assessment can have for learners.

National inspection plays an important role in the implementation of the curriculum in each part of the UK. In both England and Scotland, the inspectorates’ remits of the inspectorates refer to system-level, cross-curricular aims for young people’s learning outcomes. These aims are relatively new and were not yet reflected in inspection reports. However, inspection findings from England did relate to cross-curricular links between subjects and in Scotland there were references to key skills or thinking skills in inspection reports. ICT, literacy, numeracy across the curriculum are points of particular focus. The inspectorates in Wales and Northern Ireland are revising their inspection guidance and frameworks in response to the emphasis on skills in Wales and thinking skills and personal capabilities in Northern Ireland. In both nations, this is becoming a major focus of inspection. Moreover, prior to the inspectorate’s evaluation, Northern Ireland is encouraging school self-evaluation and providing schools with tools needed to support this evaluation. This is also an aspect of inspection in England and, increasingly, guidance on curriculum development.

Evaluation findings

Across the UK, revised curriculum frameworks are being implemented and information is being gathered about the impact of these changes. The methodology is

detailed in the following section. Since implementation began only recently, findings about the impact on practice in schools are scarce but are also presented here. Initial findings should be available in 2009. It will be some time before conclusions can be drawn about the impact of the changes on outcomes for learners. However, evidence that informed the revision of the curriculum frameworks is relevant and may be instructive and this is also reported here. Some system-level information is available but it mostly takes the form of case studies or local evaluations. In the case of Wales, schools are at an early stage of implementing new forms of school organisation, curriculum organisation, and teaching and learning to promote cross-curricular skills -but no other information was available yet.

Inspection and monitoring in England

Some system-level evaluative information from England was available from Ofsted (the national inspectorate) and QCA (the Qualifications and Curriculum Authority). QCA recently found that many primary schools have been finding ways to ‘break down subject barriers and take a more skills-based approach to learning’. It also found that the national curriculum may not be adequately supporting schools in this endeavour. This issue provided part of the rationale for the current review of the primary curriculum. However, Ofsted has also identified a problem but at school level, saying that ‘too often in [primary and secondary] schools, the planning of the curriculum does not make coherent links between studies in different areas’. There was a specific Ofsted finding for ICT, where learning across the curriculum was too dependent on specialist ICT subject teachers. This has implications for teacher training and development in ICT for other teachers. There was also a specific finding for work-related learning and for enterprise learning. Schools provision for these areas of the curriculum was described as being of a mixed quality and the extent to which work-related skills were being developed in different subjects was unevenly distributed. Nevertheless, QCA has found that secondary schools are exploring different ways of planning across and within subjects in response to the new framework of personal, learning and thinking skills implemented as part of the new secondary curriculum. However, many secondary schools have requested more guidance about how to manage links between aspects across the curriculum. In terms of outcomes for learners, Ofsted found that schools that focused on developing pupils’ study skills had a considerable positive impact on their engagement in learning.

Scottish survey of achievement

In Scotland, some useful system-level information is provided by the Scottish Survey of Achievement (SSA). SSA aims to find out how well pupils are learning in the primary schools and the first two years of secondary schooling. Each year the survey has focused on one curricular area: English language, mathematics, science or social subjects. SSA has also gathered evidence of pupils' performance in core skills such as numeracy, communications, using ICT, problem solving and working with others. Teachers' judgements form the basis of the assessment of the areas and the skills. In terms of the skills relating to working with others, problem solving and ICT skills, teachers were nominated by local authorities as field officers. They visited a sub-group of the pupils participating in the survey in the pupils' own schools to carry out practical assessments. For working with others, most pupils were found to contribute ideas and participate freely in the discussion and displayed at least some evidence of listening to others' ideas and building on them. An assessment of pupils' attitudes, specifically motivation, was included. Few pupils did not show 'some interest in completing the task'. The assessment of problem-solving skills emphasised 'coming to a consensus over a strategy', which varied substantially across year groups, and completion of the task, which few failed to do.

Piloting the curriculum in Northern Ireland

The recent implementation of the revised foundation stage curriculum for five to seven year olds in Northern Ireland was informed by a national, longitudinal evaluation of a local initiative called the Early Years Enriched Curriculum Project. The findings from this pilot offer some insight into the potential impact of the new revised curriculum. The Enriched Curriculum was characterised by 'a developmentally appropriate curriculum that is more play-based and activity-led than the pre-existing curriculum'. It sought to: remove failure and promote self-esteem; postpone formal reading and arithmetic, focus on oral language skills basic number skills; promote good motor development; encourage creativity through activities; and, encourage children to take responsibility for their own learning.

During the pilot, the Enriched Curriculum was seen as a curriculum for teachers to develop by using their professional judgement. This gave teachers a sense of sharing in the ownership of the curriculum and the pilot. The evaluation of the pilot noted that this was generally recognised as being a characteristic of success-

ful implementations. However, it was argued that the main weakness of such a flexible curriculum was the degree of consistency and coherence of implementation across different schools. This clearly has implications for teacher training and development but also for the basic philosophy of the curriculum and the extent to which it seeks to standardise provision or encourage variation.

The evaluation of the pilot assessed ‘nine dimensions of classroom processes’ that matched the learning goals of the Enriched Curriculum: motivation, concentration, independence, confidence, social skills, respect (for people and property), social and emotional character (well-being). In addition, two dimensions were included that focused on giving children’s tools to succeed in education rather than the traditional concentration on passive knowledge acquisition: higher-order thinking skills, and multiple skill acquisition. The evaluation found that between the first and second year of implementation there was an improvement across all nine indicators in the teaching that was observed and that this was related to specific training for teachers of the Enriched Curriculum. However, there was considerable variation in what teachers believed to be the essential constituents of the Enriched Curriculum.

Yet at an early stage of implementation, teachers noted differences in children’s dispositions, particularly increases in self-discipline, independence, maintenance of attention and concentration, and oral language skills. However, it was not entirely clear what aspects of curriculum innovation were responsible for these perceived developments in children’s learning. In terms of academic outcomes for learners, despite the postponement in formal teaching in reading and mathematics for almost two years, children following the Enriched Curriculum were not disadvantaged at the end of the stage (age seven). There was widespread agreement among teachers that pupils improved in oral language skills, independence skills and in practical maths under the Enriched Curriculum.

The lower secondary curriculum in Northern Ireland was piloted by 15 schools. They agreed to bring in the revised curriculum in 2006, a year in advance of national implementation. Case study evidence of how schools planned for implementation of the revised curriculum has been collected and published. One case study shows how departments at one school discussed and decided how thinking skills and personal capabilities could be facilitated through their subjects. At another school, teachers collaborated across departments to produce units of work relating to these skills and capabilities. Another school, also working collaboratively, was taking a thematic approach to the curriculum but emphasising subject specific skills. It had set up a lower secondary curriculum team that represented all the areas and evaluated work across all departments. Since national implementation began, the local education boards have continued to evaluate schools’ implementation of the revised curriculum and it was reported that many schools are making

specific provision to support the development of cross-curricular thinking skills and personal capabilities.

A local initiative in England

In England, North Somerset Local Education Authority (LEA) has developed a local initiative called *Key Skills for Learning*. Since implementation began in 2006, 51 of the 66 primary schools in the LEA have chosen to participate. The initiative has two major sources of inspiration. Firstly, the cross-curricular key and thinking skills in the National Curriculum: Communication Skills; Enquiry Skills; Reasoning Skills; Social Skills; Information Processing Skills; Problem Solving Skills; Improving own Learning and Evaluation Skills; and, Creative and Thinking Skills. Secondly, the Critical Skills Programme for teaching and Learning whose principles are that: learning should be experiential; learning should be collaborative; learning should be results-driven; and, learning should be problem-based. The LEA is now developing a set of dispositions relating to resourcefulness, belonging and agency.

The LEA has implemented the initiative through an ongoing programme of in-service training for teachers and teaching assistants that emphasises how to teach the Key Skills. Participants receive three days of training and return to school for three months before receiving a further three days of training. They also have access to ‘surgeries’ where they can get advice and support from an LEA adviser. The teaching of the Key Skills is generally characterised by a cross-curricular approach but specific ‘challenges’ provide an opportunity to focus on skills development in particular. A challenge is designed to set a problem for pupils to solve as individuals, in small groups, or in larger groups within a given amount of time that can vary from hours to days. The learning processes in each challenge can vary so that different set of skills are emphasised.

Key Skills teaching methods are at first unfamiliar to teachers, pupils and parents and the effect on pupils’ learning is not immediate. Teachers therefore find the support of colleagues and the LEA to be crucial. The LEA has found that schools find the social skills easier to teach than the other ‘cognitive’ skills. In addition to skills, the challenge also related to the content of a range of National Curriculum subjects. This ‘layering’ was said to make learning more meaningful and helps teachers to cover content across the curriculum. The emphasis on independent and collaborative learning means that there is less direction from the teacher and more observation. What teachers see and hear through this observation

form the basis of assessment of pupils' development of the Key Skills. It was said that over time teachers' observations of pupils' progress develop to become very acute.

The LEA has collected a substantial amount of information about the implementation of the Key Skills in its primary schools. This includes teachers' views on teaching the Key Skills, which are very positive, and the reactions of their pupils, which are also very positive. They are already trying to develop measures of progression in the Key Skills, incorporating both the quantity and quality of attributes that pupils demonstrate. In addition to attainment, the LEA is also planning to develop engagement scales to measure pupils' attitudes towards their learning. These measures of attainment and attitudes are likely to be of use to the independent evaluation of the Key Skills that the LEA has recently commissioned.

A longitudinal project in Northern Ireland

A research and development project, called 'Activating Children's Thinking Skills' (ACTS) was conducted in 50 Northern Ireland primary schools between 2001 and 2004. In the project, frameworks and classroom strategies were developed with teachers to enhance children's thinking skills across the curriculum. The teaching approach was called infusion, where a curriculum topic and a specific pattern of thinking are explicitly taught together. The classroom methods were evaluated in a three-year intervention study (with a control group) in upper primary schools. A particular focus was on the development and analysis of classroom talk that helped the children 'to think about their thinking'. Children's learning was evaluated by the extent to which they reported adopting a more self-regulatory approach to learning-using metacognitive strategies, working harder and putting in more effort. Findings showed positive changes in this direction, though they took time to build and the effects were not even across all learners. The pattern of impact on reading and maths attainment was complex and the effects were small. Video analyses of the ACTS classrooms showed changes in the patterns of classroom interactions and dialogue which were confirmed by teachers' reports about changes in their classroom practices and in their perceptions of themselves as teachers.

Some case studies from Scotland

National contacts in Scotland reported that initiatives relating to cross-curricular teaching are focussing on secondary level because ‘the organisation of primary schools naturally promotes cross-curricular teaching’. Information gathered from head teachers in Scotland suggests that this is having an impact and secondary schools are revisiting their learning and teaching policies and providing professional development for their staff. However, a number of case studies relating to cross-curricular teaching were available and one of these relating to primary schooling.

There were two examples from Scotland, one at primary level and one at secondary level, which implied pupils and teachers working in cross-curricular ways and developing a varied set of skills. Pupils from two distant and different primary schools in Scotland used Glow, the national schools intranet for Scotland, to hold a videoconference. They worked together on a project looking at the differences between urban and island life to develop a PowerPoint presentation. A secondary school in Scotland has been piloting the assigning and marking of homework using Glow, which is the name of the national schools intranet for Scotland. Teachers set tasks and pupils log on when it suits them. Pupils studying a Shakespeare play used the discussion board on Glow to help each other and even to ask their teacher for help.

A further example from a secondary school in Scotland provides an example of a cross-curricular project. The project, called Sporting Design, was developed by two new teachers of PE and design and technology. They wanted to help pupils to develop skills through making connections in their learning. Lessons were prepared using the four capacities of the curriculum (successful learners, confident individuals, responsible citizens and effective contributors), guidance on the principles of curriculum design and some of the draft experiences and outcomes in literacy and numeracy. ‘Responsibility’ was the theme of the year for the whole school. The pupils involved presented their achievements at assemblies to demonstrate how they had taken responsibility for their own learning. A student who filmed the programme is hoping to study film and media studies in the future. This project provided him with an opportunity to develop skills for work in an authentic situation.

One further example is from a secondary school that has introduced a new curriculum and timetable structure. It builds on strong primary/secondary cluster planning and promotes a coherent and progressive 3–18 curriculum framework for learning. In addition to learning through curriculum areas and subjects, young people are encouraged to take part in activities which include interdisciplinary

projects and studies, Community Sports Leadership Awards, e-learning activities, international education opportunities, community events, performing arts, and other shared activities.

Conclusions

Each of the four education systems in the UK is currently undergoing significant changes. Revised curriculum frameworks are being implemented in the light of new perspectives on preparing young people for life and work.

In each of the UK's four nations, the principles that underpin the curriculum frameworks are increasingly emphasising the role of teachers in developing the curriculum in their schools for each learner. In turn, this change has considerable implications for teacher training and professional development frameworks, particularly in England, Wales and Northern Ireland after a long period of more detailed central control.

The renewed and strengthened emphasis on the development of skills within and across subjects and areas also has implications for teacher training and professional development. The case study detailed the constituent elements of the curriculum frameworks, which include aims, subjects/areas, themes and different types of skills. In essence, these elements cover the eight key competences in the EU reference framework. It will be important for the process of implementation to articulate the purpose, meaning and relationship between these elements of the curriculum.

However, teacher training frameworks currently use a different terminology and make only peripheral references to cross-curricular teaching and learning. However, cross-curricular guidance for teachers, particularly on planning, is a major aspect of implementation in each of the nations. In addition to schools, dissemination to teacher training providers will therefore be important and would help to bring coherence to the systems.

Some differences between the curriculum and qualifications were also in evidence but the contribution of subject content and particular modes of assessment (particularly teachers' observations of pupils' progress in the context of learning) to cross-curricular competences was noted, as were the examples of staff in secondary schools working together to plan learning across the curriculum.

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