D2.2 "European State of the Art Report"

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0.1 About this document

This document describes the current state-of-the-art regarding competence based learning in the participating countries of the TRANSIt project.

0.2 Version

Version	Date / Contributor	Summary of Changes
0.1	Wouter Vollenbroek; Katerina Riviou	First draft version; Initial version for partners' input.
0.2	All partners	Input from partners
0.3	Wouter Vollenbroek	Changes based on the input of the partners
1.0	Wouter Vollenbroek	Final version

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Executive Summary

The TRANSIt project is aimed to develop students' key competences through building teachers capacity on competence oriented education. The study was undertaken by a consortium composed of the project leader EA (Ellinogermaniki Agogi, Greece), working in partnership with Noordelijke Hogeschool Leeuwarden (NHL, The Netherlands), University Learning Systems (ULS, Ireland), Universitat de Barcelona (Spain), ADPIOS (France), Bundersministerium für Unterricht, Kunst und Kultur (BMUKK, Austria) and Computer Technology Institute (CTI, Greece).

Key competences

The aim of this report is to provide a comparative overview of policy and practice concerning the development and implementation of key competences in the educational systems of the 6 countries participating in TRANSIt, which are Member States of the European Union In particular, the study assesses the current state of implementing the 8 key competences stated 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 (European Commission, 2006). The eight key competences defined in the European Reference Framework of Key Competences are: 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, sense of initiative and entrepreneurship and cultural awareness and expression.

Competence based learning

The current state of competence based education differs between countries. Austria and Spain have focused their educational system largely on competence based learning. While in other countries competences just play a small part of the general educational tasks. For example, in the Netherlands no national policy concerning CBL occurs. Competences are more or less interwoven in the general program.

Teacher education

The teacher training course varies by country. Where Austria have a competence centered approach to train teachers, Irish teachers need grades for different subjects to be a competent teacher. In addition, beside the considerable differences there are also great similarities between the programs in the participating countries. For example, all teachers need a full-time training course filled with specific internal and external courses.

The situation of competence-based learning and teaching is in all partner countries different. Austria, Greece and Spain are more focused on competences as goals. The Irish and Dutch educational system is more focused on training required skills and knowledge and the French approach draws more on knowledge, skills and social competences. France has a competence-based qualifications framework. Competences have been derived from a job content analysis.

A final conclusion that can be made – based on the situation in the different countries – is the fact that competence-based learning and teaching is not broadly adopted in the different countries. Only Austria and Spain adopted a competence model in their official curriculums, while the Netherlands and Ireland base their educational structure on skills and knowledge,

formulated in goals. However, the willingness to adopt a competence-based approach is present, but the means to do this is lacking.

1. Introduction

1.1 Scope

Competence Based Learning (CBL) should be according to the European Commission one of the cornerstones of education in the 21th century. In this document we describe the current state of the art regarding CBL in the TRANSIt project partner countries.

1.2 Audience

This report is addressed to all the consortium partners, the European Commission and to public in general.

1.3 Analysis framework

The framework used to acquire the data relevant for the state-of-the-art is based on two methods: 1) a literature review and 2) country-specific content analysis. The literature review consists of the analysis of current scientific papers and national and international research reports. The country-specific content analysis is based on reports from educational institutions, which are relevant within the participating countries of the project partners.

1.4 Structure

Chapter 1: Contains an overview of this document, providing its scope, the definitions used and its structure.

Chapter 2: Gives the theoretical background about TRANSIt project and the related objectives

Chapter 3: Describes the current state of competence based learning in Europe, based on the educational systems, national policies and national curricula in the six participating countries.

Chapter 4: An overview of acquiring key competences in teachers' trainings in European countries participating in the project based on national policies/training frameworks of teachers and national initiatives/portals related to educational content.

Chapter 5: TRANSIt and the current situation of ICT in schools in Europe

Chapter 6: European Projects and activities related to TRANSIt project

Chapter 7: Training of teachers on key competences in EU countries with the usage of ICT

Chapter 8: Teachers' Competence Frameworks. Indicative teachers' competence frameworks are presented.

Chapter 9: Conclusions

Chapter 10: References

2 Theoretical statements about TRANSIt

The TRANSIt project aims to develop an innovative teachers training framework that will improve teachers awareness of key competences and teachers professional skills regarding the didactics and assessment of key competences. In addition TRANSIt will raise educational stakeholders, policy makers and school principals' awareness to support teachers in implementing competence based teaching methods in their everyday practice.

The primary objective of the state-of-the-art report is to describe the current state of competence based learning in European countries. In this chapter some basic statements about competence based learning are presented.

2.1 Competence

"Competence means 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" (European Communities, 2008, p. 11).

Competence based learning
Competence based learning implies according to Biemans et al (2005) the creation of opportunities for students and workers, close to their world of experience in a meaningful learning environment (preferably professional practice) where the learner can develop integrated, performance-oriented capabilities for handling the core problems in practice.

2.2 Key Competences

The DeSeCo programme (2000) identified four analytical elements of key competences: 1) they are multifunctional, 2) they are transversal across social fields, 3) they refer to a higher order of mental complexity which includes an active, reflective and responsible approach to life and 4) they are multi-dimensional, incorporating know-how, analytical, critical, creative and communication skills, as well as common sense. In this research project we identify the eight key competences framed by the European Commission (2006). The European commission identifies and defines the key competences that citizens require for their personal fulfilment, social inclusion, active citizenship and employability in our knowledge-based society. These key competences are:

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
8. Cultural awareness and expression

By keeping these key competences in mind, students can learn to act competently in an academic/scientific way as a citizen of a modern society (learning for life) in professional situations (learning for a profession), on the labour market (learning for a career) and in the own learning processes (learning to learn). Some skills needed to achieve the mentioned key competences are: initiative, critical thinking, creativity, initiative, problem solving, risk assessment, decision-making and the constructive management of feelings (Gordon et al, 2009).

2.3 Competence Frameworks

In order to define the required competences for a specific job or task role, competence frameworks are designed and developed, such as the Europass Competence Framework for describing Foreign Language Learners' Competences, and the UNESCO ICT Competence Framework for describing Teachers' ICT Competences (UNESCO, 2008). A critical aspect of all competence frameworks is the degree of detail. If a framework is too general, then its direction can appear vague. If, on the other hand, it is too detailed, then its focus can become diffuse and it may lose credibility (UNESCO, 2008). Especially for School Teachers, UNESCO (UNESCO, 2008) has defined an ICT Competence Framework, which aims to provide a basic set of qualifications that allows teachers to integrate ICT into their teaching, to advance student learning, and to improve other professional duties.

A competence framework is a model that broadly defines the blueprint for 'excellent' performance within an organisation or sector. Generally the framework will consist of a number of competences, which can be generically applied to a broad number of roles within the organisation or sector. Each of these competences is then defined in a way that makes them relevant to the organisation or sector , using language that is clear enough to ensure that everyone has a common understanding of what 'excellent' job behaviour looks like within the generic context. This common understanding then becomes the benchmark against which the performance of an individual, team, project, or even entire organisation, can be assessed (C-PAL, 2007). According to the UNESCO ICT Competency Framework it is not enough for teachers to have ICT skills and be able to teach them to their students. Teachers need to be able to help the students become collaborative, problem-solving, creative learners through using ICT so they will be effective citizens and members of the workforce. For that reason the project has a great emphasize on the following aspects a teacher is confronted with: 1) understanding ICT in education, 2) curriculum and assessment, 3) pedagogy, 4) ICT, 5) organization and administration and 6) teacher professional learning.

2.4 Technology Enhanced Learning

To live, learn, and work successfully in an increasingly complex, information-rich, knowledge-based and rapidly changing society, students and teachers must utilize technology effectively. These rapidly changing circumstances pave the way for technology enhanced learning. In *Technology Enhanced Learning* (Goodyear & Retalis, 2010) there is a special focus on the role of technologies in the learning processes of people. This description of Technology Enhanced Learning (TEL) is a synonym for the words computer-assisted instruction (CAI), computer-aided learning (CAL), networked/online learning and e-learning. In this project we use the concept of TEL. The key competences mentioned in the European Reference Framework (2007) form a source for lifelong learning. Technology can form the basis for developing an approach that fits with the needs of all teachers in Europe. By

developing an online platform for creating, sharing and collaborating on other ideas, it is possible to make a European accepted competence based learning approach; an approach that is according to the Department of Education and Training in Western-Australia a life-long learning process (2004). Current research on TEL are focused on classroom learning at a distance, online learning, digital libraries, special collections and online resources, virtual laboratories, e-Collaboration and virtual environments. This confirms that there are different possibilities of using technology for educational purposes.

2.5 Key concepts and terminology for TRANSIt project

The development of a standardized training framework for implementing competence based learning approaches in European educational settings has grown in importance. The main goal of the TRANSIt project is for that reason the development of a widely accepted training method for practicing competence based education. Some of the key concepts we use in this context are competence based learning / teaching and education in primary and secondary schools. Other concepts are:

- Transversal and cross-curricular competences
- Summative and formative assessments
- Learning materials
- Tests
- Training

3 European educational Policy & Key Competences / Competence based Learning in Education

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 (Gordon, et.al, 2009). A review of TRANSIt partner countries follows.

3.1 Greece

The implementation of a lifelong learning strategy in Greece is seen as a unified process, involving compulsory education, VET and adult education. The implementation of key competences and the modernisation of the education system are strongly related to European integration. There is a need to develop human resources in order to bring about a more flexible and capable workforce, able to communicate in foreign languages and via ICT.
The development of key competences in Greece is also strongly linked to social inclusion and societal cohesion as well as economic need. Educational developments need to include minority ethnic groups and the disadvantaged.

The move towards a competence-based approach should be seen in the context of the internationalisation of political economy. In this context, EU policies are based on collaboration and policy convergence between Member State governments. The open method of co-ordination provides a policy tool – Peer Learning Activities – to bring about a more evidence-based approach to policy formulation. There is a view in Greece that Member States need to work together to fill the implementation gap. Major aims of both educational and employment policies in Greece include: employability; flexible re-skilling; social inclusion; active citizenship.

Greece has a coherent strategy for the implementation of reform in both compulsory education and in vocational education and training. This includes: policy initiatives designed to encourage: a more student-focused approach to teaching and learning; the modernisation of textbooks; enhanced use of ICT; a programme for the updating of teaching skills (learning to learn, meta-cognition, digital competences); an evaluation system based on a combination of Quality Assurance procedures and an evidence-based policy approach. (Education and Training, 2010)

3.1.1 Educational System

The structure of the educational system of Greece is presented in

 as presented in a report: *The structure of the European Education Systems 2011-12 Schematic Diagrams*.
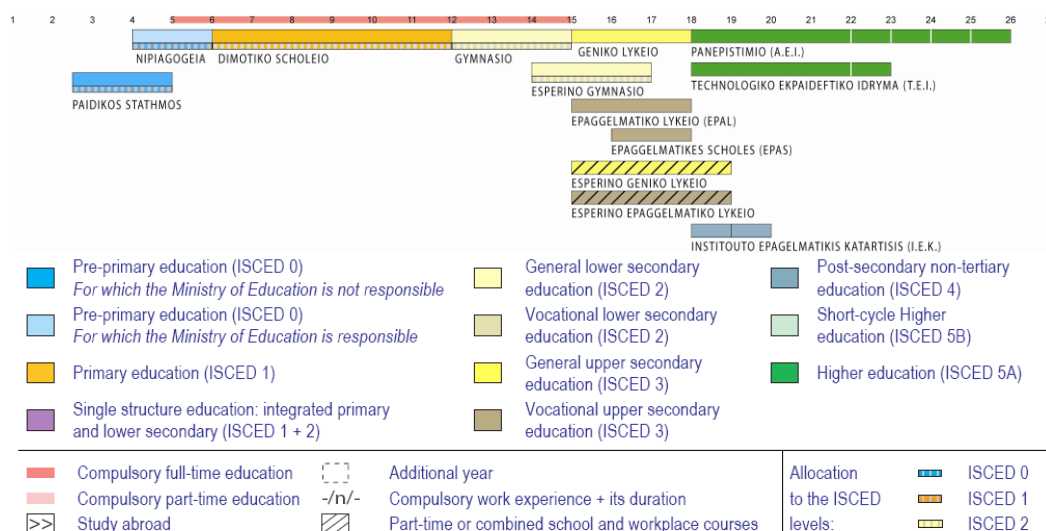
Figure 1 Educational system in Greece

According to a survey of the Greek Ministry for Education, Lifelong Learning and Religious Affairs in Greece:

- 35% of teachers claim they use ICT in their lessons (average in the EU 74%).
- 31% of teachers answered they have no or almost no experience in using ICT (average in the EU 7%).
- 40% of schools have their own website (it is estimated that only 10-15% of them are active).

Only 1.4% of teachers of Primary and 3.7% of Secondary Education have an active website on the Greek School Network (GSN).

3.1.2 National Policy

Digital School

Digital School is a holistic approach. The main objective of this initiative is to boost the adoption of new technologies in formal learning procedures. In this context it aims at:

- Providing quality internet connection to all schools and students
- Providing eLearning resources for curriculum modules
- Training teachers in the use of digital learning resources
- Providing a fully integrated platform for eLearning and the management of digital educational content.

Regarding teachers training:

- 103,000 teachers (57.2% of total) were trained in the educational use of ICT tools in their subject field and the use of interactive whiteboards and the digital educational platform "Digital School".
- A special e-platform for teachers' distance education was created.

Figure 2 Educational Portal, Digital School, http://digitalschool.minedu.gov.gr/

3.1.3 National Curriculum

Greece is an example, where a legislative change took place in order for CBL approach to be introduced. Pilot curricula for competence driven education based on the National Life Long Learning Strategies for the 'New School' of the Greek Ministry of Education, Life Long Learning and Religious Affairs have been introduced.

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'.

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.

For all subjects 3 types of objectives have been defined: cognitive, affective and 'psychokinetic'.

− 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.

Table 1 Greece: Transversal objectives recommended for teaching all subjects

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 has 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 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.

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 has 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.

Table 2: School practice: Greece

Assessing cross-curricular competences

In Greece, this is done implicitly. Regarding assessment of students in Key competencies currently five countries among them Greece do not administer any national tests in compulsory education (European Commission/EACEA/Eurydice, 2012).

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'.

Assessing knowledge rather than competences
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.

Portfolio assessment
In Greece, pupil self-assessment is intended to enable pupils to acquire meta-cognitive skills through the control and management of their own learning.

3.2   The Netherlands

3.3.1 Educational System

A competence-based learning (CBL) approach is in most educational institutions in the Netherlands not a standardized part of Dutch education. Only in intermediate vocational education (VET) some core competences are defined. However, the concept of competence is a very popular theme in the Dutch educational system, both at the level of policy-making and the level of educational practice. Dutch educational stakeholders see competence based education as a source of innovation. Thus, Biemans et al (2005) conclude that there is a growing recognition of the need for vocational education to be directed at developing competencies, and not just at acquiring a diploma; the emphasis has to be on capabilities and not on qualifications. Teaching in VET will therefore have a special focus on a practice, in which students learn to work independently. This means that they learn to function in a situation that is vocational. In case of most VET-schools, they allow students to acquire three elements: knowledge, skills and attitudes. These three elements form the basis for several different competencies. The reasoning of the policymakers within VET to implement competence-based education is the expectation that the gap between the labour market and education can be reduced through competence-based education. Main goals of competence-based learning are:
- Improvement of the connection between intermediate vocational education and the labour market;
- Increase the flow to higher professional education;

- Improve the attractiveness of current education.

In Dutch primary education, schools decide how to organize teaching. However, they have to develop their curriculum considering the core objectives. Core objectives indicate what students should know at the end of their primary school career. The core objectives in Dutch primary education are: Dutch, English, arithmetic and mathematics, focus on yourself and the world, artistic orientation, physical education and Fries (applies to schools in the province Friesland). The National Expertise Centre for Curriculum Development (SLO) developed learning objectives and intermediate objectives. This allows schools to translate their learning objectives to their educational attainment. The learning path indicates how a student comes from a beginning level to the core purpose. Intermediate targets are moments in the learning path. The learning objectives and intermediate objectives gives teachers the opportunity to better track the development of a student. Within Dutch primary education a distinction is made between public elementary schools, special schools (based on religion), general special schools (based on educational innovations), community schools (based on a combination between education and childcare, sports and culture) and schools for special education (especially for children with a disability, chronic illness or disorder).

The Dutch secondary education consists of a substructure (which starts with a bridge period) and a superstructure. All school types in the Netherlands begin with the first stage (substructure) of secondary education, which lasts two years in pre-vocational education and 3 years in senior general secondary education (havo) and pre-university education (vwo). Pupils follow a broad range of subjects that is the same for every level of education. The Ministry of Education, Culture and Science (OCW) has described in 58 attainments what students should learn in the basement. The superstructure in preparatory secondary education (vmbo) and senior general secondary education (havo) lasts 2 years and 3 years in pre-university education (vwo). The superstructure in general secondary education is also called the second phase. In the superstructure students can choose profiles. This allows them to specialize to a certain direction. OCW has established the requirements of vmbo, havo and vwo in final goals. These describe the knowledge and skills that a student should have at the end of his secondary school career.

3.3.2 National Policy

In the Netherlands students have obligatory education from their 5th till their 16th. Till the 18th, education is partly compulsory. This means that the student should have a basic vocational qualification (intermediate vocational education (MBO), level 2 or higher), to be no longer compulsory. The learning or teaching of competencies is something mostly intertwined in the content of the courses. However, it is not the general focus of all of the different educational institutions in all educational levels. In primary school and higher education it is done by some individual institutions, but not a shared idea. Since 2008-2009 all educational institutions for vocational education are required to give competence-based learning to all students. The new qualification of competence-based learning instead of knowledge and skills are the main skills that students should possess at the end of education. The underlying idea is that the learning of vocational competences makes education attractive and offers more opportunities for flexibility. Realistic practical situations, internships and workplace learning will largely determine the education in competence-based learning. However, competence-based learning has no support in the Dutch primary education. At the end of primary education, a large majority of schools choose to participate in external standardized 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.

3.3.3 National Curriculum

Primary education aims to broadly educate children. The education addresses their emotional and intellectual development, the development of their creativity, and their acquisition of social, cultural and physical skills. Within the primary school the core objectives in the list are divided into chapters for Dutch language, English language, Frisian language (depends of the province), mathematics and arithmetic, exploratory social studies, art education and physical education.

The *secondary education* is divided in four currents:
- Practical education (no fixed length expensive training, between 12 and 20 years)
- Preparatory secondary education (*Voorbereidend Middelbaar Beroepsonderwijs*, VMBO), including learning support (LWOO) (four-year course, from 12 to 16)
- Senior general secondary education (Hoger Algemeen Voortgzet Onderwijs, HAVO) (five-year program, of 12 t / m 17)
- pre-university education (Voorbereidend Wetenschappelijk Onderwijs, VWO) (six-year program, of 12 t / m 18)

The purpose of practical education is that students acquire basic skills that they can use both in their personal and working live. Practical education focuses therefore on aspects of social skills, emotional development and support for labour. It is intended for those students who are unable to follow preparatory secondary education. Practical education is the last stage before working life.

Preparatory secondary education provides practical and theoretical education. In this level, a distinction is made between four different currents: basic vocational education, under vocational education, combined program and theoretical program. Within these currents students can choose for four different programs: technique, care and welfare, economy and agriculture.

In senior general secondary education (HAVO) students get theoretical education and forms the entrance to higher education. Within HAVO, students choose one of the following four learning lines: science and technology, nature and health, economy and society and culture and society.

Pre-university education (VWO) is the highest level in the Dutch secondary education. A completed pre-university education gives access to further study at higher education and the Dutch university education. Just like HAVO, students on VWO-level should choose one of the following four learning lines: science and technology, nature and health, economy and society and culture and society.

3.4 Ireland

The competences set out in the European Framework are broadly referred to as key skills in Ireland and so the Key Competences have been adapted to suit the Irish context. Ireland has

introduced a key skills framework at secondary level, Early Childhood and is now planning implementation at primary level also. Competence oriented cross-curricular reform has been an educational goal for Ireland, to upgrade the status of competence at all curricular levels. The approach is a holistic one based mostly on skills or competency.

3.4.1 Educational System

The education system is undergoing curriculum reform and the embedding of key skills is considered central. The approach is an integrated one, in which competences are embedded into the learning outcomes of the formal curriculum and assessment, with emphasis placed on the competencies in classrooms. Schools are encouraged to develop competences in ways that work best for them. The Table below gives an idea of the linkage and continuity between the Key Skills across all levels of the Primary and Post Primary sectors.

Early childhood themes	Primary priorities	Junior cycle Key Skills	Senior cycle Key Skills
Exploring and thinking	Develop thinking, learning and life skills	Managing information and thinking	Critical and creative thinking
		Being creative	Information processing
Communicating	Communicate well	Communicating	Communicating
Well-being	Be well	Staying well	Being personally effective
Identity and belonging	Engage in learning	Managing myself	
	Have a strong sense of identity and belonging	Working with others	Working with others

Table 3: Priorities, childhood themes, junior cycle key skills and senior cycle key skills across the Education System

3.4.2 National Policy

National policy acknowledges that skills learners need to prepare them for life, learning and work in the 21st century have changed. As well as learning knowledge, learners need to develop skills to create new knowledge and to deal with and navigate their way through this new world. These skills are central to teaching and learning across the curriculum at all levels. These are critical and creative thinking, communicating, information processing, being personally effective and working with others.

These skills are important for all learners to achieve their full potential, both during their time in school and into the future. They enable learners to participate fully in society, to engage in

happy family lives, to prepare for working lives that are likely to change constantly and to engage with and enjoy learning throughout their lifetime.

As learners develop competence in these skills in an integrated way they also develop competence in learning how to learn. In order that learners benefit from their interaction with the key skills, it is important that they would encounter them frequently and in an integrated way right across the curriculum.

3.4.3 National Curriculum

A set of Key skills frameworks have been developed separately for each curriculum but are similar for primary, junior secondary and senior secondary. There are six key skills covering areas like: Managing Myself; Staying Well; Communicating; Being Creative; Working with Others; and Managing Information and Thinking. Each of the six skills incorporates Learning to Learn and Digital Competence. These six key skills relate to the following key competences of the European Framework: Digital Competence; Learning to Learn; Social and Civic Competences; and Sense of Initiative and Entrepreneurship. The transversal skills of critical thinking, creativity, initiative, problem solving, decision making and constructive management of feelings also correspond closely with the six key skills.

Early Childhood

Aistear is the curriculum framework for children from birth to six years in Ireland.

The framework has identified certain 'dispositions', and possibilities for their development as part of the review of the primary curriculum. These key messages have shaped Aistear: the Early Childhood Curriculum Framework including the identification of its four themes: Well-being, Identity and Belonging, Communicating, and Exploring and Thinking. Together the themes offer a way to plan for and support children's learning and development so that they benefit from positive and enjoyable experiences in their early childhood years.

Primary Sector

Curriculum reform for primary education is currently focused on the language and mathematics curricula and the role of dispositions/skills is currently under discussion. A national strategy on literacy and numeracy placing a strong focus on competence development at primary and lower secondary was introduced in 2011.

Secondary Sector

In lower Secondary there is a commitment to reform also. Six key skills of junior cycle form a key pillar of these developments and these skills will be embedded in the curriculum and assessment for all schools over a timeframe that will extend from 2014-2020.

In upper Secondary the first subjects tackled have been Politics and Society and Mathematics. The Science subjects will be completed in 2013. The new mathematics curriculum, developed for lower and upper secondary (Project Maths), has a strong emphasis on the key skills and there has been significant change to how mathematics is assessed. This is in the process of being rolled out to all schools in the coming years.

Assessment

Assessment for certification at the end of lower secondary and upper secondary has been by formal external examination and has limited change in classroom practices and more innovation in teaching and learning. Reform of lower secondary is planned which will allow

for greater variety of assessment methods and more flexibility in their timing. It is planned that the Key skills will mainly be assessed through the learning outcomes of the curriculum specifications. As developments progress proposals for different methods of assessment are considered. This should have potential for real change.

3.5 Spain

In order to acquire a comprehensive understanding of the current implementation of competence-based learning in Spain it is worth considering factors related to the administrative and political structure of the country. To that goal, in this section we review relevant data from the Spanish Educational System, National Policies and Spanish curriculum.

3.5.1 Educational System

The education system in Spain is organised into mainstream education and specialised education. Mainstream education comprises:

- Pre-primary education: it is the first stage in the education system and it is non-compulsory. It is divided into two stages, i.e. up to the age of 3, and from 3 to 6 years old.

- Primary education: the first compulsory stage of the system. It covers six years of instruction, divided into three two-year cycles. It is normally completed at the age of 12.

- Compulsory secondary education: it is divided into four years and it is usually completed at the age of 16.

- Vocational training: it offers a range of training provision that equips pupils with the necessary skills to undertake any one of various trades, have access to the labour market, and actively participate in social, cultural and economic life. It is organised into 26 professional families and divided into two stages: intermediate and advanced, which have a flexible modular structure and variable duration.

- Post-compulsory secondary education: it lasts for two academic years, generally until students are 18 years old.

- University education: it is organised into three cycles, namely Bachelor, Masters and Doctorate, with different duration and a minimum required number of ECTS credits.

Primary and compulsory secondary education constitutes basic education, which consists of ten years of free and compulsory schooling for all pupils. Secondary education comprises compulsory secondary education and post-compulsory secondary education. Higher education includes university education, advanced arts education, advanced vocational training, advanced plastic arts and design education and advanced sports education.

Specialised education programmes are concerned with arts, sports and languages education and can be undertaken from the second cycle of primary education. Figure gives an overview of the Spanish Educational System.
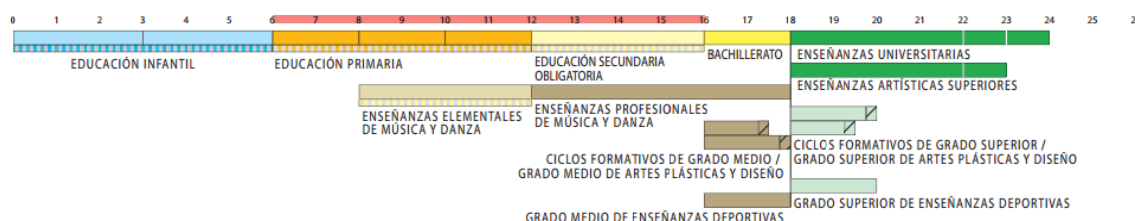
Figure 3 Educational System in Spain (from The structure of the European Education Systems 2011-12 Schematic Diagrams)

The Spanish Constitution addresses an essential aspect of the educational organisation in Spain, that is, the decentralisation of educational responsibilities and the distribution of educational competences between the State and the Regions. The latter may undertake the organisation and administration of the education system in their respective regions, with the exception of those powers which are exclusively central, such as the regulation of the conditions for the awarding, issuing and recognition of academic and vocational qualifications. Regions are also responsible for teaching their own co-official languages which, together with Spanish, have official status in some regions.

3.5.2 National Policy

Currently, the Spanish educational system is regulated by the Organic law of Education (National Agency Official State Gazette, 2006). One of the underpinnings of the Law is that citizens keep learning along their lives. This is to say, learning is not limited to the earliest years of one's lives but citizens are lifelong learners. In this context, the Law defines the Spanish Educational system as one that provides holistic education, which gives learners the needed knowledge and basic competences to develop the values for democratic citizenship, common life and social cohesion. This Law supports student competences in the National Curriculum for the first time.

In addition, the Organic Law of Education includes assessment of students' competence acquisition at the end of the second cycle of primary education and at the end of the second year of secondary education. Centralised assessment of the Spanish educational system is performed by the National Institute of Educational Evaluation (INEE). The assessment is of formative and illustrative nature and wishes to make up for the possible faults. As an example, one report concerned with secondary education (National Institute of Educational Evaluation, 2010) assesses students' acquisition of four of the competences stated in the National Curriculum, i.e. linguistic communication, mathematical competence, competence in interaction and knowledge about the physical world, and social and civic competence. Results are presented at a National and Regional level, as well as sorted by several variables such as social, economic and cultural contexts, taking student competences as a main measure.

Review of National Policy suggests that student competences have an increasingly important role in the Spanish Educational system. At the moment, the Spanish Government has made a proposal for a Law to enhance the quality of the whole educational system (Spanish Ministry of Education, Culture and Sports, 2013 [1]). One of the goals of the proposal is to lower the rate of early school leaving, which is twice as high as the mean from the European Union (Spanish Ministry of Education, Culture and Sports (2013) [2]). Other goals are to increase youth employment, modernise professional training, give more autonomy to schools and increase the use of ICT in education.

Generally, the Proposal gives more weight than the current one to student competences. They are present in the curriculum development and assessment of all educational levels and modalities. Moreover, the proposal states that cognitive abilities must be accompanied by students' acquisition of transversal competences such as critical thinking, management of diversity, creativity and communication skills. To that goal, National and regional governments must cooperate so to make a link between these competences and the current contents and evaluation criteria of all the education delivered across the country.

External evaluation of student acquisition of competences at the end of primary and secondary education is also planned in the proposal. In fact, it is conceived as one of the most important actions to increase the quality of the Spanish educational system.

The increasing support to CBL from public policy can be rooted to 2010. In order to bridge the gap between policy and practice, the National Center for Educational Research and Innovation started the project "Development of Basic Competences". It aims to "studying, developing and disseminating educational strategies aimed to students' acquisition of basic competences, which take into account both formal and informal aspects of education" (Spanish Ministry of Education, Culture and Sports, 2013 [2]). The project has five foci:
1. Integration of the Basic Competences in the Curriculum
2. Assessment of Basic Competences
3. From theory to practice
4. Dissemination strategy
5. Basic Competences and family.

To date, 150 educational centers of primary and secondary education have participated in the project. As a result, the document called "Reflection on Basic Competences and their relation to the Curriculum" has been published (Spanish Ministry of Education, Culture and Sports, 2013 [3]). Mainly, the document maps the acquisition of student competences to school subjects by means of percentages. As an example, acquisition of mathematic competence in Primary Education is spread in school subjects in the following way: 83.33% in Mathematics, 12.5% in Natural, social and cultural environment and 4.17% in Arts.

The latest National Policy focusing on competences is the Strategic Framework for Educators' Professional Development. It was announced in May 2013 by the National Institute for Educational Technology and Teacher Training (2013). It is a holistic framework whose goals are (1) to structure initial and in-service teacher training around a new competence model of education professionals from the 21st century, (2) to explore new training modalities that facilitate collaboration among teaching professionals and (3) to establish a common regulation framework which allows for professional competence certification and certification of activities which show evidence of an effective professional development for teachers and trainers.

The framework is composed by three main pillars:

- Professional teacher competences: the project aims to redefining the profile of the teaching professionals through a competence framework for educational professionals, which should allow teachers to develop and assess students' competences.
- New training modalities: The Ministry wishes to incorporate learning which takes place in online communities of practice and other innovative learning opportunities into certified teacher training programmes.

- Regularisation of training: it is concerned with updating regulation about certification of teacher training around professional competences.

To sum up, review of National Policy on Competence-Based education in Spain gives reasons to believe that the Spanish educational system is in a process of change in the direction of European policies. Such change is promoted by the Spanish Ministry of Education, Culture and Sports in collaboration with the Regions.

3.5.3 National Curriculum

According to current regulations, the National Curriculum is a set of goals, basic competences, content, pedagogical methods and assessment criteria of all the training provided in Spain. The goal of the National Curriculum is to guarantee a common education for all students in Spain as well as to ensure the validity of the degrees awarded all around the country.

In 2006 basic competences were introduced for the first time in the Spanish National Curriculum for Primary Education (National Agency Official State Gazette, 2006) and in 2007 for Secondary education (National Agency Official State Gazette, 2007). The competences have strong similarities with those set in the European Reference Framework (European Commission, 2008): linguistic communication, mathematic competence, competence in knowledge and interaction with the physical world, digital and information processing competence, social and citizenship competence, cultural and artistic competence, learning to learn, and personal autonomy and initiative. The Curriculum states that students must acquire the appropriate level of the competences by the end of compulsory education. Moreover, it explains how each subject such as Spanish Language, Mathematics, Physical Education, etc. contributes to the acquisition of the aforementioned competences.

According to the distribution of powers among National and Regional government, the National Curriculum in Spain constitutes a framework which is further developed by regional governments. To date, most regional governments have organized their curriculum around student competences (School Council of the Basque Country, 2008). As an example, the curriculum for primary and secondary education in the region of Catalonia links student acquisition of basic competences with traditional school subjects. Basic competences are divided into two groups, i.e. transversal and specific. Transversal competences are defined as linguistic and audiovisual communication, artistic and cultural competence, information processing and digital competence, mathematic competence, learning to learn, and sense of initiative and entrepreneurship. Specific competences correspond to knowledge and interaction with the physical world, and social and civic competence. In order to support teachers in the implementation of competence-based teaching and assessment, the Department of Education of Catalonia has published teacher guidelines for Competence-Based learning and assessment for two subjects, i.e. Language and Mathematics, for primary (Generalitat de Catalunya, 2013 [1] and [2]) and secondary education (Generalitat de Catalunya, 2013 [3] and [4]).

Finally, the law gives freedom to schools to carry out the final development of the curriculum for the educational levels that they offer. Within this context, there are reasons to think that schools wishing to do so can make their own policies on competence-based learning and assessment provided the goals of the regional and national curriculum are met.

3.6 France

3.6.1 Educational System

Since 1881, compulsory education in France starts at the age of 6 and ends at 16. Compulsory education is divided into primary and secondary education (c.f. below). The French system is highly centralised. Education policy is under the sole responsibility of the National Ministry of Education (*Ministère de l'Education Nationale*). The Ministry is responsible for the definition of the curriculum, its delivery and assessment. Under the direct authority of the Minister, 30 *académies* (roughly one per *région*[1]), headed by a *Recteur*, enforce the strict application of the *Ministry's* Policy.

Municipalities (*municiplalités*), districts (*départements*) and regions (*régions*) have the responsibility for the infrastructure and pedagogical costs – to the exception of teachers' salaries that are under the responsibility of the Ministry of Education.

Overview of competencies	Nursery and Primary	Lower Secondary	Upper Secondary
Investment (construction, reconstruction), infrastructure, running costs	Municipality	*Département*	Region
Pedagogical costs	Municipality	*Conseil général*	*Conseil régional*
Teaching staff (recruitment, training, allocation, pay)	State	State	State
Curriculum	State	State	State
Awarding diplomas	N/A	State	State

Table 4: School Education in France, Source: Eduscol, Ministère de l'Education Nationale

School principals are the representatives of the Minister in their school. They have no responsibility in the recruitment of teachers, their pay or promotion, nor in the management of the school's budget. Parents have no say in deciding which school their child attends and have no say in the way schools implement the national policy.

3.6.2 National Policy

The curricula for subjects taught throughout compulsory education specify many 'competencies' to be acquired and make particular reference to three of them, namely **writing, reading** and **arithmetics.** Yet **proficiency in language skills and the French language** appears as a priority throughout the whole of primary and secondary education, since it enables pupils to become steadily more autonomous in their school and personal intellectual activity. In this respect, language skills must be interpreted as the ability to express oneself and to communicate in all possible ways (e.g. modern languages, mathematics, information and communication technology).

The introduction of elements of competency-based learning in compulsory schooling goes back to the law and policy program for *the Future of the School* of 23 April 2005 (*loi d'orientation et de programme pour l'avenir de l'École*). This law defines the Common Core of Knowledge and Skills (*socle commun de connaissances et de compétences*) as what no one

[1] France has 26 regions, 101 départements and 36,851 municipalities

is supposed to ignore by the end of compulsory education, in order to be able to pursue further education, build personal and professional futures and have a successful life in society.

The *Code for Education*[2] states that compulsory education should at least ensure each student the means to acquire a common core consisting of a set of knowledge and skills that are essential to master to successfully complete and pursue education, build a personal and professional future and have successful life in society.

This common core (*socle*) includes:

- mastery of the French language;
- mastery of the main elements of mathematics;
- a humanistic and scientific culture to the free the exercise of citizenship;
- practice at least one foreign language;
- control of usual information and communication techniques.

Eventually, the Decree of 11 July 2006 defines *le socle commun de connaissances et de compétences* (the Common Core of Knowledge and Skills).

Educational programs have been adapted to ensure mastery of the common core by pupils, the objectives of each cycle are being specified and the annual benchmarks priority[3].

3.6.3 National Curriculum

The official curriculum drawn up by the Ministry of Education specifies the competencies that should be developed during compulsory schooling. These competencies fall into two groups, namely **general competencies** and **subject-specific competencies,** all of which are defined in relation to the priority competence 'proficiency in language skills'.

Nursery School

The curriculum of nursery initial education (early learning cycle or cycle 1 – up to 6 years old) is divided into five areas:

- appropriating language and getting ready to read and write;
- becoming a pupil;
- corporal movement and expression;
- discovering the world;
- seeing, feeling, imagining, creating.

The main purpose of nursery education is to allow pupils to develop their full potential and to have a successful first experience at school.

The emphasis is on the acquisition of language and its development, the discovery of the world of writing and that of numbers as well as learning to 'live together'.

Lower secondary education

Lower secondary schools take all pupils from elementary school without an entrance exam from the age of 11. Its primary objective is to help pupils to master the *Common Core of Knowledge and Skills*. (*socle commun de connaissances et de compétences*). It also prepares pupils for the rest of their general, technological or vocational schooling.

Teaching in lower secondary schools is organised by subject: French, mathematics, history and geography, civic education, life and earth sciences, technology, art, musical education,

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[2] Code de l'éducation - art. L.122-1-1 (Article 9 of Law No. 2005-380 of 23 April 2005)

[3] Education Code - art. D 122-2 (Decree n ° 2006-830 of 11 July 2006)

physical education, physics and chemistry, two modern languages as well as the cross-curricular teaching of the history of art.

The four years (*sixième - cinquième - quatrième - troisième*: years 6 to 9) are organised in three stages or cycles.

- *Sixième* (year 6): the adaptation cycle
- *Cinquième* and *quatrième* (years 7 and 8): the central cycle
- *Troisième* (year 9): the orientation cycle

Sixième (year 6): the adaptation cycle
The purpose is to consolidate the achievements of primary school and initiate pupils in the working methods of lower secondary education.

The structure of the school system		
Primary (*école primaire*) 3 - 11 years old	**Nursery school** (*école maternelle*) 3 - 6 years old	− Petite section − Moyenne section − Grande section *(cycle 1)*
	Elementary school (*école élémentaire*) 6 - 11 years old	− Cours préparatoire (CP) − Cours élémentaire 1ère année (CE1) *(cycle 2)* − Cours élémentaire 2e année (CE2) − Cours moyen 1ère année (CM1) − Cours moyen 2e année (CM2) *(cycle 3)*
Secondary (*secondaire*) 11 - 18 years old	**Lower secondary** (*collège*) 11 - 15 years old	6e
		5e
		4e
		3e
	Upper secondary (*lycée*) 15 - 18 years old (*)	General route Technological route Vocational route
		Seconde Première Terminale Seconde Première Terminale
		Baccalauréat général et technologique Baccalauréat professionnel

Table 5: Structure of the French school system

Cinquième and quatrième (years 7 and 8): the central cycle
The objective is to enable pupils to develop their 'knowledge, skills and behaviour'. This cycle is characterised by its consistency over two years and the gradual enrichment of the syllabus through the introduction of optional subjects. A pathway for familiarisation with the world of work and education is offered to all pupils.

Troisième (year 9): the orientation cycle
It allows pupils to build on what they have learned in lower secondary and to work towards general, technological and vocational study. At the end of this year, pupils sit an exam to gain the *diplôme national du brevet* (DNB) which assesses the knowledge and skills learned in lower secondary and certifies the command of the *Common Core of Knowledge and Skills*.

It is at the end of this year that teachers decide whether pupils are worth the *noble pathway to success* that are the scientific and to a lesser extent, literary curricula leading to higher education. *Lycée professionnels* (vocational high schools) continue to have the lowest social status and are the place where the *low academic achievers* are being sent at then end of

troisième, as the penultimate step before becoming a *school leaver* or *drop out* for many of them.

According to *Perspectives on education 2012,* a report from the Organisation for Economic Cooperation and Development (OECD), the enrolment rate of young people aged 15 to 19 declined slightly in France for fifteen years. This rate has increased from 89% in 1995 to 84% in 2010. Even more worrisome, in France, 71% of school leavers in this age group are unemployed or inactive, against 57% on average in the 34 member countries of the OECD, according to 2010 figures.

As Marie Duru-in Bellat already wrote in 1988: "The majority of social inequalities in orientation does not rest on the differences in academic success sedimented gradually during previous schooling, but is instantiated at the very same moment of the procedure (orientation)[4]". The OECD reports that things have been only getting worse since 1988.

Key competences

The Common Core of Knowledge and Skills ("*Le Socle Commun de Connaissances et Compétences*") constitutes a framework for developing the curriculum for primary and lower secondary education. It presents the set of values, knowledge, languages and practices that need to be mastered in order for each pupil to successfully complete their schooling, continue their education, build their personal and professional future and be successful members of society. It sets out the minimum standards to be attained by all by the end of compulsory schooling

The *Common Core of Knowledge and Skills* is organised around seven key competencies:

1. command of the French language;
2. proficiency in a modern foreign language;
3. the key elements of mathematics, scientific culture and technology;
4. mastery of ordinary information and communication skills;
5. humanist culture;
6. social and civic skills;
7. autonomy and initiative[5].

Assessment of Key Competencies

There are 3 main stages in the assessment of key competencies.

The first stage of assessment is at the end of CE1 (year 2 at primary school). It measures the acquisition of three competences:

- proficiency in the French language;
- basic mathematics, social; and
- civic skills.

The second stage is also in primary at the end of CM2 (last year of primary) and allows pupils to be assessed at the end of primary in all seven competences.

The third and final assessment is at the end of compulsory schooling, usually in troisième (year 9) of lower secondary. Since 2011, command of the seven skills - as certified by the head teacher at the end of *troisième* - is a compulsory prerequisite for the *Diplôme National du Brevet* (DNB), the end of lower-secondary school exam.

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[4] Marie Duru-Bellat, Jean Pierre Jarousse et Georges Solaux, S'orienter et élaborer un projet au sein d'un système hiérarchisé : une injonction paradoxale ? L'exemple du choix de la série et de l'enseignement. L'orientation scolaire et professionnelle, 1997, p. 478.

[5] France refused categorically to have 'entrepreneurship' as one of the key competencies as it was understood as a possible breach in the walls protecting schools from the undesirable intrusion of *entreprises* (i.e. the private sector) in education.

At present, there are neither national standards for assessing what pupils have achieved nor any regulations concerning marking procedures. Teachers set standards and assessment is generally based on the overall performance of pupils.

At the end of each school year, one or more teachers assess the competencies of their pupils. The certified assessment of compulsory education, which was formerly optional, is gradually integrated in the national certificate (DNB) awarded on satisfactory completion of *collège* schooling.

Furthermore, a national procedure for the compulsory assessment of all pupils has been systematically organised each year by the planning directorate of the Ministry of Education. Assessment takes place at two points of compulsory education: at the halfway stage in primary education when they are aged 8 and on entering *collège* at the age of 11. Assessment at the latter point focuses on the same subjects as at primary level, i.e. French and mathematics. These evaluations that take place at the beginning of the school year only serve as a tool for teachers to adjust their teaching methods.

Since 1994, the Ministry of Education also regularly has been assessing familiarity of pupils with civics and law and order. The information is collected with the help of questionnaires distributed to a representative sample of pupils aged 11. Questions relate to their knowledge of democracy and the political system.

Tools and instruments supporting the acquisition of key competencies

One instrument is the *Personal Competency Booklet* (*Livret personnel de competences*), the collection of certificates of mastery of knowledge and skills that is filled-in at stage 3, at the latest at the end of *troisième* (last year in *collège*). It is not a portfolio as it is not managed by the student.

The *orientation training passport* comprises the history of the activities of the student, their experiences, competencies and knowledge acquired during the careers and education discovery pathway (Parcours de découverte des métiers et des formations - PDMF).

There are a other instruments listed in the table in the section 'initiatives' below.

3.7 Austria

3.7.1 Educational System

The Federal Ministry for Education, Arts and Culture (BMUKK) is in charge of the teacher education and training (Pedagogical Universities) and of the maintenance of schools, the Federal Ministry of Science and Research assumes the governance of the higher education system. Competence for legislation in education and its implementation is divided between the Federation (Bund) and the States (Länder). The public school system (96% of all schools) is free and comprises a minimum of nine years compulsory education; four years in primary- and five years in secondary schools starting at the age of six (five including the pre-school education). At the secondary level I (5ht to 8th grade) available school types are primary

school upper cycle (Volksschul-Oberstufe), lower secondary school (Hauptschule), new secondary school (Neue Mittelschule), grammar school lower level (AHS Unterstufe) as well as special needs schools and inclusive education. Secondary level I is followed by secondary level II (from 9th school year onwards), with the options: "polytechnical" schools (= schools preparing pupils for an apprenticeship or job), vocational schools and apprenticeships (dual system), vocational and technical secondary schools, vocational colleges , agricultural schools, upper levels of grammar schools as well as the vocational preparatory year and integrative vocational education. The tertiary level is dominated by universities and university colleges.

3.7.2 National Policy

The current Austrian national policy to support young people's acquisition of key competences, as defined by the European Framework of Key Competences for Lifelong Learning, includes a number of variations in the implementation of key competences. In the 2008/09 school year Austria launched a national implementation strategy for educational standards, the 'Bildungsstandard' (Education Standards) that deal with certain core competences. The aim is to improve education by moving towards a more competence-based teaching, through a systematic and comprehensive approach that includes assessment and quality assurance. Other key competences are addressed by a range of actions that have been developed and implemented by the Ministry of Education.

The eight key competences also form the basis for the lifelong learning (LLL) approach in Austria, and therefore play an important role. The competences are placed within five overall guidelines: focus on different phases in life, student-centred learning, guidance for life-long learning, focus on competences, encouraging participation in LLL. Based on these five guidelines, action plans were drawn up to help ensure that students will gain, consolidate and continuously develop the eight key competences within an integrated and holistic process.

Furthermore, the Neue Mittelschule (new secondary school) has been introduced since 2009. These schools will allow for individual learning approaches and special assistance and coaching for students. This new approach will clearly aid the integration of the key competences into the education system.

3.7.3 National Curriculum

With the amendment of the national school education act (Schulunterrichtsgesetz – SchUG), a legal basis for the implementation of educational standards (and therefore the eight key competences) in Austrian schools has been established. This act primarily determines the framework for quality standards in three subjects (mother tongue, 2nd foreign language and mathematics) for students in years 4 and 8. Regular evaluation of the standards allows for them to be adapted in order to ensure quality of education and teachers receive feedback on students' learning results. An integrated programme for further education and teacher training has therefore been developed and has already been partly implemented.

The Federal Institute for Educational Research, Innovation and Development of the Austrian School System (Bundesinstitut für Bildungsforschung, Innovation und Entwicklung des österreichischen Schulwesens – BIFIE) is responsible for the development of these standards as well as for the education and training of teachers, in close cooperation with the teacher training colleges (pädagogische Hochschulen - PH). PH are the bodies through which all educational and training measures in this area are implemented and they also serve as the

guidance and advisory board for teachers that change their teaching to a competence driven education by implementing the key competences in their teaching.

After a period of detailed planning, the first steps towards implementation have finally been taken. The key competences have been integrated into the curricula, teaching materials have been published, and teaching methods that allow competence driven education have been integrated taught for some time).

An essential step forward towards the full implementation of the key competences in the Austrian educational system is the new matriculation examination (also included in the amended education act). By the 2013/14 school year the new examination will be partially standardised and competence-based, corresponding well with the educational standards competence development of school years 4 and 8.

3.8 General overview

3.8.1 Competence based education

Country	State-of-the-Art
Greece	In Greece a legislative change took place in order for CBL approach to be introduced. This introduction is performed by different pilot curricula for competence driven education based on the National Life Long Learning Strategies.
The Netherlands	A CBL-approach is in primary and secondary education in the Netherlands not defined as such. Dutch education is characterized by the focus on knowledge and skills, like mathematic and vocational qualifications.
Ireland	Ireland does not call the educational approaches as competence based learning, but defines skills to be acquired by students. Irish government has introduced a key skills framework at secondary level, early childhood and is now planning implementation at primary level also.
Spain	Student competences are strongly supported by a law that is aimed to increase the quality of the whole educational system. This law present the curriculum development and assessment of all educational levels and modalities.
France	The France Ministry of Education has defined different key competences that should be acquired by the students during their school carrier.
Austria	The Austrian national policy regarding competence based education is presented in the 'Buldingsstandard' that deal with certain core components. The key competences defined by the European Commission were implemented in the Austrian policy.

3.8.2 Key competences acquisition

Country	State-of-the-Art
Greece	Greece has no national policy concerning the acquisition of key competences.
The Netherlands	The Netherlands has no national policy concerning the acquisition of key competences. Key competencies are interwoven in the current general education.
Ireland	Key competences from the European Framework are referred as key skills in Ireland. These key skills are central to teaching and learning across the curriculum at all levels.
Spain	Basic competences are defined that have strong similarities with those set in the European Reference Framework: linguistic communication, mathematic competence, competence in knowledge and interaction with the physical world, digital and information processing competence, social and citizenship competence, culture and artistic competence, learning to learn, and personal autonomy and initiative.
France	In France a framework for developing the curriculum for primary and lower secondary education is defined by the Common Core of Knowledge and Skills. The competences they

	identified are: command of the French language, proficiency in a modern foreign language, the key elements of mathematics, scientific culture and technology, mastery of ordinary information and communication skills, humanist culture, social and civic skills and autonomy and initiative.
Austria	Austrian students will gain, consolidate and continuously develop the eight key competences within an integrated and holistic process.

4 An overview of acquiring key competences in teachers' trainings in European countries participating in the project

This chapter addresses teacher education policies in the EU Member States with regard to cross-curricular key competences and competences in general.

4.1 Greece

4.1.1 National Policy/Training Framework of Teachers

Initial teacher training

Most university departments are 4 year study programmes where student teachers have mostly courses around their specific subject field (e.g. Mathematics, Science, etc). In some cases mostly in technological specialties, studying one more year is needed in order to get the Pedagogical accreditation Training Programme for Teachers in School of Pedagogical and Technological Education (ASPETE).

In-service teacher training

Educational Training Agency (O.EP.EK)

The Educational Training Agency (O.EP.EK) is a private legal entity supervised by the Greek Ministry of Education, Lifelong Learning, and Religious Affairs.

Its aims are:
- The design of the training policy for teachers of Primary and Secondary Education and submission of relevant proposals to the Minister of Education, Lifelong Learning, and Religious Affairs.
- The coordination of all forms and types of teacher training, and implementation of training courses.
- The award of a training project to competent bodies and the recommendation to the Minister for Education Lifelong Learning and Religious Affairs for the establishment of independent educational centres and units.
- The allocation and management of resources for teacher training.
- The certification of bodies and qualifications in the teacher training field.

As part of its responsibilities O.EP.EK:
- Designs directly educational activities of special interest to teachers of Primary and Secondary Education.
- Designs studies, the results of which will be useful in designing the training of teachers.
- Organises conferences and training workshops.

Major Teacher Training Programme (Meizon Programma Epimorfosis)

Aim of the programme is the training of teachers for the new digital school, which will be implemented in two phases and will be completed in December 2013.

Design& Formulation of the "Major Teacher Training Programme"

| 1. Consultation with educational, social and scientific bodies | 2. Survey of the training needs of the 32.070 members of the Educational Community | 3. Invitation to submit good teaching practices in order to gather educational content |

4. Use/development of Greek and international experience

5. Teacher Training Portal
www.epimorfosi.edu.gr

Reference Framework of the "Major Teacher Training Programme"

Figure 4 Reference Framework of the Major Teacher Training Programme in Greece

The Training Programme is implemented in a volunteer base and consists of face-to-face meetings and distance training methods. Up to now the first phase of training has been implemented referring to the use of ICT in teaching and now the second phase is running regarding the pedagogical exploitation of ICT and learning design skills.

Participating teachers through the portal www.epimorfosi.edu.gr, will have the possibility to communicate and exchange practices and experiences with teachers from all over Greece, forming their communities of practice. Best teaching practices for all subject fields and grades selected in the Major Training Program are available here (in Greek): http://zeus.pi-schools.gr/epimorfosi/library/kp/

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 (Level 1 ICT training program- "In-Service Training of Primary and Secondary School Teachers on Information and Communication Technology (ICT) Basic Skills in Education"). 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 (Level 2 ICT training program- "Teachers' Training in the Use and the Exploitation of ICT in the Educational Teaching Process").

Primary Education ICT teachers' training for 800 pilot schools

Moreover, in order to support the ICT teachers that taught in primary schools for the first time in the school year 2009 in 800 pilots schools, the subject of ICT a relative training programme as well as educational content has been produced. The content was mostly cross-curricular lesson plans involving ICT use with topics from the curriculum. The course is aligned with the overall "New School" educational policy agenda.

Participants were acquainted, through the course book, with the development of ICT integration in Primary Schools and its current scope, as well as with the particular circumstances of the first year in which ICT was implemented in the Primary School curriculum.

4.1.2 National Initiatives/Portals

Greek national school repository

The Greek national school repository is the national school portal of Greece, maintained and operated by RACTI. The repository will be further enriched by the above mentioned large national initiative "Digital School", that is going to populate it with open educational resources, open textbooks, teacher-generated material, cultural content of educational interest, etc. The repository is supported and promoted by the Greek Ministry of Education, Lifelong Learning, and Religious Affairs.

Figure 5 Greek School Network, http://www.sch.gr/

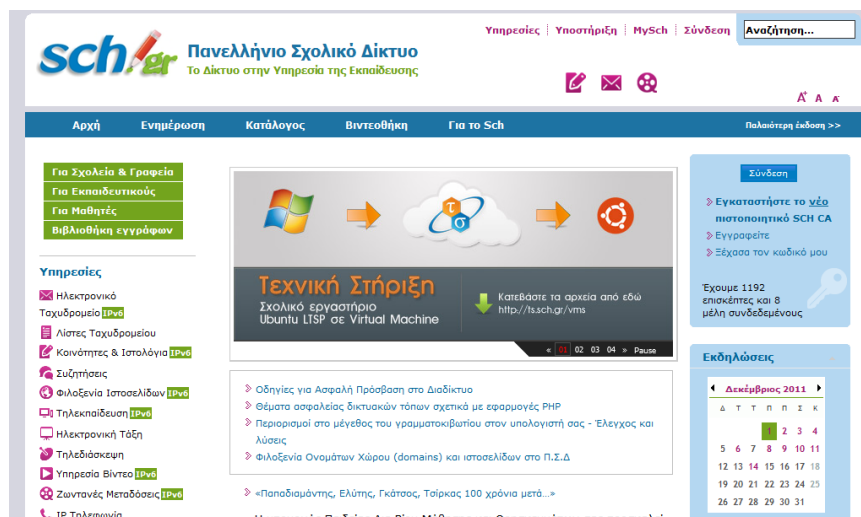***Educational web portal e-yliko***

This action aims to support the learning community by providing digital learning resources online. The immediate goals are to provide:
- Teachers with an easy to use tool to facilitate the exchange of ideas, educational content and practices.

- Open access to everyone seeking educational content in the context of lifelong learning.

Figure 6 e-yliko portal, http://www.e-yliko.gr/

4.2 The Netherlands

Each country has its own dynamics and hereby challenges when it comes to transitions in cultural and system level. At the individual level competence based education (CBE) requires not only a change in thinking and actions of the student and the individuals who follow lifelong learning trainings, but not at the last place also the teachers. For the teacher CBL not only means that the curriculum, assessments and aptitude test should change, but also that they should grow in a more coaching and entrepreneurial role. In addition, a teacher can help learners and students with learning and developing so-called transversal competences, as described in the 2007 'Key Competences for Lifelong Learning'.

4.2.1 National Policy/Training Framework of Teachers

The Netherlands has no national policy on the training of teachers in giving competence-based education. However, Dutch educational institutions increasingly choose to boot their own competence based training program. To become skilled in giving competence-based education, teachers in secondary vocational education should have knowledge of their profession and the professional field, but also need specific pedagogical and didactic skills. Teachers in intermediate vocational education should have mainly developed the vocational and professional skills. They must also be better prepared to a function in competence-based education and working with qualification files.

The current training methods work currently insufficient. Nowadays, teachers get training to deal with a variety of courses, learning paths and levels that are not sufficient for all educational levels. This requires special pedagogical and didactic skills and social and communication skills that teachers do not always get along in their training. Beside that there are too few teachers prepared for the competence-based education and working with the qualification files.

Initial teacher training

To become a teacher in the Netherlands, people have to follow different kinds of education. For example, teachers on primary schools require a four year training at a university of professional education. Teaching at the secondary and higher requires some conditions are required:

- You are graduated from a teachers training or has a second degree educational level.
- You have a degree from college or university or a vocational diploma with at least three years of professional practical experience in which education is directed. In the last option you have to fulfil a proof of sufficient teaching skills within two years.
- You follow a dual training program where you work partly in education during your training in higher education.

To become a competent teacher, teachers should meet the following requirements: interpersonal competence, pedagogical competence, professionally and educationally competent, organizational competent, competent in working with colleagues, competent in working within the school environment and competent in reflection and development.

In-service teacher training

Dutch teachers should be extrinsically motivated to follow additional educational trainings. The current economic crisis is one of the extrinsic motivations that will make teachers want to 'lifelong learn'. Problems the teachers perceive are unwilling colleagues, many colleagues do not see any possibilities to change the current educational curriculum due to the fact that there is no time.

4.2.2 National Initiatives/Portals

In the Netherlands the main portal for knowledge development and knowledge sharing is the Kennisnet-portal; www.kennisnet.nl. Kennisnet is a public (semi-governmental) organization dedicated to ICT-innovation for primary and secondary education and vocational training. Kennisnet provides educational content and information to teachers, pupils and parents and forms the database for education resources. Kennisnet also stimulates the use of ICT in educational processes by providing technical and practical support for several innovative educational aids. Some other portals are "Digitale School" (www.digischool.nl) and Leermiddelenplein (www.leermiddelenplein.nl). The Digitale School is a foundation that aims to offer alternative learning paths for students. Also, it supports teachers who wish to develop and use these alternative paths. To this end, the foundation developed an educational website maintained by approximately 35 teachers from primary and secondary schools throughout the Netherlands. Leermiddelenplein.nl provides Dutch learning materials. The website provides current, complete and reliable information on learning resources for primary education, secondary education and tertiary vocational education. Besides general information, a summary of the contents and pricing, teachers can find an analysis, descriptions of and experiences with the learning resources.

4.3 Ireland

4.3.1 National Policy/Training Framework of Teachers

Teacher training in Ireland is different for Primary and Post Primary Teachers. Below are the general guidelines for both professions. All teachers must be registered in a register of teachers which is maintained by the Teaching Council of Ireland. http://www.teachingcouncil.ie/ Updated details of teacher training policy and requirements can be found on this website.

Primary Teaching
For Primary Teachers a Graduate Diploma in Education is a full-time course on offer in the following Colleges of Education for the purpose of enabling third level graduates to qualify as Primary School Teachers.

Trainees may study in a number of Primary Teaching Colleges in Ireland and an online course is also available.

Eligible candidates must have the following academic qualifications:
A. An Honours Bachelor Degree (Level 8) or a qualification at Level 9 or 10 on the National Framework of Qualifications (www.nfq.ie).
    AND
B. One of the following sets of second level qualifications:
   i.   Leaving Certificate Examination – a grade C3 or above in Higher Level Irish; a grade D3 or above in Mathematics (Ordinary or Higher Level); and a grade C3 or above in English (Ordinary Level) or a grade D3 or above in English (Higher Level).
   ii. Northern Ireland GCSE and GCE A Level Examinations – a grade C at GCE A Level Irish; a Grade C at GCSE Level in both English and English Literature or grade B at GCSE Level in either; and a grade D at GCSE Level in Additional Mathematics or a grade A at GCSE Level in Mathematics.

NOTE: If you don't have the required grade in Irish you can do a 2 year (part-time) diploma in Irish from one of third level colleges.

Eligible applicants will be required to undergo an Interview and an Oral Irish Test. Applicants who fail in either the Interview or the Oral Irish Test will be eliminated.

Qualified applicants will be placed in order of merit as determined by the results of the Interview and Oral Irish test. Where two or more applicants obtain the same points total, their placement on the order of merit will be determined by random selection.

The purpose of the interview is to ascertain the suitability of the applicant for participation in a primary teacher education course. Part of the Interview may be conducted through Irish.

Post Primary Teaching
In order to be admitted to the Register of Teachers as a post-primary teacher an applicant must hold a suitable degree and teacher education qualification.

A suitable degree is defined as an award from a State-recognised university or similar third-level college, which enables the holder to teach at least one curricular subject to the highest

level within the Post-Primary schools curriculum. For most subjects, this is Leaving Certificate Higher Level. The programme must be comprised of at least three years of full-time study or equivalent; carrying at least 180 ECTS credits and be equivalent to at least a Level 7 award on the Irish National Qualifications Framework (NQF). With effect from 1 April 2013 the minimum requirement will be Level 8 on the NQF.

A suitable initial teacher education qualification is defined as a qualification from a State-recognised university or similar third-level college, incorporating three specific elements:

- Foundation Studies
- Professional Studies
- School Placement

and which is directed towards the 12 to 18 age range (First year to Sixth year). The programme must extend over at least one year of full-time study or equivalent. With effect from September 2014, postgraduate programmes of initial teacher education accredited by the Teaching Council will be extended to two years full time study or 120 ECTS credits.

The most common initial teacher education qualification in this country is the Professional Diploma in Education (previously known as the Postgraduate Diploma in Education / Higher Diploma in Education). This is awarded on successful completion of a one-year full-time course.

The link below provides details of the individual subject requirements (subject criteria) for all post-primary curricular subjects. Applicants applying under Regulation Four (Post-primary) must hold a qualification which meets the requirements for at least one of these subjects. The link also provides a list of degrees which have in the past been deemed to meet the requirements for named curricular subjects. Given degree programmes and elective modules within degrees can change over time, it is important that this list should only be considered as a guide and applicants should in the first instance ensure that they satisfy the criteria for at least one curricular subject. This will be verified by Council staff when processing Regulation Four applications for registration.

Curricular Subject Requirements/List of Degrees Recognised for Registration Purposes: click here

4.3.2 National Initiatives/Portals

There are many initiatives from time to time and many are referenced and announced in the Government Department of Education and Skills website: http://www.education.ie/en/ However form a TRANSIt perspective some significant national initiatives include the Digital Schools initiative which is aimed at improving the uptake and use of ICT resources in the primary school sector. This initiative also helps highlight the quality and expertise of teachers and schools in the delivery of their work using ICT in teaching and learning. The website is www.digitalschools.ie

Another significant initiative was the development of the elearning schools initiative which was a national program to help both primary and secondary schools develop and plan for the integration of ICT in teaching and learning. This program has been recognized as a good

example of developing planning in schools throughout Europe particularly by the Open Discovery Space Project. See: http://www.ncte.ie/elearningplan/

Ireland has an excellent network of Education Centers which are spread out in a regional basis. These provide facilities and run courses to support teacher in-service training on a wide range of topics covering all aspects of teaching and learning. See: http://www.ncte.ie/educationcentres/

National Portals and Educational Websites
In Ireland the main Portal is http://www.scoilnet.ie. This site developed by the National Centre for Technology in Education http://www.ncte.ie and is now controlled by the Professional Development Service for Teachers (PDST) http://www.pdst.ie.

Both sites contribute significantly to providing resources for in-service teaching and teaching resources suitable for the Irish Curriculum in both Primary and Post Primary. Other national agencies include the National Council for Curriculum and Assessment http://www.ncca.ie The NCCA have recently published guidelines on a new Junior Cert Curriculum which places a lot of emphasis on Key Competencies. See: http://www.curriculumonline.ie/en/Post-Primary_Curriculum/Junior_Cycle_Curriculum/. For special education there is the National Council for Special Education http://www.ncse.ie. This is supported by resources such as Special Education Support Service http://www.sess.ie. All agencies and organizations provide significant resources and advice in their respective areas to schools, teachers, parents and students.

4.4 Spain

4.4.1 National Policy/Training Framework of Teachers

Initial teacher training

In Spain, those wishing to be teachers up to primary school undertake a Degree in initial teacher training. Initial teacher training is offered for pre-primary education, primary education and special needs education. It is also possible to get a specialisation in specific subjects such as physical education, music education and foreign language education.

Prospective teachers at secondary school and vocational educational training must own a degree that is equivalent to one or more of the subjects taught at secondary school, such as history, mathematics, etc. In addition, they undertake a master's degree which qualifies them to teach in compulsory and non-compulsory education, vocational education and/or language education depending on their background. .

One way to understand whether teachers are ready to apply approaches and didactics based on competences is by looking at the presence of teacher competences in initial teacher training. Review of teaching plans of the aforementioned degrees in Spanish universities shows that competences are considered to a certain extent. As an example, the Autonomous University of Barcelona defines the general, transversal and specific competences that future primary school teachers must have. One of the competences is "to analyse and recognise teacher's own socio-emotional competences so to develop those that are necessary for a good professional

development". At the University of Barcelona, the masters' degree to become a secondary school teacher is aimed to student acquisition of specific and transversal competences (University of Barcelona, 2013 [1]). In addition, each course defines its own set of competences (University of Barcelona, 2013 [2]).

However, in general competence based learning, teaching and assessment are not a structural component of the curriculum of initial teacher training in Spain. Instead, teacher training degrees at the University of Barcelona are structured around traditional subjects (University of Barcelona, 2012), i.e. didactics of language and literature, didactics of science, mathematics, etc.

In-service teacher training

The National Institute of Educational Technologies and Teacher Training (http://www.ite.educacion.es/) is the main National-level institution coordinating in-service teacher training in Spain. Mainly, in-service teacher training is divided into conferences and training programmes. From 2010, five conferences have been organised by this body, some of them in collaboration with Latin American countries, on several topics. The most common topic is ICT in Education.

Even though teachers can engage in continuous professional development through initiatives sponsored by the Ministry of Education, Culture and Sports, the widest offer of in-service teacher training programmes is provided by organisations which are external to the Ministry. This is to say, the Ministry releases each year a list of training programmes from universities, language centres and teacher associations, amongst others, which are certified (Spanish Ministry of Education, Culture and Sports, 2013). Teachers can later use certificates from such courses when applying to positions within the Spanish Public Educational System.

Generally, review of the way to organise current in-service teacher training doesn't show evidence of a solid teacher competence framework. In-service teacher training offered by the Spanish Ministry of Education, Culture and Sports is mainly structured around learning goals. Similarly, stating teacher competences is not compulsory in the form that external training organisations are required to fill in order to request certification of a given training programme. This is consistent with the current process to apply for a position in the Spanish Public Educational System. Applicant teachers must study a set of topics, which can be divided between knowledge and skills. Knowledge mainly corresponds to the content that they will teach to students. As an example, an English Language teacher must show sufficient knowledge on grammar. The required skills have to do with designing educational scenarios and materials to support their teaching, among others.

Another way to understand the presence of a teacher competence framework in Spain is by looking at public assessment of teacher performance. With the purpose to inform policy-making, the National Institute of Educational Evaluation (INEE) is in charge of assessing the Spanish educational system. The institute carries out quantitative studies, mainly on students' learning outcomes. Some of these studies also assess teaching practice, either asking students or making teachers reflect on their own practice (Spanish Ministry of Education and Science, 2004). The studies show no evidence of being structured around a solid framework of the competences needed to be a good teacher.

To sum up, review of available in-service teacher training and assessment of teaching practice has shown no evidence of a solid teacher competence framework. This is expected to change with the Strategic Framework for Educators' Professional Development mentioned in section 3.4.2 of the present document, which is concerned with a holistic reform of the framework of student and teacher competences for all educational levels.

1.1.1 National Initiatives/Portals

In Spain, there are National initiatives which are relevant to the goals of the TRANSIt project. Mainly, the initiatives reviewed consist of web portals which offer teacher training and learning resources for teachers which have financial support from the Spanish government or the Regions.

The National Institute of Educational Technologies and Teacher Training offers online training through several portals. The portal Network Training (http://formacionprofesorado.educacion.es/) offers courses for teachers from non-higher educational levels working in Spanish, state-funded educational centres and in those centres whose goal is to provide Spanish education abroad. Most courses have a specific target. As an example, there is a course on Open Educational Resources for Science Teaching. In autumn 2013, there were 13 courses with room for 2800 learners.

Figure 7 Screenshot of the portal formacionprofesorado.educacion.es

Moreover, Aula Mentor (http://www.mentor.mec.es/) is an open, free, online training sponsored by the Directorate General for Lifelong Learning within the Spanish Ministry of Education, Culture and Sports. Aula Mentor aims to become a way to keep learning for those who don't have the chance to participate in face-to-face training and whose learning pace and/or available time requires learning paths which are totally flexible, without any schedule nor deadline. It offers training on a wide range of topics, including education. As an example, there is a course called "Family, school and cohabitation".

The Directorate General for Lifelong Learning within the Spanish Ministry of Education, Culture and Sports also sponsors the Centre for Innovation and Development of Distance Learning (http://www.cidead.es/). The goal of the centre is to facilitate access to education to

learners who are unable to take face-to-face training. Regarding in-service teacher training, it offers the course "Distance learning teacher training". The course is aimed to giving teachers educational resources and content which are adapted to the constraints of distance learning programmes.

At a Regional level, the Autonomous Community of Catalonia sponsors two online repositories of educational scenarios linked to the goals of the official curriculum: Application of Resources to the Curriculum, i.e. ARC (http://apliense.xtec.cat/arc/) and Alexandria (http://alexandria.xtec.cat/). The latter allows searching by student competences, as shown in figure below.
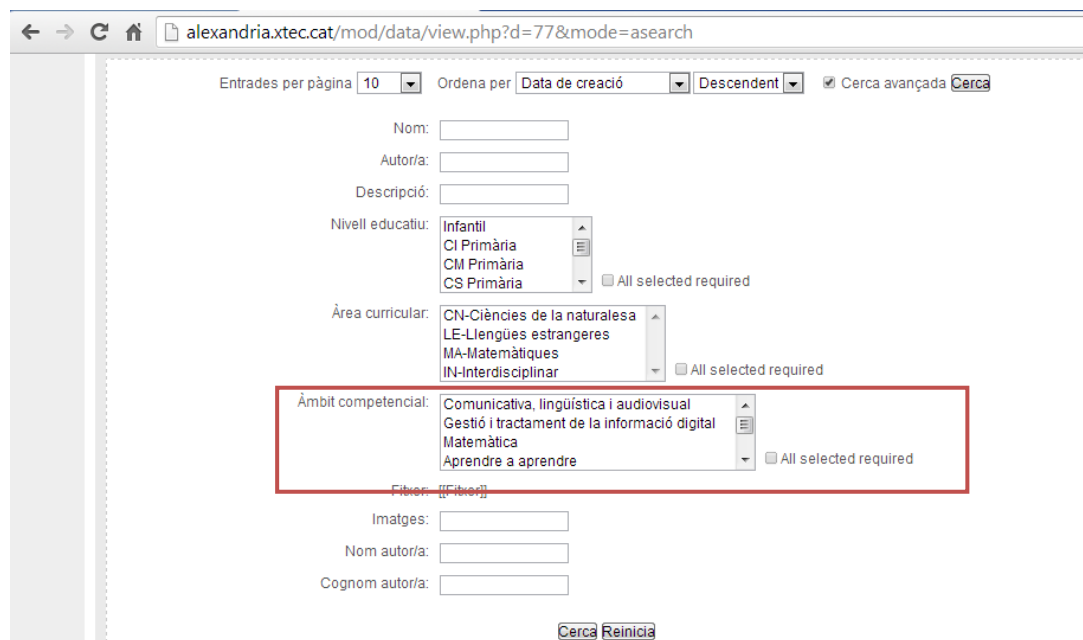
Figure 8 Screenshot of the tool for searching educational resources in Alexandria portal (alexandria.xtec.cat/). The red square highlights the possibility to search by student competences

4.5 France

4.5.1 National Policy/Training Framework of Teachers

The 10 competencies of the French teaching profession (*réferentiel de compétences des professeurs des écoles*) are:
1. Act ethically and responsibly as a State Official
2. Master the French language to teach and communicate
3. Master the teaching disciplines and have a good general culture
4. Design and implement teaching
5. Organize class work
6. Take into account the diversity of pupils
7. Assess pupils
8. Master information and communication technologies
9. Work in teams and cooperate with parents and school partners
10. Learn and innovate

Looking into details competency *4. Design and implement teaching* defines, one can read:

The teacher is able to:
- *To define learning objectives in reference to official texts; and*
- *To think in terms of competencies, that is, the necessary steps to determine the gradual acquisition of knowledge, skills and attitudes prescribed from previous achievements and identified needs […]*

There are no qualification standards for teacher education. In France, it is the results of the annual competitive examinations for the recruitment of teachers that are used to evaluate the initial teacher education programme.

Teachers recruited by competitive exam become State civil servants. Teachers from private schools that are under contract with the State are also recruited by competitive exam. They have the status of public contractors. As of 2011, candidates must have a two-year master in order to enter the competitive exam.

In 2011 and 2012, more than 20% of jobs offered through the CAPES (competitive exam) were not filled-in in six subjects, including English and mathematics.

Whilst preparing for the competitive exam at university, students can undertake work placements in class, either through observing or teaching, with the support of another teacher or with sole responsibility for a class. Afterwards successful candidates become trainee teachers: they are assigned to a school for a year. They are awarded permanent status at the end of their first year of teaching and training, if the outcome of their assessment is positive.

Competitive Exams

In order to teach at primary level, candidates take the primary teacher recruitment competition (CRPE) organised by the regional education authority (*académie*).

There are several national competitive exams for teaching in the public sector at secondary level:
- The Certificate of Aptitude in Secondary Teaching (*Certificat d'aptitude au professorat de l'enseignement du second degré*, CAPES);
- The Certificate of Aptitude in Physical and Sporting Education teaching (*Certificat d'aptitude au professorat d'éducation physique et sportive*, CAPEPS);
- The Certificate of Aptitude in Vocational Teaching (*Certificat d'aptitude au professorat de lycée professionnel*, CAPLP);
- The *Agrégation* (more selective than the CAPES and leading to different teaching conditions).

Some figures[6]:
- 859,300 teachers including 720,655 in the state sector, composed of
- 375,200 teachers (including 7,400 trainee teachers) at primary level.
- 484,100 teachers (including 8,400 trainee teachers) at secondary level.

Initial teacher training

The consecutive[7] model remains the only available pattern of teacher training in France, whether for primary, lower and upper secondary school teachers.

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[6] Source : Repères et références statistiques 2011– The State of Schools - Direction de l'évaluation, de la prospective et de la performance (Assessment, Forward-Planning and Performance Directorate), – Ministry of National Education, Ministry for Higher Education and Research).

As part of wide-ranging educational reforms initiated in 1989, the structure and organisation of initial teacher training in France have been radically reshaped. The longstanding binary provision made for primary and secondary training by respectively *écoles normales,* for primary education*,* and universities, for secondary education, was replaced by a single institution: the *Institut Universitaire de Formation des Maitres* (IUFM – *Institute for Teacher Training*). After an attempt by the previous government (Sarkozy-Fillon 2008-2012) to suppress the IUFM, with no replacement, the new government (Holland-Ayrault) decided to create *Les écoles supérieures du professorat et de l'éducation* (ESPE), *the Higher Schools for Teaching and Education*.

Quality assurance: until now, there are no consequences of external and internal evaluation for institutions/programmes providing initial teacher education in terms of funding/ re-accreditation (source: Eurydice, *Quality Assurance in Teacher Education in Europe*).

Les écoles supérieures du professorat et de l'éducation (ESPE) – Higher Schools for Teaching and Education

ESPE Missions

Fully integrated into the university, ESPE will open on 1 September 2013. IUFMs (*Institut de Formation des Maîtres,* the former Institute for Teacher Training) cease to have legal existence at that date. Their primary mission will be to train future teachers as well as students intending to apply to other jobs in the education system. It will also provide support to teachers' continuing education. The future training will give a central place to research and will take place both at the university and through internships in contact with pupils.

ESPE will deliver the MEEF, a vocationally oriented master after two years of postgraduate studies. These training modules will include disciplinary courses:
• introduction to research
• openness to international
• learning digital technologies and learning with digital technologies
• innovative tools and teaching methods

The examination will take place at the end of the first year of the master. For successful students, the second year of master includes a period of work experience within a school. These pupils will then have the status of *fonctionnaire stagiaire* (public servant trainee).

In-service teacher training

The average time spent in continuing education is 2.1 day per year per teacher – with large discrepancies (1.3 to 2.5 days depending on the status).
In 2010, 20,577 trainee*days were allocated to training on *Evaluation par les Compétences (Competency-Based Assessment)* i.e. 4% of the total of trainee*days[8].
There is no evidence that continuing education has any measurable impact on the career progression of a teacher.

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[7] The *concurrent model* involves general education and mastery of the particular subject(s) that trainees will teach when qualified; students learn the professional aspects of teaching from the start of their higher education studies. Under the *consecutive model*, students obtain an academic degree (bachelor's or bachelor's + master's) before embarking on their professional studies.

[8] Source : Eduscol (http://eduscol.education.fr/cid47682/les-chiffres-de-la-formation-2009-2010.html)

4.5.2 National Initiatives/Portals

Name (FR)	Name (EN)	Public	What does it contain?	Who Feeds Information?	Function	Usage
Livret personnel de compétences	***Personal Competency Booklet***	All pupils until the end of compulsory schooling	Items identifying knowledge, skills and attitudes acquired as indicated in the 7 key competencies	The principal teacher, after consultation with the teaching staff. Final validation by the School Master, latest Q3 3rd grade (troisième)	Certifies the acquisition of key competencies ("*socle commun*")	Transmitted to the family
Livret de compétences expérimental	***Experimental Competency Booklet***	Schools and colleges appointed by joint decree MEN HCJ (youth commission) for all or part of their pupils	Recording of key competencies, acquired in formal and informal education	Principally the student. Teachers integrate learning outcomes (key competencies, diplomas, certifications, etc.)	Value non-academic elements. Used to guide orientation decisions (art.6bis) and access to higher education (PM speech on 13/10/09)	Orientation, guidance and counselling.
Passeport orientation formation	***Orientation Training Passport***	All pupils from 5e until the end of general and technical secondary schools and vocational schools	Recording data, work, reflections from course activities (occupational induction and marking moments) during the career discovery path, self – study, self-assessment, collection of diplomas, certificates, certifications, extra-curricular activities	Principally the student. Teachers integrate learning outcomes (key competencies, diplomas, certifications, etc.)	Support activities throughout the journey of careers and education discovery to learn how to move throughout life. Prepares transitions. Facilitates document editing (résumés, cover letters, etc.)	In and out of class. Signed of by teachers used for validation of key competencies
Passeport orientation et formation	***Orientation & Training Passport***	"Everyone" (adults, more likely)	Record of diplomas, certificates and competencies acquired in initial and lifelong education as well as personal and professional experiences	The person herself	Guides the orientation and choice of education and career development	According to the wishes of the person, to prepare professional interview

Webclasseur Onisep	**Webfolder Onisep** (Onisep is the public body in charge of guidance and counselling – *orientation*)	College pupils, high school pupils	Personal space of the student integrating the discoveries made in the PDMF - information resources on education and the professions	The student manages his personal space The teaching staff can add their own information	Same ambition as the orientation & training passport (PDMF)	Idem to the orientation & training passport (PDMF) + Dissemination of information
Portefeuille d'expériences et de compétences ou Portfolio	**Portfolio of experience and skills or Portfolio**	Pupils from the License1 to the Master	Description, analysis and sharing of experiences and competencies acquired by the student	The student with the help of references accompanying lecturers, tutors, staff of SCUIO etc..	Accompanying the student's orientation and employability process	It is part of the university curriculum and can lead to validation of teaching units

Table 6: National initiatives and portals in France

4.6 Austria

4.6.1 National Policy/Training Framework of Teachers

Initial teacher training and in-service teacher training

Like the majority of European countries, Austria provides national guidelines to help teachers implement the eight key competences. The Austrian strategy is an overarching one that tackles all levels of the education system; from new ways of learning for students to political decisions at government level. Some key competences – especially those that are part of the curricula (mother tongue, second foreign language, mathematics/natural science) – are well embedded in this holistic approach, which targets primary as well as secondary schools, and which is also closely connected with efforts to improve life-long learning. The structural change is clearly defined in the education act, which outlines necessary changes as well as standards that should be reached and required assessment. Other key competences – transversal competences – are not included in this overarching process but receive great support through different measures from a range of projects, institutes and other initiatives. The reason for this different but strategic approach is that these competences are not directly linked to school subjects from traditional academic disciplines. One institution (BIFIE) is responsible for designing and developing the implementation of the three main key competences.

The Austrian approach deals with all areas involved in this essential change. Many resources are invested into teacher training and further education as well as into supporting the change by providing guidelines for teachers. An important aspect of this approach is the provision of student curricula as well as lesson plans and examples of best practice, exercises, etc. These examples are taken from concrete experience and can therefore easily be implemented into the new curricula.

National standardised assessment of students' learning performance and feedback to the teachers is an essential part of the quality assurance of the Austrian implementation strategy. These are both used for evaluative purposes and, longer term, to monitor the Austrian education system. The strategy exclusively covers formal learning.

4.6.2 National Initiatives/Portals

Bundesinstitut BIFIE: http://www.bifie.at

DIGIKOMP: With the need to strengthen key competences, the BMUKK decided to begin with the 'Digital Competences, basic education in ICT' initiative (http://www3.edumoodle.at/digikomp/), in cooperation with the Upper Austria regional education authority. A stakeholder panel was established with representatives from universities, teacher-training institutions and regional education authorities

LITERACY (http://www.literacy.at/), a long-term programme aimed at tackling low reading skills in Austria, is the new national coordination point for further education and training. This new action plan to foster these skills was put into place at the training college PH Vienna and aims to develop competences that go beyond basic reading and writing skills but also ensure the achievement of quality standards (based on the key competences), as well as developing language competence and skills in new media
Sparkling Science: http://www.sparklingscience.at/en/

LMS (*Lernen mit System* [Learn with System at *http://www.bildungsserver.com/*) is a highly visible project with more than 10 million hits to the page each month. LMS offers learning modules for teachers that are compatible with competence-orientated teaching

4.7   General overview

4.7.1 Initial teacher training

Country	State-of-the-Art
Greece	Greek teacher training is based on a four years study program, where student teachers have mostly courses around their specific subject field. In mostly technological specialties, studying one more year is needed in order to get the Pedagogical accreditation Training Programme for Teachers in School of Pedagogical and Technological Education (ASPETE).
The Netherlands	Dutch teachers on primary schools requires university of professional education, teachers on secondary and higher education requires need a second degree educational level, a degree from a college or university or follow a dual training program where they work partly in education during the training in higher education.
Ireland	Teachers in Ireland need Honours Bachelor Degree and a Leaving Certificate Examination or Northern Ireland GCSE and GCE A Level Examinations. Beside that a grade in Irish is required.
Spain	Pre-service training in Spain consists of the degree to teach in primary education with or without a specialisation in a specific subject. Prospective teachers at secondary school take a degree that is equivalent to one or more of the subjects taught at secondary school as wells a as master's degree focusing on educational methods.
France	France government decided to create a new form of initial teacher training: *Les écoles supérieures du professorat et de l'éducation (ESPE)*. Its primary mission is to train future teachers as well as students intending to apply to other jobs in the education system. It gives a central place to research and will take place both at the university and through internships in contact with pupils. These schools also function as a place for in-service teacher training.

Austria	Austria provides national guidelines to help teachers implement the eight key competences. This competences that are part of the curricula are well embedded in the holistic approach of teacher training, the other transversal competences are not included in this overarching process but receive great support through different measures from a range of projects, institutes and other initiatives.

5   Training of teachers on key competences in EU countries with the usage of ICT

Information and Communication Technology (ICT) plays a unique role in teaching and learning in European education. For instance, in the digital storage of information and digital copying, possible access to worldwide free open content, low-cost networking etc. Moreover, the use of ICT for better and more efficient internal organization of educational and training institutions could make them more (cost)efficient (Pelgrum & Law, 2003). So, ICT have a particular role to play in education. Taking into account the development and use of ICTs in modern societies, it is neither realistic nor advisable to imagine a future learning environment without taking into consideration the role of ICTs. In the current situation ICT are not deployed on a large scale in formal education and training in Europe. However, there is a vast number and variety of locally-embedded ICT-initiatives all over Europe, which illustrates the variety and scope of it (Redecker et al., 2009). The transition from one technology to another ensures that ICT is accepted within the current education in a silent manner. Nowadays schools are a new environment, where students and teachers can access a wide variety of tools (Ravotto, n.d.):

- to develop resources: word processing, spreadsheet, presentation and programs to draw, for digital recording,
- photographing, filming, to build simulations ,
- to produce resources collaboratively: Google.Docs, wiki, MindMap, ...,
- to share resources: YouTube, Slideshare, ...,
- to communicate to one another synchronously and asynchronously: Skype, messenger, forum, e-mail, SMS,
- blogs, wikis and microblogging
- to search for information: Google or other search engines and the entire Internet.

In the European Sloop2Desc project the relation between competence-based learning and ICT has been investigated. A conclusion made is: "Integrating online with face-to-face learning and using digital technology as a learning environment is not only a way to speak the same language of our students, digital natives, but also a way to make teaching and learning more flexible and personalized, to make students "acting" rather than "acted upon", involving them in activities that produce observable results".

6 Teachers' Competence Frameworks

At the next sections the most known ICT competence frameworks for teachers will be briefly mentioned. More information is available at ODS Internal Deliverable: Modelling Teachers' Competence Profile (2013).

6.1 UNESCO ICT Competence Framework for Teachers

The goal of the UNESCO ICT Competency Standards for Teachers (ICT-CST) project is to improve teachers' practice in all areas of their work. By combining ICT skills with emergent views in pedagogy, curriculum, and school organization, the Standards are designed for the professional development of teachers who will use ICT skills and resources to improve their teaching, collaborate with colleagues, and perhaps ultimately become innovation leaders in their institutions. The overall objective of the project is not only to improve teacher practice but to do it in a way that contributes to a higher quality education system which can, in turn, produce a better informed citizenry and higher quality workforce that, as a result, advances a country's economic and social development (UNESCO, 2008).

The Framework is arranged in three different levels of excellence to teaching (three successive stages of a teacher's development). Every level has its name. The first is Technology Literacy, enabling students to use ICT in order to learn more efficiently. The second is Knowledge Deepening, enabling students to acquire in-depth knowledge of their school subjects and apply it to complex, real-world problems. The third is Knowledge Creation, enabling students, citizens and the workforce they become, to create the new knowledge required for more harmonious, fulfilling and prosperous societies (UNESCO, 2008).

Figure 9 The three levels of excellence of ICT-CST Model

The UNESCO ICT Competency Standards for Teachers also address six categories of the educational system. It is important to note that the Standards do not merely focus on ICT skills. Rather, they include training on ICT skills as part of a comprehensive approach to education reform that includes: understanding ICT in education, curriculum and assessment, pedagogy, the use of technology, school organization and administration, and teacher professional development (UNESCO, 2011).
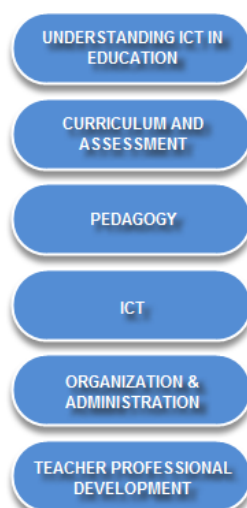
Figure 10 Categories of the educational system of ICT-CST Model

Crossing these six categories with the three levels of excellence creates a matrix which forms the UNESCO ICT-CST Framework. The cells of this matrix are the Competences of the framework at all levels.
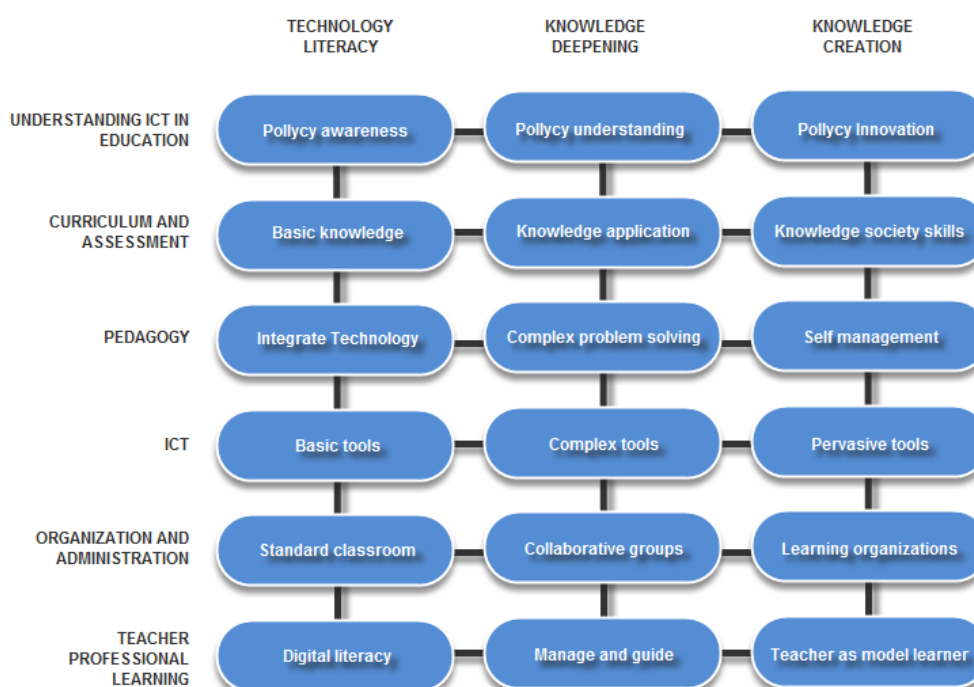

Figure 11 Crossing the levels of excellence and the categories of the educational system of ICT-CST Framework

6.2   The eLearning Competence Framework for Teachers and Trainers

The European Institute for e-Learning developed the "The eLearning Competency Framework for Teachers and Trainers". The emphasis in this framework is on the facilitation of a broad range of learning opportunities through the use of Knowledge, Information and Learning

Technologies (KILT). This competence framework concerns those teachers and trainers who are directly involved in the management and delivery of learning programmes and events to individuals and groups (Najjar J., Ternier S., & Duval E., "User Behavior in Learning Objects Repositories: An Empirical Analysis", 2004).

The framework performs ten categories of competence but focuses uniquely on the interaction between teachers/trainers and learners and so reduce them to six categories of competence: Preparing the learning event, Running the learning event, Supporting learners, Assessing learner progress, Promoting accessibility for learners and Evaluating learning programmes.
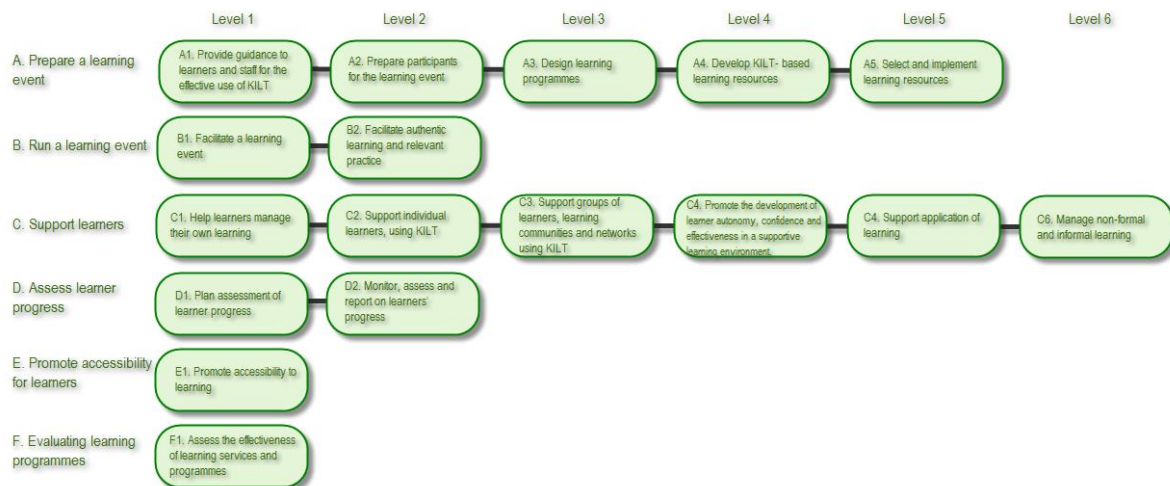

Figure 12 "The eLearning Competency Framework for Teachers and Trainers" developed by EIfEL

6.3   Australian Competence Framework for Teachers

The "Competence Framework for Teachers" of the Department of Education and Training of Western Australia is the product of a comprehensive consultation process involving teachers, professional associations, tertiary institutions, the Australian Education Union and other key stakeholders (Department of Education and Training of West Australia, 2004).

The Framework articulates professional knowledge, skills, and attributes essential for all classroom teachers, operating across three broad levels of excellence for every competence. The competences are generic and may be applied to specific teaching and learning contexts as defined by students, phases of schooling and learning areas. The competence standards are represented through five discrete generic categories of teachers' work: Facilitating Student Learning, Assessing and Reporting Student Learning Outcomes, Engaging in Professional Learning, Participating in Curriculum Policy and Other Program Initiatives in an Outcomes-focused Environment and Forming Partnerships within the School Community (Department of Education and Training of West Australia, 2004).

Figure 13 The Categories of the Australian "Competence Framework for Teachers"

Effective teaching requires successful integration of these categories including one competence and scaled to three levels of excellence. Critical sub competences are the basic building blocks of each competency standard. They map a range of professional actions teachers engage in as they apply their professional knowledge, skills and attributes to their teaching context. They are identifiable characteristics that contribute to the achievement of the overall competence standard (Department of Education and Training of West Australia, 2004).

Figure 14 The Australian "Competence Framework for Teachers"

6.4 French Competence Framework - Computing and Internet Certificate for teachers

The Computing and Internet Certificate (C2i) of the French Ministry of Education created the Competence Framework - Computing and Internet Certificate for teachers of higher education (C2i2e). The C2i2e certifies professional skills in the pedagogical use of digital technologies, common and necessary for all teachers and trainers for the exercise of their profession (C2i, 2012).

Figure 15 The French Competence Framework - Computing and Internet Certificate (C2i) for teachers

6.5   The eTQF Teacher ICT Competence Framework

The eTQF Teacher ICT Competence Framework was developed as part of an EU Lifelong Learning project called eTQF. The framework is an outcome of collaboration between Fast Track into Information Technology (Project Co-ordinator), City of Dublin Vocational Education Committee (Ireland), Consortium FOR.COM. (Italy) and South West College (UK) with the support of H2 in Ireland (eTQF, 2010).

The eTQF Framework is a significant tool for teachers' continuous professional development which supports Continuous Professional Development (CPD) in the use of ICT in education and a reference framework of ICT competences that can be used and understood by educators and education providers at any level across Europe. The project team decided to use the UNESCO (2008) ICT Competence Standards for Teacher as a reference point.

CATEGORIES	COMPETENCES	Level 1	Level 2	Level 3	Level 4
ICT	1a. Productivity Tools	1a1	1a2	1a3	1a4
	1b. Internet	1b1	1b2	1b3	1b4
	1c. Authoring Tools	1c1	1c2	1c3	1c4
	1d. Communication and collaboration	1d1	1d2	1d3	1d4
	1e. Administration	1e1	1e2	1e3	1e4
	1f. Educational Software	1f1	1f2	1f3	1f4
Pedagogy	2a. Lesson planning	2a1	2a2	2a3	2a4
	2b. Teaching and learning	2b1	2b2	2b3	2b4
	2c. Learning Environment	2c1	2c2	2c3	2c4
Curriculum and Assessment	3a. Curriculum Planning	3a1	3a2	3a3	3a4
	3b. Student ICT Competence	3b1	3b2	3b3	3b4
	3c. Assessment	3c1	3c2	3c3	3c4
Professional	4a. CPD in the use of ICT	4a1	4a2	4a3	4a4

Figure 16 The eTQF Teacher ICT Competence Framework

7 TRANSIt and the current situation of ICT in schools in Europe

In the last 10 years, educators have increasingly become focused on bringing ICT in the classroom and using it for educational purposes. Teachers' use of ICT in the classroom depends on several factors such as school and national policies, availability and access to resources, support in school, ICT training, or teachers' own beliefs about teaching and learning (Muntaz, 2000). The adoption of (new) ICT-applications in European education depends of different factors. The adopted initiative on new skills for new jobs provides a new overarching framework (European Commission, 2010) and the 'Digital Agenda for Europe' identified the lack of ICT skills as one of the seven most important obstacles to harnessing the potential of ICT. The teacher qualifications were identified as one of the crucial aspects to successfully teach the ICT-competences to their pupils (European Commission, 2011). In the European Commission Report (2011) the problem is not the hardware, but more the software. Teachers have no access to relevant educational software and support staff to give good instructions. In 2009, almost all countries, at least 75% of the students were studying in schools with one computer for up to four students. During the last 10 years, the disparities between schools have been eroded and there are between two and four students per computer in schools in most European countries.

7.1 Use of hardware in primary and secondary education for 2013

In 2006 almost 75 per cent of the households in Europe with dependent children has a computer at home. In 2009 this increased to 90 per cent of the households. The last years the growth of technology adoption in European education is enormous. Many iPad-schools arise, almost all schools have computers with connectivity to the internet and teachers have increasing possibilities to use smartphones in lessons. According to the European Commission (2012) there are now between three and seven students per computer on average in the EU; laptops, tablets and netbooks are becoming pervasive, but only in some countries. On average, in 2012 there were more than 100 students per whiteboard. More than nine out of ten students are in schools with broadband, at most commonly between 2 and 30mbps on average in the EU. The Northern countries in Europe have the best and fastest broadband networks, 80% of these schools from Denmark, Finland, Norway and Sweden have a network with 10 mbps or more. Conversely, less than 20% of the students in grade 4 and less than 10% in grade 8 are in such schools in around half of the countries that were surveyed (Bulgaria, Croatia, Greece, Hungary, Italy, Slovakia, Slovenia, Poland, Romania and Turkey); the situation in these countries improves at grade 11, but to a large extent only in Croatia and Slovenia (Wastiau et al, 2013).

7.2 Use of software in primary and secondary education for 2013

In 2009 the shortage of ICT resources affects the instruction of around one third of students. In mathematics and science, the lack of computer software was considered to be a greater

problem than the lack of computer hardware (European commission, 2011). In 2012 the European schools had a higher connectedness, which means that they have e.g. a website, a virtual learning environment and a local area network. The European Commission (2012) found that creating digital resources, and using the school website or virtual learning environments takes place every or almost every day, or at least once a week, for teachers or around respectively 30% and 20% of students. But between 60% and 85% of students are taught by teachers who say they never or almost never communicate online with parents, assess students using ICT, evaluate digital resources, nor post homework for their students online. The emergence of virtual learning environments has not applied an obvious change in this. It is also worrying that 50% of students almost never use digital resources and learning materials. Digital resources such as exercise software, online tests and quizzes, data-logging tools, computer simulations, etc. are still rarely used by students during lessons.

Despite the introduction of eLearning, the use of e.g. ePortfolios, Wikis and blogs is rare. Most teachers choose for a more traditional method when giving courses. However, blogs are the most commonly used online tools for educational purposes (Redecker, Ala-Mutka, Bacigalupo, Ferrari & Punie, 2009). Other commonly used tools are: social networking, discussion platforms and wikis. The more unfamiliar tools like ePortfolios, virtual realities, games and folksonomies are rarely used.

8 European Projects and activities related to TRANSIt project

8.1 Comparative study

Since the introduction of the European Competence Framework (2009) many research projects have been implemented. In Sloop2Desc (2011), a project funded under the EU Lifelong Learning Program, the relation between competence-based learning and the use of ICT has been investigated. The extensive research of Gordon et al (2009) is conducted within a consortium of 29 member states. In particular this study assesses the implementation of the eight key competences constructed in the European Reference Framework of Key Competences in primary and secondary schools across the European Union 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. However, this research is mainly focused on the implementation of the transversal competences: digital competence, learning to learn, social and civic competences, sense of initiative and entrepreneurship and cultural awareness and expression.

KeyCoNet (http://keyconet.eun.org) is a European Policy Network on the Implementation of Key Competence Development (KCD) in School Education. The project is funded by the Lifelong Learning Programme of the European Commission and will run over a 3 year period (2012 – 2014). Goal of the project is to analyse the implementation process for key competence development in various European countries in general education and primary and secondary level. Two literature reviews are the result of their effort. Since the KeyCoNet project ends in 2014, only first results can be mentioned. They find for example that the teaching methods best suited to fostering key competence development are those oriented towards interdisciplinary, cross-subject teaching, team based learning, personalized approaches and project-based work. For a widespread implementation of CBL it will be necessary to change the culture in many schools. Another important result of the project is the fact that there is evidence that changes in curricula have not been fully reflected in changes to assessment, and so this remains an important area in need of development. According to the participants in the KeyCoNet project there is a need for each country to firstly interpret the definitions of the key competences provided by the European Reference Framework, in accordance with the specific context of their education system.

Projects regarding competences have been implemented also in the other two sectors, Higher Education and Vocational Education and Training (VET). Some indicative cases follow:
The European project *Sharing Learning Objects in an Open Perspective to Develop European Skills and Competences* (Sloop2Disc) aims at supporting high-school teachers and trainers in Vocational Education and Training (VET) to increase their knowledge and understanding of new educational systems that are based on learning outcomes and competences.

Another European project for the improvement of competence-based learning is the project "Competence – Matching competences in higher education and economy: From competence catalogue to strategy and curriculum development". Goal of this project is the development and advancement of procedures and tools for assessing and improving the match between

competences developed by institutions of higher education and those required by the labour market in four Western Balkan partner countries.

The Eurydice project (2012) is another European project based on the concept of competences. This project was mainly focused on the development of key competences at European schools. This main objective of this Eurydice cross-country report is to present the findings on some of the challenges that European countries face in the implementation of the key competences approach, and to identify problem areas and common obstacles. The four challenges they identified as the critical success factors are: more strategic approach in improving students' competences, further support needed for the development of transversal competences, tackling low achievement in the basic skills (mother tongue, mathematics and science) and improving student motivation to learn mathematics, science and technology and encouraging the take-up of careers in these fields.

In the elaboration of these four challenges, the Eurydice consortium mentioned different specific factors that are problematic in most countries. The problems relevant for the TRANSIt project are discussed in the subsequent section. In one third of European countries, the focus on entrepreneurship education does not start until secondary level. Most European countries also don't have a strategic approach for the implementation and assessment of the eight key competences. Another fact that comes from the Eurydice study is the fact that most transversal competences are not cross-curricular integrated. Digital competences are for example to low level integrated in mathematics, science and languages.

The results of the Case project (2009) show that there is a great diversity of approaches in implementing competences in curricula. "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" (Gordon et al, 2009, p.239). The results of the project also show that there is high demand for implementation plans, according to the authors this calls for a new pedagogy of competence development, which can already be seen in innovative aspects of theory and practice in member states.

8.2 Conclusions/Recommendations for TRANSIt

All ongoing and completed studies on competency-based education in Europe are in one way or another connected to the theme of the TRANSIt project. However, the core goals of these studies are not in accordance to this project. The results of the Eurydice project show that there is insufficient integration of transversal competences in the basic subjects. TRANSIt should take this in account when writing the training framework. The average teacher in Europe does not have the feeling of being competent in giving CBL. They need a more strategic approach for the implementation and assessment of the eight key competences. But some countries are far in the development of a cross-curricular approach for teaching in a competence-based way. While in other countries the competences were kept in mind when developing the new curriculum. The competence sense of initiative and entrepreneurship is one of the competences that is hardly been included in the curriculum.

The teaching methods fostering key competence development are those oriented towards interdisciplinary, cross-subject teaching, team based learning, personalized approaches and project-based work. However, the teachers need to learn how to work in an adequate manner with these teaching methods before they will actually use it.

The aim of the TRANSIt project is to have a positive impact on the development of students' key competencies through building teachers capacity on competence oriented education. The comparative studies are focused on individual competences or on the broader spectrum of competences. However, the results of these comparative studies can be an addition to the CBL training framework.

9 General Conclusions and Recommendations

9.1 Summary

Educational System

In general in all partner countries in this research, a distinction is made between primary and secondary school, with some country-specific differences. In Ireland for example a distinction is made between different priorities in students' career. They should for example acquire skills in different learning phases: early childhood, primary priorities, junior cycle and senior cycle. In France they divided primary school into nursery school and elementary school and secondary school in lower secondary and upper secondary school. The Dutch educational system is divided into primary and secondary school. In secondary education, students are classified on the basis of their intelligence. This phase prepares them for the future career.

National Policy

Most European countries acknowledge that teachers need to prepare students for life, learning and work in the 21st century. In the French primary and secondary schools many competences were specified and make particular reference to three of them, namely writing, reading and arithmetic. Yet the proficiency in language skills and the French language appears as a priority throughout the whole of primary and secondary education. The general aim of the law and policy program in France is to build personal and professional futures and have a successful life in society, created by following competence-based education. In Austria the eight key competences form the basis for the lifelong learning approach, and therefore play an important role. Based on different guidelines – focus on different phases in life, student-centered learning, guidance for life-long learning, focus on competences, encouraging participation in lifelong learning - students will gain, consolidate and continuously develop these key competences, within an integrated and holistic process. One of the general viewpoints in Spain is the fact that citizens keep learning along their lives. For that reason there is an increasing focus on student competences. These are strongly supported by the law as they are present in the curriculum development and assessment of all educational levels. In the Netherlands and in Ireland education is based on skills, e.g. critical and creative thinking, communicating, information processing, being personally effective and working with others. These skills are important for a lifelong learning experience.

In general we can conclude that competence based learning and teaching is at many different levels integrated in many European countries. The structural approach to teach and assess these competences and the kind of competences differs per country. By doing a needs analysis we will identify, classify and analyse the needs of the teachers regarding teaching in a competence based way.

National Curriculum

The national curricula of the participating countries in this project differ in several areas. Within these different countries there is no general method to achieve this. In 2006 Spain has introduced basic competences for primary education and in 2007 for secondary education. These competences have strong similarities with those set in the European Reference Framework. However, the Spanish law gives schools the freedom to carry out the final

development of the curriculum for the educational levels that they offer. Within this context, there are reasons to think that schools – wishing to do so – can make their own policies on competence-based learning and assessment provided the goals of the regional and national curriculum are met. The aim in Austria is also to improve education by moving towards a more competence-based teaching method, through a systematic and comprehensive approach that includes assessment and quality assurance. The implementation of this competence-based teaching approach is already taken. The key competences have now been integrated into the curricula, teaching materials have been published, and teaching methods that allow competence driven education have been integrated. The educational structure in the Netherlands and in Ireland are mostly the same, they are more focused on learning skills and knowledge. These skills are a bit similar to the eight competences in the European Framework.

National Policy/Training Framework of Teachers
To become a teacher in the Dutch primary education it is necessary to follow a university of professional education. To be a teacher at a secondary or higher educational institution some conditions are required, this can be a teachers training or more than three years of professional experience in a certain field or you have to follow a dual training program. In Ireland they also have a special full-time course to qualify as Primary School Teachers. To become a post primary teacher a teacher should hold a suitable degree and teacher education qualification. The most common initial teacher education qualification in this country is the Professional Diploma in Education. The pre-service training in Spain consists of the degree on primary education teaching with or without a specialization in a specific subject. Prospective teachers at secondary school, as well as a master's degree focus on educational methods. The pre-service training of teachers is only in some universities structured around competences. But in other teachers training degrees the teaching and assessment of competences is not a structural component of the training. The in-service training is especially reserved for the extrinsically motivated teachers, so the people who want to obtain a promotion or to get a permanent position in the public educational sector. In Austrian teacher training is largely based on competences, the strategy they have chosen is a holistic and overarching one that tackles all levels of the education system; from new ways of learning for students to political decisions at government level. However, the transversal competences are not included in this overarching process but receive great support through different measures from a range of projects, institutes and other initiatives.

National Initiatives/Portals
Due to the growth of the digital learning, different national initiatives and portals were developed. Greece has for example the national school repository and the educational web portal e-yliko. The Netherlands has for example the knowledge sharing portal 'Kennisnet' and Ireland has for example facilities for in-service training, like Scoilnet and NCTE. The results and recommendations from the TRANSIt project can be disseminated via these country-specific portals.

9.2   Conclusions

A general conclusion that can be made – based on the situation in the different countries – is the fact that competence-based learning and teaching is interwoven in most countries, but that the teaching and assessment differ per country. Besides that most key competences defined by the European Commission (2009) have different titles in each country and are not adequately implemented in education. Only Austria and Spain adopted a competence model, while the Netherlands and Ireland base their educational structure on skills and knowledge, formulated

in goals. However, the willingness to adopt a competence-based approach is present, but the means to do this is lacking.

This report has provided a review of the state of the art in competence acquisition and the usage of ICT around the European Countries. The results show the importance of the development of the respective policies in the countries for improvement of the teachers' skills and competences, as well as bridging the gap between policy and practice.

A feasibility analysis was conducted using common framework however there are some differences among the countries related to the availability of resources and equipment.

The next step is to design a training framework taking into account the context and conditions described in this deliverable.

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