Integrating key competences into the curriculum

Key factors for policy design and implementation

NESET ad hoc report

NESET

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Majella O'Shea

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Abstract

This report aims to understand the factors that support the effective design and implementation policies to integrate key competences into the curriculum using recent examples from four European countries: Finland, Ireland, the Netherlands, and Portugal. The main question behind the study is: what are the key factors for designing and implementing effective interventions for the development of key competences in the curriculum? The analysis shows that the approaches taken in each country have been quite different, and largely depend on the context of the country. In particular, they depend on the level of autonomy schools have in relation to the design and implementation of their curricula, and of assessment, as well as how schools and teachers are able to take advantage of that autonomy. An analysis of the experiences of the four countries in the context of the literature on key competences and curriculum reform has identified several critical areas for countries to work through when integrating key competences in school curricula: country context and governance arrangements; policy design; the selection of competences; implementation and change strategies; engagement with stakeholders; support for teachers and schools; curriculum coherence; the time and space to implement measures; and monitoring and evaluation. While much research has been carried out in the areas of key competences and curriculum reform, there is a need for more in-depth, longitudinal studies that consider the impact of country context and education governance, including school leader/teacher mindsets and beliefs about teaching, learning and assessment, trust and financial resources, on policy design and implementation over time.

1. Introduction

This report identifies some of the critical steps necessary in designing and implementing a competence-based curriculum intervention, as well as the potential challenges and lessons learned, based on examples from four European countries (Finland, Ireland, the Netherlands and Portugal) that have recently engaged with this type of curriculum change.

In particular, the review of the selected relevant studies, research and national policy documents and reports provides insights into the following questions:

- What approaches were taken in the four countries when integrating key competences into national curricula?

- Which competences were included, and how were these defined and described in the four countries?

- What were the implementation experiences of these four countries?

- What are the key factors in designing and implementing effective interventions for key competences in the curriculum?

The four countries reviewed have all introduced key or transversal competences through significant curriculum change. Therefore, the findings of this report are as much about policy development and the ongoing, sustained implementation of curriculum change as they are about competences.

The next chapter of this report begins by setting out the context for the development of key competences. This serves as background for understanding what we mean by key competences. It also addresses the issue of terminology and provides the context for key competences in Europe.

Following a presentation of the methodology in Chapter 3, Chapter 4 presents a brief review of recent developments relating to the introduction of key competences in Finland, Ireland, the Netherlands and Portugal. In line with the scope of this report, the review mainly focuses on just one significant policy development in each country but makes reference to other related initiatives where necessary and appropriate. This review is not intended to be comparative; rather it focuses on learning from the experiences of other countries.

Chapter 5 focuses on a review of the most recent literature on the key factors involved in designing and implementing effective interventions to integrate key competences into curriculum development. This chapter looks at factors relating to policy design and implementation, the selection of competences, change strategy, stakeholder engagement, supporting implementation, the coherence of the curriculum with the purpose and vision of the intervention, and monitoring and evaluation. Some examples from the four countries are presented to support this analysis.

Lastly, the conclusion summarises the key factors that need to be considered when embarking on this type of policy change and indicates some areas for further research.

2. Key competences: background and policy context

Young people need a broad set of competences to find fulfilling jobs; to look after the well-being of themselves and others; to look after the planet; and to become independent, engaged citizens. Increasing the level of key competences is at the heart of the European Education Area – a space where all young people should receive the best education and training, regardless of their background. Globalisation, the need to solve complex problems, structural changes in the labour market, and the rapid development of new technologies all require us to develop and update our skills throughout life (European Commission, 2019).

Education systems have been grappling with the question of how to prepare our young people for the future in the "face of deep and widespread changes that are transforming our world and disrupting the institutional status quo in many sectors". There is growing recognition of the need to rethink the goals of education and the competencies[1] students need to thrive. Global trends such as digitalisation, climate change and advances in artificial intelligence, to name just three, pose fundamental challenges to both the goals and the methods of education (OECD, 2019a, p. 4).

The Council of the European Union adopted a Recommendation on key competences[2] for lifelong learning in May 2018. This identifies eight key competences that are essential to citizens for personal fulfilment, a healthy and sustainable lifestyle, employability, active citizenship and social inclusion (European Commission, 2018). The Recommendation replaced the Council Recommendation, Key Competences for Lifelong Learning: European Reference Framework (2007).

Competences are defined by the European Commission (2018) as a "combination of knowledge, skills and attitudes appropriate to the context, and where: a) knowledge is composed of the facts and figures, concepts, ideas and theories which are already established and support the understanding of a certain area or subject; b) skills are defined as the ability and capacity to carry out processes and use the existing knowledge to achieve results; and c) attitudes describe the disposition and mind-sets to act or react to ideas, persons or situations". The set of competences described in the 2018 Recommendation are "1) literacy competence; 2) multilingual competence; 3) mathematical competence and competence in science, technology and engineering; 4) digital competence; 5) personal, social and learning to learn competence; 6) civic competence; 7) entrepreneurship competence; and 8) cultural awareness and expression competence (European Commission, 2018)".

The OECD's Future of Education and Skills 2030 project outlines three transformative competencies that learners require to develop a sense of themselves in the world, to adapt to complexity and uncertainty, and to be able to help shape a better future. These specific competencies, "creating new value, taking responsibility, and reconciling conflicts, tensions and dilemmas are essential for thriving in and helping shape the future" (OECD, 2019b, p. 7).

There are significant **differences in the terminology used to define and describe key competences** across countries. While many use key competences, others refer to 21st

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[1] OECD uses the terms competency/competencies
[2] The Council of the European Union uses the terms competence/competences

century skills, core competences, core skills, key skills, 'socle commun' (the common core), transversal skills/competences, capacities, dispositions, etc. The set of competences also varies according to the education system (Halász and Michel, 2011, p. 294), and even by the level of the education concerned (early childhood, primary, lower secondary, upper secondary). This depends on the country context and what is most widely accepted by stakeholder. This report uses the term "key competences", in line with the terminology used in the European Framework of Key Competences for Lifelong Learning (2018), except when referring to specific terms used by the four countries. Specifically, Finland refers to "transversal competencies"; Ireland uses "key skills"; the Netherlands and Portugal both use "competences". While Key Competences for Lifelong Learning: European Reference Framework (2007) separated key competences from transversal skills, no such separation exists in the new framework (2018). In practice, both key and transversal competences tend to be used to describe those competences that are integrated across the curriculum.

Transversal skills and competences (TSCs) can be defined as "learned and proven abilities which are commonly seen as necessary or valuable for effective action in virtually any kind of work, learning or life activity. They are 'transversal' because they are not exclusively related to any particular context (job, occupation, academic discipline, civic or community engagement, occupational sector, group of occupational sectors, etc.)" (Hart et al., 2021, p. 4).

Many European countries are either adopting specific measures or implementing overarching national strategies to introduce into their systems competences such as wellbeing, citizenship or digital literacy. A recent study conducted a mapping exercise that identified competence-related initiatives across the 27 European Member States. Of 79 relevant reforms identified (not an exhaustive list), most reforms focused on "curriculum development (51), followed by teacher capacity (40), and assessment (39)" (European Commission, 2022, p. 25).

Recent studies mapping the development of key competences have shown that **in most cases, initiatives aimed at competence development are situated in systemic curriculum reform policies** (KeyCoNet, 2014; European Commission, 2020a, 2020b; European Commission, 2022). The four examples in this report follow this pattern, with each being situated within systemic curriculum reform processes.

Competence development is strongly linked to processes of change in curriculum and assessment in all four countries reviewed in this report. These tend to span several levels of education: Finland, ISCED levels 1-3; Ireland, ISCED level 2, with work underway on levels 0,1 and 3; the Netherlands, ISCED levels 1 and 2; and Portugal, ISCED levels 1-3.

Successfully implementing policies to integrate key or transversal competences is neither easy, nor a linear process. The OECD's Governing Complex Education Systems (GCES)[3] project has identified three themes that are vital for effective governance and successful reform: **accountability, capacity building and strategic thinking**. Specifically, "Accountability addresses the challenge of holding different actors at multiple levels responsible for their actions. Capacity building focuses on identifying gaps, skill needs and

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[3] The Centre for Educational Research and Innovation (CERI)'s Governing Complex Education Systems (GCES)

dynamics of implementation on individual, institutional and system level. Strategic vision pertains to the development of a long-term plan and set of common goals for the educational system among a broad array of actors. It requires aligning the different perspectives and time-horizons so that everyone involved can act together" (Burns and Koster, 2016, p. 3).

Complexity theory dictates that a significant degree of complexity in a system, whether an education system or a school, leads to emergent properties beyond those predictable during the initial policy design and planning. Thus, the traditional policy cycle, "which tends to frame planning and policy choices in a linear, reductionist manner, is no longer adequate". **To be successful, education systems must be able to be flexible and adaptive at the same time as providing a clear plan and steps towards implementation.** They must also do this as efficiently as possible, using limited financial resources, and within the confines and pressures of time-sensitive political cycles (Burns and Koster, 2016, p. 230).

3. Methodology

This report aims to gather and analyse the various concepts and approaches documented in the academic and grey literature on key competence education policies and reforms, primarily in relation to ISCED levels 1 and 2.

The breadth and complexity of this topic, which includes competence-based curriculum change, policy design and implementation, might result in a huge number of studies, articles, and reports. The author therefore decided that the most appropriate approach was to employ a search strategy using purposive sampling, aiming to retrieve materials purposively to answer specific questions and analyse policy interventions. This purposive approach allowed the author to access research articles and reports on areas such as change management, competence development, curriculum development, policy reviews. These were primarily European, in line with the context of the four countries under review. Some broader studies on policy design, implementation and change strategies were also targeted (Pawson et al., 2004).

The author began by conducting purposive sampling, selecting topics and approaches on the basis of their relevance to and visibility within the related research. This sampling approach is more iterative and interactive than a systematic review and has the advantage that it can be repeated as theoretical understanding develops.

A search was conducted using Google Scholar and the ERIC database for relevant articles, books, policy reports and policy analyses – first, in relation to the four countries being reviewed; and second, for more cross-cutting reports and articles.

The "snowballing" technique (pursuing references of references in bibliographies and by means of citation-tracking databases) was then used to identify further materials of interest. This added significantly to the studies and reports identified (Pawson et al., 2004).

The materials reviewed included journals, studies, books and reports from national and international authors and organisations. The objective of this review was to identify peer-

reviewed bibliographic sources, along with sources that have analysed the adoption of competence-based curricula or other systemic policies or reforms.

The author experienced some constraints regarding the availability of policy documents and evaluations in English, particularly in relation to Portugal and Finland. The fact that some reforms are still in the process of implementation also limited the number of research papers and evaluations available at the time of writing.

4. Learning from each other: curriculum development approaches and experiences across four European countries

Country context and governance have a significant impact on the approaches taken to the policy design and implementation of educational change processes. In addition, the mix of policy measures taken to introduce initiatives varies between countries. The 2022 European Commission study on Key competences for all (p. 17) found that policy measures include "a mixture of legislation, regulations, and centrally organised strategies, as well as more flexible approaches such as frameworks, guidelines, and incentives to support local adaptation and learning across networks" (Wilkoszewski, 2014).

This chapter presents examples of competence-based curriculum approaches and experiences in each of the four countries studied: Finland, Ireland, the Netherlands, and Portugal (Tables 1 and 2). While each of these countries has moderate to high levels of school autonomy, the levels of curriculum and assessment centralisation are quite different.

Policy documents, research papers and evaluations from each country have been analysed and are reported on in terms of the approach taken, the competences addressed, implementation experience, curriculum coherence, and monitoring and evaluation. As the reforms reported on in this chapter are still quite recent, with most still undergoing the process of implementation, there are gaps in the information available through published articles and evaluation reports. The 2022 European Commission study on Key competences for all (Looney et. al, 2022), which draws on peer learning activities and country workshops, provides a rich resource of information, especially on implementation and evaluation and is therefore heavily referenced in this chapter.

Curriculum coherence is an essential determinant of sustainable curriculum change. Coherence in terms of purpose; a clear, shared vision; and consistency of approach and decision-making (Sahlberg, 2011); as well as curriculum alignment – for example, between learning goals and objectives and assessment methods (Muller, 2009) – are important for sustainable school development (Sjwartz, Weizman, Fortus, Krajicik and Reiser, 2008, cited in Pietarinen, Pyhältö and Soini, 2017).

The review of interventions in the four countries studied covers several levels of education: Finland, ISCED levels 1-3; Ireland, ISCED level 2; the Netherlands, ISCED levels 1 and 2; and Portugal, ISCED levels 1-3. It should be noted that other significant developments are also underway in some of the countries reviewed. For the purposes of this report, in each country, one significant reform at an advanced stage of implementation has been selected for review.

Table 1: Country contexts

Country	Level of centralisation in curriculum and assessment	Level of school autonomy
Finland[4]	Decentralised system with a national core curriculum and local autonomy in implementation.	High
Ireland[5]	Relatively centralised curriculum and assessment system. Increased level of school autonomy encouraged through the implementation of the Framework for Junior Cycle.	Moderate
Netherlands[6]	Combines elements of centralisation and decentralisation. National core curriculum, with high degree of freedom for schools with regard to implementation. Continuous assessments and national central examinations.	High
Portugal[7]	Centralised curriculum and assessment system. Currently in the process of modernisation and decentralisation.	Moderate (increasing trends)

Finland

Approach taken

Finland's national curriculum sets the framework for schoolwork by defining the values, objectives, general principles, and "transversal competencies"[8] for all schools in Finland. While this curriculum framework is common to all schools, there is considerable freedom for schools to interpret the curriculum in a way that suits the local context (Lähdemäki, 2019).

Curriculum change in Finland tends to occur on a regular basis, usually at 10-year intervals. The reform process for the new Core Curriculum for Basic Education (ISCED 1 and 2) by the Finnish National Board of Education (FNBE) began at political level in 2012. The new curriculum was designed during the years 2013 and 2014, allowing time for the development of local curricula prior to its implementation in 2016.

The challenges faced by the Finnish education system were discussed in a number of fora during the time that the new curriculum was being developed. These challenges were identified on the basis of OECD, PISA and TALIS (OECD 2013, 2014) surveys as well as national monitoring reports produced by the Finnish Education Evaluation Centre. Some of the main challenges included declines in the learning outcomes of students and in the wellbeing of students. EDUFI (the Finnish National Agency for Education) reported that in order to meet the challenges of the future, a greater focus on transversal (cross-curricular) competencies and work across school subjects would be required (Halinen, 2015).

The development of the Finnish national core curriculum is more about the complex process of creation than it is about the final product. Work on the curriculum in Finland is undertaken as an open and inclusive process. This includes ongoing dialogue and a learning

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[4] https://eurydice.eacea.ec.europa.eu/national-education-systems/finland/overview

[5] https://eurydice.eacea.ec.europa.eu/national-education-systems/ireland/overview

[6] https://eurydice.eacea.ec.europa.eu/national-education-systems/netherlands/overview

[7] https://eurydice.eacea.ec.europa.eu/national-education-systems/portugal/overview

[8] Finland uses the terminology competency/competencies.

cycle that helps professionals in the field of education to identify the issues in need of improvement and promotes the commitment of all stakeholders (Lähdemäki, 2019). Once first drafts had been completed, the curriculum was made available to all stakeholders for consultation and feedback, in line with the open process of curriculum development in Finland. During this phase, all teachers, teacher educators, stakeholders and parents could comment freely on the draft curriculum (Lavonen, 2020).

Competences addressed

The integration of competences into the new curriculum was emphasised by the government (Change in Basic Education Act 642/2010). The set of competences chosen reflect competence definitions from various institutions and organisations globally, including the European Union's key competences (2006), the OECD's key competencies (2005) and the Institute for the Future's key competences (IFTF, 2011[9]).

The competencies selected are based on the defined values of the Finnish national curriculum: the uniqueness of every pupil and high-quality education as a basic right; the necessity for a sustainable way of living; humanity, culture and civilisation; equity and democracy; and cultural variety as richness. In addition, one of the three key themes of the curriculum reform was rethinking the roles, goals, and content of school subjects – namely, moving towards transversal competencies to support the development of a child's identity and their ability to live in a sustainable way (Lähdemäki, 2019).

The set of transversal competencies developed encompass knowledge, skills, values and attitudes, and have been grouped under the following competence areas:

- taking care of oneself, managing daily life;
- multiliteracy;
- digital competence;
- working life competence, entrepreneurship;
- participation involvement, building a sustainable future;
- thinking and learning to learn; and
- cultural competence, interaction and expression.

The transversal competencies are integrated into subjects and all school activities across all education levels, ISCED 1-3 (FNBE, 2014).

The learning and development of transversal competencies is supported through the enhanced collaborative classroom practices, by engaging students in multidisciplinary, phenomenon- and project-based studies in which several teachers can work with any number of students simultaneously. In practice, all schools are required to design and provide at least one such study period per school year for all students, which focuses on studying phenomena or topics that are of special interest to students (Lavonen, 2020). In Finland, students aged 7-16 are required to participate in at least one multidisciplinary phenomenon-based learning (PhenoBL) module per year (Halinen, 2018). These modules are designed to explore real-world phenomena that can be viewed from competing and

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[9] https://legacy.iftf.org/futureskills/

complementary viewpoints. A multidisciplinary PhenoBL learning module encourages students to bring together knowledge from all subject areas to examine an issue through a holistic lens.

Implementation

In Finland, the focus is on how teachers bring the curriculum alive constructing their own teaching and learning materials based on the local curriculum (Halinen, 2018). The collaborative and extensive design process to create the curriculum and teachers' involvement in developing local curricula, ensures that teachers in their own local area have a common understanding of the basis of the curriculum change. The involvement of the various stakeholders in the design process for the new curriculum has been considered essential to building a shared understanding and for sense-making (Lavonen, 2020).

To achieve progress in teacher education and to address the recognised challenges in developing the transversal competencies at classroom level, Finland's Minister of Education and Culture created a Finnish Teacher Education Forum in 2016 (MEC, 2016[10]). This forum collaboratively prepared a development programme for teacher education, setting out strategic competence goals and action guidelines. In addition, 31 pilot projects were selected and started at the end of 2016. Significant investment was made to support this process. An evaluation of the process by the Finnish Education Evaluation Centre found that the teacher education reform model prepared at the Teacher Education Forum had several strengths, including the networking and bringing together of different experts and stakeholders, and has supported the teaching and learning of 21st-century competences (Lavonen, 2020). Significant financial resources were also allocated to teacher education providers who could support teachers in their classrooms in integrating transversal competencies into their teaching, and in setting up digital learning environments (MEC, 2017[11]).

Curriculum coherence

Coherence between curriculum and assessment is supported by the focus on formative assessment and by giving supportive and encouraging feedback to students. There is no centralised assessment in basic education in Finland. The development of skills for student self-assessment and peer-assessment is promoted. This means that students learn to set goals for their own learning, to discuss the assessment criteria, to plan and reflect upon their working processes, and to assess the results of their own work (Halinen, 2018, p. 86). For teachers, formative assessment is an effective pedagogical tool for guiding and encouraging their students' learning and development. For students, learning self-assessment skills also improves their capacity for self-reflection, self-directedness, and responsibility.

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[10] Ministry of Education and Culture report on the Teacher Education Forum (2016) – not available in English.
[11] Ministry of Education and Culture report on the Teacher Education Forum (2017) – not available in English.

Monitoring and evaluation

Finland's model for curriculum development ensures that there is ongoing monitoring of curriculum reform and its implementation. Stakeholders are involved at all levels of the process and can therefore provide feedback in real time.

In 2018, the Finnish Education Evaluation Centre evaluated both the implementation of the national core curriculum at local level and the process of preparing local curricula (Saarinen et al., 2019). According to that evaluation, the national and local steering systems have supported both the implementation of the curriculum and classroom teaching. The transversal competencies have been integrated with the aims of individual school subjects at school level, and teachers are aware of this integration. Challenges to the integration of the transversal competencies into classroom teaching and learning are being addressed through the teacher education reform model (Saarinen et al., 2019, cited in Lavonen, 2020).

Ireland

Approach taken

In 2015, Ireland introduced a competence-based reform, at lower secondary (ISCED 2). The introduction of the Framework for Junior Cycle (DES, 2015) followed much deliberation and consultation with stakeholders. Both international and Irish-specific factors influenced the ideas behind the policy change. Evidence shows that previous curricula in Ireland had not been well aligned with the competence-based curriculum designs employed across Europe and further afield (European Commission, 2022, p. 41).

The National Council for Curriculum and Assessment (NCCA), a statutory body of the Department of Education, had responsibility for the development of curriculum and assessment in Ireland. The structure of the NCCA allows significant and authentic engagement with curriculum proposals by all the education partners, as they are being designed and developed (European Commission, 2022, p. 114).

The Framework (DES, 2015) sets out the principles underlying the curriculum change: a flexible framework for students' learning; a balance between knowledge and skills (competences); a dual approach to assessment; supporting student learning over the three years of junior cycle; measuring achievement at the end of the three years; reporting a broader picture of student learning to students, parents and guardians; increasing the level of professional collaboration between teachers; supporting continuity of learning (with the primary and senior cycles).

Programmes have also been developed for Levels 1[12] and 2[13] of the National Framework of Qualifications, for students with special educational needs. These programmes have a strong focus on basic and key skills[14].

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[12] https://www.curriculumonline.ie/junior-cycle/level-1-learning-programmes-(l1lps)/

[13] https://www.curriculumonline.ie/junior-cycle/level-2-learning-programmes/

[14] More information on Level 1 and 2 Learning Programmes can be found at: https://ncca.ie/en/junior-cycle/level-one-and-level-two-programmes/

Competences addressed

During the development of the new curriculum, there was a strong recognition that learners require a wide range of skills (competences) to help them face the many challenges they will face in today's world – a general set of skills that are needed to support learners in their personal, social, and work lives.

The key skills of junior cycle are grounded in both national and international research and practice. The starting point was the OECD's DeSeCo framework for the definition and selection of key competencies (DeSeCo, 2005). The approaches taken to key competences in a number of other countries such as New Zealand, Queensland, Australia and Canada were also influential in developing the set of key skills.

The choice of key skills was also informed by interactions with schools – in particular, those schools that already had experience of working with key skills at upper secondary. The main messages from these schools were to keep the language of the skills appropriate to the age of the learners; to provide details of each key skill along with elements and outcomes that would help teachers to relate the key skills to their subject curriculum; and to provide tools that would help teachers to integrate the key skills into their planning and classwork.

It was deemed important that students should engage with competences that are appropriate to their stage of development, while at the same time experiencing continuity with previous and future learning (NCCA, 2011).

Consultation with stakeholders on the key skills formed part of the broader consultation on the Framework for Junior Cycle (DES, 2015).

Key skills[15] (competences) are evident throughout the framework and the subsequent work on subject specifications and course materials, not only in the eight transversal key skills specified, but also through the principles and statements of learning set out in the framework. Teachers are encouraged to build these key skills into their classroom planning, and in their approaches to teaching and assessment (NCCA, 2012).

The eight competences are:

- being literate;
- being numerate;
- managing myself;
- staying well;
- managing information and thinking;
- being creative;
- working with others; and
- communicating (NCCA, 2012).

In addition, the overarching statements of learning include statements on literacy, multilingual, science, mathematics, and technology, digital, citizenship, wellbeing, and cultural awareness and expression competences.

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[15] In Ireland, key competences are called key skills, but follow the same model as competences.

Wellbeing plays a central role in the curriculum at lower secondary education, crossing the three years of the Junior Cycle (400 hours). This provides learning opportunities to enhance the physical, mental, emotional and social wellbeing of students (NCCA, 2021).

The National Strategy: Literacy and Numeracy for Learning and Life (DES, 2012), followed by Ireland's Literacy, Numeracy and Digital Literacy Strategy 2024-2033 (Department of Education, 2024), were developed to improve standards in basic literacy and numeracy skills among children and young people.

Work is also in progress on competence development, through curriculum review and development, at early childhood, primary (the Primary Curriculum Framework) (NCCA, 2023) and senior cycle (upper secondary). While the sets of competences differ at each level (ISCED 0-3), there is an alignment between them. However, these developments have not yet been fully implemented.

Implementation

In preparation for implementation, a joint group was established to support, advise on and communicate messages about the implementation of the Framework for Junior Cycle. The first Implementation Plan was published in 2015. Numerous iterations of this plan, due to its phased implementation and certain adaptations, have been published to support the phased implementation of the curriculum developments (Department of Education, 2023).

From 2013 onwards, teachers' professional learning was supported through the establishment of Junior Cycle for Teachers (JCT)[16] to support teachers and school leaders during the implementation phase. This involved "support for teachers in their subject areas, as well as support for school leaders, for whole-school development, and for the provision of online resources" (European Commission, 2022, P.114).

Curriculum coherence

One of the most significant challenges to the effective implementation of the curriculum change concerns the alignment of the curriculum with assessment. High-stakes external assessment has been dominant in the Irish education system for some time. Despite the considerable efforts made in the design of the Junior Cycle programme to ensure curriculum coherence, it is evident that "external demands (in the form of high-stakes external examinations) are inhibiting the realisation of the curriculum changes as they were originally intended" (McGarr et al., 2024, p. 124).

Monitoring and evaluation

Implementation was phased in between 2015 and 2022, with between one and three subjects being introduced each year. Ongoing early enactment subject reviews (NCCA, 2020) supported an iterative process of implementation, review and adjustment.

Formative evaluation was a key feature of the implementation phase. Information from ongoing evaluation was fed back to the Department of Education and Skills, the NCCA and the support service (JCT), allowing them to address some of the main challenges arising (European Commission, 2022, p. 114).

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[16] www.jct.ie

An extensive longitudinal study is currently underway to explore the implementation, enactment and impact of the Framework for Junior Cycle (McGarr et al., 2022; 2023; 2024). So far, this evaluation has reported that: "the professional development provided by the JCT was seen to support teachers and schools and positively contribute to the implementation of the changes" (McGarr et al., 2022, p. 71); students favour student-centred learning experiences such as groupwork, active learning and enquiry-based 'real life' learning; the CBAs were viewed positively in this regard, as they facilitated this type of learning; parents value the shift towards an emphasis on skills, and valued the project-based learning that was introduced as part of the students' CBA work (McGarr et al., 2023, p. 146).

Teachers are at various stages of engagement with the curriculum changes. Some are very supportive of the changes, despite the issues in relation to assessment. Results from a teacher survey indicate that "some teachers are managing to navigate a path through the Junior Cycle that realises ambitions relating to flexibility, relevance, meaningful learning, and student voice despite coherency issues connected with assessment. Data suggest that those teachers who experienced significant levels of professional collaboration and engagement were more likely to be on this path. However, these practices take place within a context in which assessment requirements are inhibiting possibilities and stifling teachers' full enactment of the curriculum" (McGarr et al., 2023, p. 121).

The Netherlands

Approach taken

The Dutch education system is a decentralised system with distributed responsibilities. The Ministry of Education, Culture and Science is responsible for national education policies, while schools are free to determine – within legal boundaries and a national core curriculum – what is taught, and how. It is interesting to observe the challenges that the Netherlands has encountered in relation to curriculum reform in recent years.

The process of curriculum revision has gone through a number of iterations over the last 20 years. In 2006, 58 core objectives (down from 103) for primary and secondary education (ISCED 1 and 2) were introduced. These are currently still the frame of reference for teachers and schools in developing curricula but are undergoing revision.

The next revision process began in 2014 and was based partly on reports from two advisory councils. The first phase involved significant consultation and the involvement of all stakeholders in setting out a vision for education in the future. This resulted in the publication of the advisory report *Education 2032*[17]. Following this, there was a phase of the teacher-led development of the building blocks of the curriculum, Curriculum.nu[18]. A number of political changes have impacted the further development of Curriculum.nu, and currently the country is following a step-by-step approach to curriculum revision (Rouw and van der Hoeven, 2023).

Another relevant reform policy, the Teachers' Agenda (2013-2020), was introduced to build the professionalisation of teachers and school leaders.

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[17] Onderwijs 2032 – A project from the Ministerie van Onderwijs, Cultuur en Wetenschap, (Ministry of Education, Culture and Science), The Netherlands (OCW, 2015)
[18] https://curriculum.nu/

Various factors have influenced the process at system level. These include discontinuity in curriculum change, due to a change of government in 2010 (Nieveen and Kuiper, 2012); a decline in reading skills in the Netherlands' PISA results (2018); teacher shortages; discussions about the heavy workloads of teachers and teacher salaries. The above factors have led to a waning appetite for large-scale curriculum revision in the Netherlands, and paved the way for the new step-by-step approach that is currently being adopted. This more phased approach seeks to renew the curriculum subject by subject, starting with so-called "basic skills": reading, mathematics, digital skills, and citizenship skills (Rouw and van der Hoeven, 2023, p. 90). The process will include periodic curriculum maintenance to ensure that in future, curriculum change will take place when necessary and more independent of political influence. Based on advice from the Scientific Curriculum Committee, this system is currently under development (Rouw and van der Hoeven, 2023).

The Masterplan for Basic Skills was launched in May 2022 for early childhood education and care (ECEC) (ISCED 0), as well as primary, secondary and vocational education. It promotes Dutch reading and writing skills, mathematics, citizenship education and digital literacy. The government provides financial and practical support in the form of "basic teams" that can assist schools in improving instruction. Participating teachers are granted additional time – 16 hours a year – for professionalisation in relation to basic skills. The Ministry of Education has set up four centres of expertise (one for each of the basic skills targeted – literacy, mathematics, civics, and digital literacy) for knowledge sharing and as direct contact points for schools (European Commission, 2024).

Competences addressed

The 58 core objectives, introduced in the 2016 curriculum and still in use, are framed around eight competence areas:

- Dutch language;

- Frisian language and culture;

- English language;

- mathematics and arithmetic;

- people and nature;

- people and society;

- art and culture; and

- physical education and sports (Thijs et al., 2008).

In addition, the current Minister for Education has set attainment targets (ATs) for:

- Dutch reading and writing;

- Mathematics;

- digital skills; and

- citizenship (Rouw and van der Hoeven, 2023),

through the *Masterplan Basisvaardigheden*[19] (Basic Skills Masterplan, 2022).

Implementation

Curriculum reform and implementation plans were put on hold in 2021, while a new cabinet was taking office. Further work has now commenced on the new approach to curriculum implementation, but these plans are still at an early stage. However, the development of the Teachers' Agenda (2013-2020) is still of interest, as it focuses on building teachers' competences to support them with curriculum development and pedagogical competences. The implementation of the Teachers' Agenda was supported by the setting-up of pilots for various action points in different municipalities.

Monitoring and evaluation

Following a number of years of top-down approaches to implementation of curriculum reforms, reforms currently underway are being worked out and implemented through greater collaboration with stakeholders. There is greater involvement from "advisory boards, trade unions, teachers, parents and students, and the government is also using social media and other channels to communicate about the reforms more broadly" (European Commission, 2022, p.121).

Teacher involvement turned out to be one of the biggest challenges for the 2006 and 2016 policy reforms. It is interesting to note that, despite the freedom over curricula that is part of Dutch educational culture, teachers do not always feel that they are sufficiently involved in curriculum design. It is important to contextualise this, as teachers and schools deal with the dynamics of problems in their schools, creating a tension between individual urgency and political urgency (European Commission, 2022, p.123). Enhancing teacher agency can ensure that teachers become a more significant part of curriculum development (ibid. P. 123).

Nieveen and Kuiper have outlined issues in the Dutch system with regard to the balance between curriculum regulation and curriculum space. At the time Curriculum.nu was introduced, they suggested that a "reinterpretation of the policy concept of 'regulated space' is needed" (2021, p.139). They posit that some "mid-level" specification of goals and contents at national level is required to provide some direction to enable local curriculum decision-making. This would include statements of goals that fall somewhere between specification and abstraction. These mid-level specifications for goals would need to be accompanied by professional development support for local curriculum decision-making.

Gaps exist in the evidence gathered about previous reforms. This has led to a new emphasis on strengthening the evidence base and investing in the knowledge infrastructure for both policy and practice. A research programme has been developed, together with the National Educational Research Organisation (NRO), to support curriculum revision. One of its key functions is to monitor and evaluate the introduction of the new curriculum (Rouw and van der Hoeven, 2023).

Efforts are also being made to strengthen the structure of the "curriculum chain". According to the Scientific Curriculum Committee, co-ordination of the knowledge ecosystem[20] was

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[19] https://www.masterplanbasisvaardigheden.nl/
[20] How evidence from schools and classrooms looped back into the system to inform progress.

weak. In response to this, a new co-ordination body has been established to organise information flows in the curriculum system (Rouw and van der Hoeven, 2023). According to the SCC, the evaluation of both the "intended as well as the realised curriculum" is limited. The trail of evidence from schools and teachers about the ways in which teachers implement curriculum goals and materials in classrooms is weak and requires improvement. While the inspectorate provides some insights, there is still room for improvement (SCC, 2022, cited in Rouw and van der Hoeven, 2023).

Portugal

Approach taken

Following a change of government in Portugal in 2015, new approaches to school education were initiated. Issues regarding low performance in national testing and socio-economic inequalities were factors that led to a desire for more democratic, autonomous and inclusive schools.

Educational policy was laid down in the National Programme for Educational Success (2016). This comprised multiple initiatives, and formed the basis for other relevant curriculum initiatives, including competence development. The second key measure was the introduction of the Students' Profile at the End of Compulsory Schooling (2017). This outlines the present approach with regard to competences and is expected to have a major impact on educational policy over a number of years. It is a reference document for the organisation of the entire education system (DGE, 2017). As such, it is designed to inform decision-making at all levels of education: educational managers, bodies responsible for educational policies, school management, teacher educators and teachers.

In addition, the Plan for Essential Learning (2017) (*Aprendizagens Essenciais, AE*) consists of the basic curriculum guidance documents for ISCED levels 1-3. This plan, and its supporting developments, seek to address the needs of children and young people facing the challenging and unpredictable world in which we live (Mouraz and Cosme, 2021). The Curriculum Guidelines for Pre-School Education, published in 2016, and the Decree-Law 54/2018 (Inclusion) include pre-school education.

Competences addressed

The competence areas addressed are set out clearly in the documentation, and are defined as an integrated set of knowledge, skills and attitudes (DGE, 2017). For each area of competence, operational descriptors are presented which can guide the teacher's work on the agency needed by the student to develop that area of competence. The main areas of competence emphasised in the Students' Profile are transversal and include:

- languages and texts;

- information and communication;

- reasoning and problem-solving;

- critical and creative thinking;

- inter-personal relations;

- personal development and autonomy;

- welfare, health and the environment;

- artistic and aesthetic sensibilities;

- scientific, technical, and technological knowledge; and

- awareness and command of the body.

Wellbeing is mainly incorporated into the competence area, welfare, health and the environment, and is also covered in personal development and autonomy, inter-personal relations, and awareness and command of the body.

Subsequently, two other laws were introduced in 2018, relating to inclusive education (*Decree Law No. 54/2018; 116/2019 (amendments and updates)*) and citizenship education. Citizenship education has been further emphasised through the introduction of The National Education Strategy for Citizenship, which was launched in October 2017 to re-introduce citizenship education into the curriculum.

Implementation

The Law for Curriculum Autonomy and Flexibility (Decree Law No. 55/2018), introduced in 2018, allows schools the autonomy to flexibly manage the curriculum as well as learning spaces and schedules, so that local and students' needs can be considered in the design of the curriculum and the pedagogical methods used (OECD, 2022). Schools are allowed up to 25 % autonomy over what is included in the curriculum for these purposes. As part of the Pedagogical Innovation Pilot Project, six schools (a seventh school joined the project later) were given the opportunity to assume 100 % autonomy over the curriculum. Currently, schools can apply to the Ministry of Education for authorisation to have their own Innovation Plan, which would allow them to make up to 50 % of the curriculum more flexible.

The developments in Portugal were initially launched as a pilot programme, the Project for Autonomy and Curriculum Flexibility (PACF), in the school year 2017/2018 (ISCED 1-3). The pilot initially included 226 schools, of which 130 continued into the last phase of the pilot. A series of webinars was held, as well as exchanges of experiences between schools, and student voice events.

Implementation strived to involve all major stakeholders with the creation of "interdisciplinary teams that included representatives of schools, the Ministry, teachers, local authorities, parents, and researchers" (European Commission, 2022, p. 124-125).

An earlier curriculum change initiative, introduced in 2012, impacted Portugal's education system by returning the focus to a core curriculum, testing and targets. Following a change in government in 2015, this change began to be reversed and policy moved towards a more competence-based approach. There are indications that another change in government in 2024 may herald further changes to current initiatives, although it is too early to see evidence of potential changes. What these changes in direction show, however, is that initiatives aimed at curriculum change can be susceptible to continuing alteration due to changes in political priorities.

Curriculum coherence

At the time of the reform, formative assessment was not seen by teachers as having the same value as summative assessment. As noted by the European Commission, "A perception arose that upper secondary schools were more focused on summative assessment, offering some resistance to the use of formative assessment, which they saw as taking away time from preparation for final exams" (European Commission, 2023, p. 27).

To address these challenges, in 2019 Portugal's Directorate-General for Education launched the MAIA Project (*Projeto MAIA*), the National Project in Training, Supervision and Research in Classroom Assessment, to help teachers improve their assessment practices through continuous training. This project is a capacity-building programme at national level, carried out in collaboration with teachers' training centres, school leaders and teachers to create conditions for pedagogical evaluation to be integrated into curriculum development processes (European Commission, 2023).

Monitoring and evaluation

Implementation of the reform was monitored regularly and resulted in the production of reports that were used to understand how the policy was being implemented, the challenges faced, and what could be done to address them. Feedback from these reports influenced ongoing developments (Cosme, 2018; Cosme et al., 2021). The Ministry also organised national seminars, regional seminars, and seminars between schools and the community. In addition, the legal documents included a plan to incorporate a six-year evaluation of the reform. Underpinning that approach was the intention to ensure that even if the government changed, there would be continuity and subsequent assessment of the reform.

The pilot project, Project for Autonomy and Curriculum Flexibility (PACF) was reviewed by the OECD in 2018 with the aim of exploring how the project supported schools in effectively exercising autonomy and greater flexibility as they redesign their curricula, in accordance with the goals set out in the Students' Profile at the End of Compulsory Schooling (OECD, 2018). Key messages from this review included that Portugal had taken a strong strategic approach to the reform and provided a coherent strategic plan in the Students' Profile document; widespread agreement on the reform plans had been achieved through careful consultation, debate, and communication; and that policymakers were open to feedback and learning from the lessons derived from evidence provided by reviews and evaluations. The report found that some challenges required ongoing consideration – for example, the disconnect between the pilot project and the centralisation of the education system and the prevailing method of didactic pedagogy (OECD, 2018).

The PAFC project (2017–2018) was unable to address and solve three existing problems in the creation of curricula that required special attention from the Educational Administration and from schools. These were "(a) formative learning assessment; (b) interdisciplinary articulation projects; and (c) strategies and devices related to student learning organization" (Mouraz and Cosme, 2021, p. 93).

Conclusion

The sets of competences introduced in the four countries studied illustrate a range of competences that broadly align with the eight key competences set out by the European

Commission (2018), with some additions from other frameworks (Table 2) and adaptations to suit individual country and/or local contexts. Table 2 below illustrates a broad range of the competences identified as important in each of the four countries. While this indicates areas of overlap between them, it is clear that each country has adapted its selected set of competences to suit its own individual context.

Table 2: Competences introduced in the four countries

Broad competence areas	Finland	Ireland	Netherlands	Portugal
ISCED levels	1-3	2 Work currently ongoing on levels 0, 1 and 3	1 and 2	1-3
Personal and social competence **Wellbeing**	Taking care of oneself; managing daily life	Managing myself; communicating; staying well (wellbeing)	People and nature; physical education and sports	Personal development and autonomy; welfare, health and environment; awareness and command of the body
Literacy and multilingual competences	Multiliteracy	Being literate	Dutch language; Frisian language and culture; English language; literacy	Languages and texts
Digital competence	Digital competence	Digital skills (statement of learning)	Digital skills	Information and communication
Entrepreneurship competence	Working life competence; entrepreneurship	Working with others		Reasoning and problem-solving
Civic competence	Participation and involvement	Citizenship (statement of learning)	People and society;	Inter-personal relations;

Broad competence areas	Finland	Ireland	Netherlands	Portugal
Citizenship			citizenship	citizenship education (introduced separately through the National Education Strategy for Citizenship, 2017)
Thinking and learning to learn	Thinking and learning to learn	Managing information and thinking		Critical and creative thinking
Cultural awareness and expression competence	Cultural competence, interaction and expression	Being creative	Art and culture	Artistic and aesthetic sensibilities
Mathematical competence in science, technology and engineering		Being numerate	Mathematics and arithmetic; numeracy	Scientific, technical and technological
Sustainability	Participation involvement; building a sustainable future		People and nature	Welfare, health and environment

This chapter opened with a brief account of governance and the centralisation of curriculum and assessment in the four countries. The above review of reform interventions in the four countries has provided information on the various approaches taken, the competences addressed, curriculum coherence, implementation, and monitoring and evaluation – some of which form the themes for the analysis of the literature.

5. Key factors in designing and implementing effective interventions for key competence curriculum development

This chapter explores the research that has been carried out on the development of policies relating to competence-based curriculum change in school education (ISCED 1 and 2), and the factors that impact their effective implementation. While the emphasis in this review is on academic articles, it also looks at grey literature, including policy documents, which was sourced in order to provide a full picture of the state of play. Where appropriate, reference is made to examples from the four European countries reviewed in Chapter 4. The evidence is grouped by themes, four of which were determined by the country reviews: the competences addressed, implementation, curriculum coherence, and monitoring and evaluation. Others emerged from the research, and concern key factors that should be considered when designing and implementing competence-based interventions in curriculum development. These are policy context and governance arrangements, implementation and change strategies, engaging stakeholders, supporting teachers and schools, and allowing time for changes to take effect.

Studies on approaches to the implementation of key competences have shown that there is significant variation in the approaches taken in systems across Europe. This is further supported by the review of recent developments in the four countries presented in Chapter 4. Initiatives have been introduced at local, regional and national levels; they cover different levels of education; they range from pilot projects to mainstream policy reforms; and some focus on only one or two key competences, while others take a broader competence-based approach (European Commission, 2020; European Commission, 2022). Education systems are complex, and key competence reforms demand a high level of change in systems, schools, teachers, and learners.

Policy context and governance arrangements

Significant data and information are already available regarding strategies and approaches to curriculum change involving key competences across the EU Member States. What is clear from these studies is that no single approach that fits every context (KeyCoNet, 2014; OECD, 2020; Looney and Michel, 2014; European Commission, 2020; 2022).

Building a shared and coherent theory of change through the layers of curriculum-making is an overall negotiation as to what should be changed, and why. Several factors affect this negotiation, such as "the history of the educational system, societal power relations, and different interest groups and individual and collective skills and aspirations" (Sullanmaa et al., 2024, p. 529). In national curriculum reforms, this analysis of the necessary changes tends to be carried out at the macro level, and national contexts vary

in terms of "who is allowed to be heard in this initial stage of the reform and from where and how directly or uncritically the trends are adopted" (ibid, p. 529).

The process of curriculum change is greatly influenced by a country's governance and context – **the level of autonomy that schools have**, combined with approaches to accountability and improvement, and whether the country's **education system and curriculum change process are centralised or decentralised**. These factors must be taken into consideration in the design of the intervention and the subsequent change strategy and implementation approach. A centralised curriculum policy means that the government and its agencies have control over prescribing the curriculum at the input level (curriculum goals, content, competences and teaching and learning materials) as well the output level (in terms of assessments, examinations and inspections). Conversely, a decentralised curriculum policy reflects a government policy of refraining from prescription and control at input and output levels (Nieveen and Kuiper, 2021).

The Finnish and Dutch curriculum changes took place in a decentralised curriculum policy environment, while the Irish and Portuguese curriculum changes took place in more centralised contexts. These different approaches, depending on national contexts, mean that there is significant diversity among EU Member States in the "identification and description of key competences in their education systems while responding to objectives to give young people the skills and capacities to address present and future challenges" (Halász and Michel, 2011). In Finland, the national curriculum lays down the framework for schoolwork by defining the values, objectives, general principles, and transversal competencies for all schools in the country, with considerable freedom for schools to interpret the curriculum in a way that suits the local context (Lähdemäki, 2019). Similarly, in the Netherlands, the Ministry of Education, Culture and Science is responsible for national education policies, including a national core curriculum and broad competence areas. Schools are free to determine, within legal boundaries, what is being taught and how. In Ireland and Portugal, as well as broad competence areas being determined at national level, specific competence areas are clearly set out in the documentation, with each one being described in detail. Schools are also supported in the preparation of documentation and support materials, and in Ireland they have been central to the support provided to teachers.

Clarity on the policy design is crucial to successful implementation. Namely, the way in which a policy is debated and framed, the logic it suggests between "the policy problem, the solution it offers, and the feasibility of the latter determine to a great extent whether a policy can be implemented and how" (Viennet and Pont, 2017, p. 28). Stakeholders at all levels will want to know the answers to the questions, "What does this mean for me?" "What do I need to do with it?", "Why is it important?", and "How will it be implemented?" **Excellent communication channels are needed throughout the education system**, and with the public, in order to ensure buy-in and ownership. This can be achieved through a process of "sense-making" and "shared sense-making", which involves "becoming acquainted with, trying out, reflecting on and discussing abstract concepts" (Nieveen et al., 2022, p. 53).

An evidence base to support the introduction of new policies and curriculum change is important to building support for the change. Each of the four countries reviewed here engaged in a process of deliberation at the start of the curriculum design stage, to

communicate the rationale for change and to shape the policy design itself. This was backed by evidence on the purpose for which school curricula were being developed, as well as their content, including competences. The evidence used included the results of international student assessments (in all four countries), research on the current experiences of schools and students (Ireland: Smyth et al., 2007) and international research on the experiences of other countries.

Bearing in mind the different contexts of countries as they embark on major change initiatives, it is important that their approach to policy design and implementation is **strongly situated within their own context**. Therefore, when looking at the experiences of other countries, it is best to adopt **an approach of policy learning**, "instead of policy borrowing based on the assumption that best practices can be transferred across national contexts" (Chakroun, 2010). Policy learning recognises the importance of "clarifying policy options and the issues that they typically raise in helping to understand the process of educational change" (Raffe, 2009, p. 21).

Competence selection

Curriculum reforms are the main strategy for the development of key competences. A recent comprehensive mapping of key competences across the 27 EU Member States shows that out of 79 reforms reviewed, the most widely included key competences were literacy (47), STEM (42), digital (41), multilingualism (37), personal and social (35), cultural awareness (32), citizenship (27), and entrepreneurship (25) (European Commission, 2022, p. 26).

Approaches to selecting a set of competences that are considered important differ across the four countries reviewed in Chapter 4. While **all four countries focused on transversal competences** – loosely based on the European Framework of *Key Competences* (European Commission, 2018), and with some reference to other competence frameworks such as OECD DeSeCo (DeSeCo, 2005) and the OECD Future of Education and Skills 2030 (OECD, 2019b), each country designed their competence frameworks to **suit local requirements**.

In Finland, the set of competences reflect competence definitions from different institutions and organisations globally, including the European Union's key competences (2006), OECD's key competencies (2005) and Institute for the Future key competences (IFTF 2011[21]). The competences selected are also based on the defined values of the Finnish national curriculum, which are: uniqueness of every pupil and high-quality education as a basic right; necessity for a sustainable way of living; humanity, culture and civilisation; equity and democracy; cultural variety as richness. In addition, one of the three key themes of the curriculum reform was rethinking the roles, goals and content of school subjects: moving towards transversal competences to support the identity development of a child and the ability to live in a sustainable way (Lähdemäki, 2019). These competences were then part of the development and consultation processes that is an important tenet of the Finnish approach to curriculum change.

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[21] https://legacy.iftf.org/futureskills/

As a result of these processes, a set of competences to suit the Finnish context was developed and integrated into subjects and all school activities, across ISCED levels 1-3, (FNBE, 2014).

In Ireland, there was a strong recognition that learners need a wide range of skills (competences) to help them face the many challenges presented to them in today's world, a general set of skills that are needed to support learners in their personal, social and work lives. The development of the set of eight key skills was supported by research with teachers and learners in the classroom which showed that these skills are relevant to all subjects (NCCA, 2012).

The key skills of junior cycle (ISCED 2) are grounded in both national and international research and practice. The starting point was the OECD DeSeCo—the definition and selection of key competencies—framework (DeSeCo, 2005). The choice of key skills was also informed by interactions with schools. Consultation with stakeholders on the key skills formed part of the broader consultation on the *Framework for Junior Cycle* (DES, 2015). In Ireland, there are different sets of competences for the different education levels (ISCED 0-3)

Portugal's selection of nine transversal competences is laid out in the *National Program for Educational Success* (2016). The areas of competence are defined as an integrated set of knowledge, skills, and attitudes (DGE, 2017). The main areas of competences are emphasised in the *Students' Profile*.

The Netherlands has recently re-prioritised basic skills in the curriculum. Attainment targets have been set for numeracy, literacy, digital skills, and citizenship (Rouw and van der Hoeven, 2023) through the Masterplan Basisvaardigheden[22] (Basic Skills Masterplan, 2022).

In addition, some countries have placed extra emphasis on specific competences, for example, wellbeing in Ireland and Finland and citizenship education in the Netherlands.

The set of competences decided upon in each of the four countries is quite diverse (*Table 2: Competences introduced in the four countries*), illustrating the different country contexts and the priorities of each country at the time of the policy design. If there is to be real engagement around what is important for the education system of a particular country, it is to be expected that there is unlikely to be a uniform approach across countries.

Implementation and change strategies

A central determinant for the effectiveness of curriculum reform is the way in which the reform is implemented (Priestley, 2011). Changing the curriculum involves changing the behaviour and professional beliefs of teachers so that their daily interactions with pupils are significantly modified. This means that curriculum reform is an "extremely complex, open-ended, non-linear process" (Halász and Michel, 2011, p. 299).

Halász and Michel (2011) also note that the implementation of ambitious competence-based reforms requires both the **strong political commitment of key education policy actors and system-wide implementation capacity**. Implementation refers to the logic of the policy design, communication, support for capacity building (training and

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[22] https://www.masterplanbasisvaardigheden.nl/

professional development), and support for school-level change. Implementation strategies should also "consider coherence with related reforms, including teacher and school leader competences that align with the aims and objectives of curricula; new approaches to student assessment and school evaluation; and new ways of working with colleagues in schools as learning organisations and in school networks" (European Commission, p. 16, 2022).

For countries embarking on a major curriculum change initiative, it is important to consider the balance between curriculum regulation (providing direction) and curriculum space (promoting and supporting curriculum development initiatives at school level) (Nieveen and Kuiper, 2021). In general terms, this means that "strong input and output regulation and insufficient curricular autonomy erode (trust in) teachers' professionalism; weak input regulation provides an insufficiently defined 'sense of direction'; only trust in teachers and teachers' professionalism does not guarantee educational quality" (Nieveen and Kuiper, 2021, p. 139).

Top-down implementation strategies, with curriculum change being planned and led by policymakers and central organisations, have been shown to offer certain benefits. These mainly concern the possibility of aligning school administrative activities and allocating structures and resources according to the aims of the reform at national level (Pietarinen et al., 2017). However, Tikkanen (2020) cautions that top-down reforms tend to have a weak impact on the everyday life of schools because they often "fail to enhance ownership over the reform" or fail to build sufficient understanding of the reform across different levels of the educational system. On the other hand, **bottom-up strategies**, in which schools become decision-makers, rather than implementers of centralised initiatives (Honig, 2004), has been suggested to promote the motivation of local actors and their ownership of the reform. School-based curriculum work has been shown to exert a direct effect on the way in which teachers perceive reform, thereby having a significant impact on teacher change. The bottom-up approach therefore offers greater opportunities for making sense of the new situation within the school community. These may result in a better fit with teachers' needs, professional development activities and ownership – and hence, more sustainable changes in classroom practices (Ramberg, 2014). However, studies have shown that reforms carried out using solely bottom-up approaches often fall short due to a lack of administrative-level support and funding (Honig, 2004; Petko et al., 2015, cited in Tikkanen, 2020). A more balanced combination of top-down and bottom-up strategies, supported by horizontal, meso-level structures, is more likely to be effective in bringing about sustainable change (Fullan, 1994; 2007).

The centralised curriculum and assessment developments in Ireland and Portugal, combined with a strong emphasis on supporting schools and teachers to make sense of the changes, could be described as an early stage of this combined approach, although it is currently more weighted towards a top-down approach. Recent curriculum developments in the Netherlands have tended to waver between the two, with the 1998 reform exemplifying a top-down approach and the more recent Curriculum.nu illustrating a bottom-up approach. In general, in the Netherlands, the schools themselves are responsible for delivery, while the national ministry defines and supervises the policy overall (Viennet and Pont, 2017).

It is noteworthy that both Ireland and Portugal **have put measures in place to encourage and support bottom-up policies**. In Ireland, a key principle of the Framework for Junior Cycle (DES., 2015) is that schools should have greater flexibility to design programmes that are suited to the needs of their Junior Cycle students, and that each school's programme will be guided by the 24 statements of learning, eight principles and eight key skills that form the core of the new Junior Cycle. In Portugal, the Project for Autonomy and Curriculum Flexibility (PACF) states that **schools and teachers should have sufficient autonomy to make curricular and pedagogical decisions** so that the core of pedagogical action becomes the close relationship between the students and the aims of learning. Teachers are responsible for both establishing that relationship and enabling it to be productive in terms of the knowledge and competences that students are expected to achieve and develop (Mouraz and Cosme, 2021).

While Finland's education system is more decentralised, with teachers having considerable freedom in interpreting the curriculum, the national curriculum lays down its framework by defining the values, objectives, and general principles for all schools in Finland (Lähdemäki, 2019). The strategy for curriculum reform in Finland, which represents a combination of top-down and bottom-up approaches, comprises two distinct strategic elements: a participative element of knowledge sharing that has increased transparency, and a strongly steered element of change management (Pietarinen et al., 2017).

The balance between autonomy and levels of guidance, along with the important role in supporting schools played by horizontal/meso-level groups such as NGOs, teacher support services and text-book providers, can significantly impact on how schools integrate and sustain practices.

Depending on the specific policy design and country context, some type of **piloting, testing or phased implementation** can improve the implementation experience by enabling ideas to be tested, as well as building trust and teacher capacity, and communicating ideas to a broad group of stakeholders. Piloting also provides the opportunity to gather early feedback on which aspects are working well and which may need to be adjusted, enabling implementation plans and other materials to be adjusted accordingly (European Commission, 2022).

In Portugal, the path towards change began in 2016 at six schools, which were asked by the government to organise their curricula in a way that they found to be more effective, and which ensured school achievement for most students. This was followed in 2018 by offering schools the opportunity to apply to join the Project for Autonomy and Curriculum Flexibility (PACF), a partial reform of the national curriculum. Under the project, participating schools could change up to 25 % of the curriculum they offered. This began the enactment of the curricular reform that is presently being implemented at differing rates in schools (Mouraz and Cosme, 2021). During the pilot phase, the situation was monitored, and a series of webinars were held, along with exchanges of experiences with schools and students (at a students' voice event in 2016). Various agents have been "involved in evaluating and implementing the necessary changes to the reform" (European Commission, 2022, p.125).

In Finland, 31 pilot projects were selected as part of the teacher education reform. These began at the end of 2016. In Ireland, implementation was phased in gradually over a period of nine years (2015-2023). This phased introduction allowed the system time to

make sense of the changes and to build teacher and system capacity. The most recent curriculum reform in the Netherlands, meanwhile, is taking a step-by-step approach (Rouw and van der Hoeven, 2023).

The most suitable approach for a particular education system will depend very much on its own context – but either way, **top-down–bottom-up reform implementation strategies require "leadership for change management** and the enhancement of knowledge sharing in curriculum reform" (Tikkanen, 2020, p. 547).

Engaging stakeholders

Engagement with stakeholders during the early stages of policy design and implementation may involve lengthy periods of dialogue and negotiation, but **such engagement supports the implementation, ownership, and sustainability of initiatives over the longer term, as well as mutual trust and transparency** (European Commission, 2022). If shortcuts are taken at this stage, these are likely to lead to issues later in the process. Sound and comprehensive engagement activities facilitate shared sense-making, ensuring a deep and collective understanding of competence-based curriculum change, including its significance and its implications for schools and learners: "This involves building bridges between the old and new understanding, and designing interpersonal arenas for learning across the layers of the educational system (i.e., a systemic approach)" (Soini, 2021, p. 249).

Stakeholders constitute a very broad and diverse group. They include representatives from universities, curriculum experts, teacher educators, schools, teacher unions and associations, school leaders, teachers, parent groups and students, all of whom may be involved in the initial design of the curriculum. There may also be a broader group of citizen stakeholders that interact with developments at different stages through the process.

It is important to remember that **learners are also stakeholders**, and their views should be included in educational developments that impact their learning experiences. In Ireland, the process of student consultation on the development of specifications for the Junior Cycle was found to confirm to all relevant stakeholders that students are indeed experts on their own experience of learning (Flynn, 2017).

Engaging creative strategies that facilitate collaboration between layers of the education system, as well as promoting active participation and knowledge sharing among the reform stakeholders and facilitating construction of a holistic understanding of the reform, promote collaborative learning, and hence, sustainable change in schools (Soini, 2021, p. 249).

A significant aspect of engaging with stakeholders in a meaningful way is **the establishment of clear and consistent communication channels regarding the purposes and processes of change.** This is important in the early stages of the policy design, but also throughout the process of implementation and adaptation. It should include "vertical communication between central policy levels and schools, and horizontal communication between local governments and schools, within schools and across school networks" (European Commission, 2022, p. 68). Communication channels with parents, learners and the general public should also be set up and supported.

Stakeholder engagement must be well supported and guided. Stakeholders have played a significant role in the recent curriculum developments in the Netherlands, particularly the Curriculum.nu process. However, engagement has also been a lengthy, time-consuming and highly incremental process, and it appears that this process has suffered from having too little guidance and direction. Specifically, "It is too little on substantive and technical-professional issues (with under-utilization of available curriculum expertise) and too much about socio-political processes in which stakeholders all want to be heard, want to have a say, and have an influential say" (Nieveen and Kuiper, 2021, p. 144).

Supporting teachers and schools

How change is received in schools depends on a country's context and educational governance, including school leader/teacher mindsets and beliefs about teaching, learning and assessment, trust, and financial resources. In the top-down approach, school communities and teachers are "implementers and consumers of new behaviours developed by the developers or policymakers", while the bottom-up approach "relies heavily on the capacity of schools and teacher communities to turn themselves into innovative learning environments" (Leana, 2011; Lieberman and Pointer Mace, 2008, cited in Pietarinen et al., 2017, p. 25). This impacts a country's approach to supporting change in schools and in the wider system. While the top-down approach has implications for the ownership of curriculum change (and the effectiveness of this approach has been shown to be quite limited), it does allow clarity regarding the intention, aims and approach of the reform. Under a bottom-up approach, school-based curricula work exerts a direct effect on the way in which teachers and school leaders perceive reforms, and thus has a significant impact on teacher change, resulting in more sustainable changes in classroom practices (Ramberg, 2014, cited in Pietarinen et al., 2017). **The right balance – avoiding high levels of prescription or, alternatively, low levels of support and guidance – must be matched to the country context and the capacities of those implementing changes at local and school levels** (European Commission, 2022, p. 50).

However, teachers do not automatically become curriculum developers just because a country decides to allow teachers a more autonomous approach to curriculum development. Implementing changes to curricula and to teachers' practices is a highly personal and emotive process (Goodson, 2001, cited in Lynch et al., 2017). As Lynch et al. (2017) note, "Many authors such as Darling-Hammond (2006), Gitlin and Margonis (1995) and Fullan (1993) have called for the active engagement of teachers as change agents in the co-construction of curriculum", at national and local levels (Lynch et al., 2017, p.9).

Teaching approaches that support key competences tend towards interdisciplinary, cross-subject teaching, team-oriented learning, individualised approaches (e.g., individual study plans) and project-based work. A change of paradigm from teacher-centred to student-centred learning necessitates the revision of traditional methodologies and roles of teachers, whereby teachers will become facilitators of learning – organising teamwork, ensuring inclusion, managing classroom activity, etc. (Gordon et al., 2009).

While these pedagogies are used by many teachers, widespread implementation requires a change in culture for many schools. Such approaches demand flexibility at

national, local and classroom levels, and it is important that implementation plans recognise the complexity of the school context. To facilitate the change envisaged, a leadership environment is required that supports diversity and flexibility at national, local, and school level, in which diversity and innovation can be supported. "What is needed is not a one-time reform followed by stasis. Rather, it is to develop the habit of perpetual revolution: a system structure that encourages constant innovation" (Gordon et al, 2012, p. 33).

In a study of 12 countries (Nieveen et al., 2022), considerable tension in the change system was caused by the fact that teachers differed over their beliefs, knowledge, skills, and attitudes towards change. This suggests that external support for teachers and school leaders should not be provided in a "one-size-fits-all" manner. The support system needs to be responsive to the needs and wishes of teachers and teacher teams. Teachers and school leaders need to have a say over the type of support they receive from the external domain.

To make sense of change, schools need to develop the capacity to learn from the world around them, and to apply this learning to new situations. This will enable them to continue on a path towards their goals in an ever-changing context, and to prepare children and young people for both their present and their future (Kools and Stoll, 2016). **Support for schools as learning organisations (SLO) helps them to build their capacity to introduce change**. The "school as a learning organisation" model supports school and teacher autonomy, but also views them as empowered within their broader systems (European Commission, 2022).

Schools need the right conditions and support to make this transformation. Time, money and other resources, including engagement in networked learning and collaboration across school boundaries, are essential to making this happen. Competence-based education policies and support structures that recognise local and school contexts can encourage the development of schools as learning organisations (Kools and Stoll, 2016, p. 13).

Finland has recognised the importance of teachers in all curriculum reforms and has involved them from the start of the curriculum development process. It was clear, quite early in the most recent curriculum change, that if schools were to make progress in developing the transversal competencies at classroom level, significant thought and investment were needed in teacher education, hence the establishment of the Teacher Education Forum (MEC, 2016[23]) (Lavonen, 2020). The Forum prepared a development programme for teacher education, which resulted in an effective model of teacher professional development. Significant financial resources were also allocated to teacher education providers that could support teachers in their classrooms in implementing the transversal competencies into their teaching, and in setting up digital learning environments (MEC, 2017[24]). This was carried out through a tutor system (Lavonen, 2020).

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[23] Ministry of Education and Culture report on the Teacher Education Forum (2016) – not available in English.
[24] Ministry of Education and Culture report on the Teacher Education Forum (2017) – not available in English.

In Ireland, teachers' professional learning was supported in several ways. A national support service (the JCT[25]) was established to provide information, guidance and professional development opportunities for teachers and school leaders during the implementation phase. Online resources were provided; school-based coordinators were appointed from within schools to assist with planning and coordination within their school; and teacher professional networks and management bodies were supported to work with school leaders and teachers. This professional development was viewed positively by teachers, who commented that its innovative model of delivery – using practising teachers and focusing on both subject-specific and whole-school issues – was seen as supporting teachers and schools and contributing positively to the implementation of the changes. In addition, initial findings reported in the evaluation suggest that teachers' classroom practices had shifted to facilitating more student-centred learning, and there was evidence that professional collaboration and dialogue between teachers had increased significantly. It was also reported that formative assessment had become more widely used. Teachers also reported that key skills were easy to integrate within their teaching but indicated that the time available to develop the key skills was a challenge (McGarr et al., 2022).

Mouraz and Cosme (2021) highlight the significant role played by schools and teachers regarding curriculum change and the curriculum-making process. The pilot project in Portugal was predominately a task for schools and teachers, which relates to meso-, micro- and nano-layers of curriculum reform (Priestley, 2021). "If teachers are understood as the authors of their professionalism, it follows that they must engage this process of reflection and change, challenging them to reflect, together and committedly, on the demands and implications that a project of this nature expects from schools and teachers" (Mouraz and Cosme, 202, p. 94). Teachers are also expected to be able to make curricular decisions, and "outline other ways of organizing workspaces and work time, as well as to propose other types of activities and strategies that stimulate the intelligence, solidary autonomy and participation of their students" in the daily management of classrooms (ibid. p. 94).

The Netherlands invested in its teachers through the Teachers' Agenda[26] (2013-2020), which placed a specific focus on building schools as learning organisations that are deeply connected and collaborate with other organisations such as other schools, businesses, NGOs and wider civil society. This strategy has been very important in strengthening the professionalisation of teachers and schools (European Commission, 2022).

Networks of teachers and schools can support complex curriculum change and the sense-making process by enabling professionals to reflect on their practices and engage in mutual exchange, inspiration, and learning (Katz and Earl, 2010). An OECD report on Portugal's pilot project recommends that the education system in Portugal should capitalise on existing networks, such as school clusters, networks of libraries and associations of professionals in different subject areas (OECD, 2018). Portugal has also established the MAIA Project, which supports the building of learning communities that promote sharing and critical thinking in the areas of teaching, learning and assessment (MAIA Project, 2023).

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[25] Junior Cycle for teachers: jct.ie
[26] Deleraren Agenda, https://www.delerarenagenda.nl

Curriculum coherence

Curriculum coherence is an essential determinant of sustainable curriculum change. Coherence in terms of purpose; a clear, shared vision; and consistency of approach and decision-making (Sahlberg, 2011); as well as curriculum alignment – for example, between learning goals and objectives and assessment methods (Muller, 2009) – are important for sustainable school development (Sjwartz, Weizman, Fortus, Krajicik, and Reiser, 2008 cited in Pietarinen, Pyhältö, and Soini, 2017).

There is also evidence that **coherence enhances students' academic engagement and has a positive influence on their learning** (Pietarinen et al., 2017). For both teachers and students, curriculum coherence helps in the "sense-making" that needs to occur in order for buy-in and authentic enactment to take place (McGarr et al., 2024).

In many countries, curriculum reforms have focused on a new rationale as well as renewed objectives and pedagogies. In those instances, in which assessment regimes were not aligned with these changes, reforms did not take root or were not sustained (Nieveen et al., 2022, p. 73). In a recent study on policy design and the implementation of key competences (European Commission, 2022), participants from several countries noted that high-stakes external assessments – which are considered more reliable but are not aligned with competence-based curricula – have a strong impact on teachers' preferences to maintain traditional, knowledge-based teaching and learning. Centralised examinations that rely on knowledge retention are often considered more reliable than more diverse methods of assessment such as project work and the ability to use knowledge in context, thereby demonstrating competences.

The most recent evaluation report produced by the longitudinal study currently underway in Ireland points to issues with curriculum coherence, particularly in relation to high-stakes, end-of-school examinations. Such issues are inhibiting the realisation of the curriculum changes as they were originally intended (McGarr et al., 2024). Opportunities for teachers to exercise their professional autonomy in order to achieve the learning outcomes of their subject specifications have been stifled by the requirements of external assessments. Removing opportunities for teachers to contribute more significantly to the assessment their own students' work within a learning outcomes-based curriculum has arguably caused this lack of coherence. In essence, "curriculum goals, instructional practices and assessment do not align" (McGarr et al., 2024, p. 124). Likewise, in Portugal, formative and competence-based evaluation methods were seen by teachers as being incompatible with the pressure of external assessment and national exams in secondary education, which do not reflect the learning model encouraged by the PAFC project (Cosme (2018b), cited in Mouraz and Cosme, 2021).

Lack of coherence in curriculum implementation causes problems for sustainable change because a shared understanding of the change and the consistency of the message are preconditions for translating its goals into meaningful school and classroom practices (Pietarinen et al., 2017). It is essential that every effort is made to ensure curriculum coherence in curriculum change policies.

Allowing time for curriculum change to take effect

School communities need time, space and support to manage and embed curriculum change. A study published in 2019, just one year after curriculum reforms

were implemented in Portugal, found that a gap existed between the curriculum practices desired by the reforms, and the practices actually performed. However, it was encouraging to see that the data revealed a hybridity between curriculum practices that were in line with more traditional approaches and other, more innovative practices that were based on didactic teacher-student knowledge approaches (Leite and Fernandes, 2019).

The experiences of curriculum change in the four countries reviewed in this report illustrate research on education governance and policy implementation that recognises the complexity of multi-layer education systems (Burns and Koster, 2016). Implementation in complex systems is neither straightforward nor linear. Many reforms never reach the classroom level (OECD, 2015), or take many years to do so. The experiences of the Netherlands and Portugal demonstrate the impact of unexpected events (political change) on policy implementation, while developments in Ireland faced some re-design and changes to implementation due to the influence of teacher unions (European Commission, 2022).

While the PACF pilot project in Portugal provided an important experimental pedagogical period involving a significant number of schools (around 20 % of all schools in Portugal) over the course of a school year (2017/2018), the challenge proved too great. The timeline for implementing the full programme in all schools in 2018/2019 faced pressure due to an impending change of government. Expectations were high with regard to transforming the model of pedagogical organisation and management, along with the democratising school practices (Mouraz and Cosme, 2021).

Some elements of competence-based education take longer to show results than others. In Portugal, these elements included formative learning assessment; interdisciplinary articulation projects; and strategies and devices related to student learning organisation. Further efforts must be maintained to accomplish promised features that have not yet been achieved (Mouraz and Cosme, 2021).

In Ireland, where the implementation process was phased over eight years, there is a general recognition among teachers and school leaders that the implementation of the Framework for Junior Cycle is seen as an ongoing process. Having gone through the full Junior Cycle experience, teachers (and parents/students) had a better understanding of the curriculum changes. Changes in culture, especially in relation to assessment, are likely to take longer. McGarr et. al. (2024) reflect on the extent to which "deep change" has occurred in the implementation of the Framework for Junior Cycle in Ireland. They suggest that it can be argued that the "binary categorisation of 'deep' and 'surface' change is unhelpful as it does not capture the complexities observed in this case of curriculum change". Their study argued that a "more 'surface' level, selective adoption, of the changes is a necessary and pragmatic response to accommodate the changes in pedagogy and learning outcomes – while continuing to align with the terminal examination requirements that remained unchanged" (p. 127).

The effects of timing and pace on the implementation process are uncertain but should not be overlooked as they are directly linked to the scope of implementation, and its potential outcomes. Studies suggest that if the pace is too fast, stakeholders may not be able or willing to implement changes; if it is too slow, the implementation process may lose momentum or may drain the system's resources (Viennet and Pont, 2017).

The pace of implementation is linked to the nature of the changes the policy aims to achieve, as well as the starting point of the system and its actors. Large, comprehensive reforms may start with smaller incremental changes, to better support systemic change. Considering the dimension of time in implementation requires policy actors to adopt a long-term perspective on education policy, while maintaining the momentum of the process in the short term (Viennet and Pont, 2017).

Monitoring and evaluation

Every strategy for change requires an effective system to monitor and evaluate progress in its implementation. Knowledge is important at all levels of the system. Context-specific and practitioner knowledge collected throughout the implementation process allows those implementing the change to update their strategy if needed and can contribute to adjustments in implementation plans according to feedback received at local level (Viennet and Pont, 2017). Monitoring mechanisms should therefore be designed to be flexible, to support the goals of the policy, and to provide public information without weighing down on school's daily activities (OECD, 2010).

Monitoring indicators should be agreed at the design stage and should include the gathering of qualitative and quantitative data at consistent intervals. In addition to monitoring data, regular consultation with school leaders and teachers helps to identify areas in which adjustments are needed and provides a formative approach to the evaluation. Student and parent views also need to be included (European Commission, 2022).

Summative evaluations of implementation processes and their impact are more formal. These should also be planned at the design stage, so that consistent data gathering takes place. As noted by the European Commission, "These more formal evaluations are also the occasion to consider overall processes, and to make more significant policy adjustments" (European Commission, 2022, p. 69).

Monitoring systems need to be handled with some sensitivity to prevent them having a negative impact on the implementation process. They should be designed to collect frequent and reliable data without interfering with the implementation process and should be open to some level of change as implementation progresses (Viennet and Pont, 2017). Consistency in the types of data gathered over time is important to track change processes and their impacts.

Different approaches are used for the long-term evaluation of curriculum change initiatives. The longitudinal study currently underway in Ireland uses a mixed-methods approach, encompassing surveys, interviews, and case studies. The study focuses on teacher enactment – that is, how they make sense of the Framework in designing a Junior Cycle programme that is appropriate to their context. The study is capturing the opportunities and challenges presented by the Framework for Junior Cycle by enabling schools and teachers to tell their stories of engagement with this curriculum change. Students' perspectives and experiences are also being sought and presented in the reports. An open and exploratory approach is being adopted for the case studies, providing space for students, teachers, SNAs [special needs assistants], curriculum leads, principals and parents to highlight their views regarding the Framework for Junior Cycle and to raise any issues they wish to through interview/student creative focus groups (McGarr et al., 2022).

In some cases, approaches to evaluation can be somewhat *ad hoc*, and while various players in the curriculum system carry out relevant research, a "standardised working process with regular intervals of monitoring, analysis, evaluation, and decision making" is missing (SCC, 2022, p. 18, cited in Rouw and van der Hoeven, 2023). In the case of the Netherlands, mechanisms for systematically gathering, accumulating, and weighing all of the relevant pieces of knowledge and explicitly judging what they mean for policy, were weak (Rouw and van der Hoeven, 2023).

Obstacles to the effective design and implementation of policies on key competences

Each of the key factors outlined above can become an obstacle to the effective implementation of policies if it is not given the appropriate time and attention from the outset of the planned intervention.

- Failure to pay sufficient attention to the country context and education governance, lack of clarity and transparency regarding policy design, and lack of evidence to support the reasons for the change all place key competence interventions on a weak foundation and are likely to cause implementation issues later in the process.

- If the set of competences selected does not make sense or does not suit the priorities of a country's education system, it is unlikely to be fully supported by the broad group of stakeholders, including schools, teachers, and parents.

- Inappropriate or poorly planned implementation and change strategies that are not suited to the country context result in confusion for all the actors involved in the process. According to the literature, a balanced combination of top-down and bottom-up strategies, supported by horizontal, meso-level structures, is more likely to be effective in bringing about sustainable change (Fullan, 1994, 2007).

- Little stakeholder engagement, or engagement that is poorly supported, results in important stakeholders being left behind and therefore unaware of the purposes behind the change. Engaging with stakeholders can be a lengthy and resource-intensive process, but it is necessary to garner support and motivate stakeholders to become actively involved with the change process.

- Without the right conditions and support, schools and teachers will be limited in their ability to introduce the level of change required for competence-based curriculum change. Time, money and other resources, including engagement in networked learning and collaboration across school boundaries, are essential to developing capacity.

- A lack of curriculum coherence has been proven to be an obstacle to change. In those countries in which assessment regimes were not aligned with the curriculum change, reforms did not take root or were not sustained (Nieveen et al., 2022).

- Trying to implement change too quickly can limit the success of the change policies. The pace of implementation is linked to the nature of the change that the policy aims to achieve, as well as the starting point of the system and its actors. Large, comprehensive reforms may start with smaller incremental changes, to better support systemic change.

- Political change (because of a change of government or minister) can also impact the success of policy interventions. The experiences of the Netherlands and Portugal demonstrate the impact of unexpected events (political change) on policy implementation, with both countries experiencing delays to policy implementation.

- It is impossible to introduce meaningful change into an education system without having access to timely and context-specific practitioner knowledge. Without access to such a knowledge system through monitoring and evaluation processes, policymakers and those implementing policy will lack vital information needed to monitor progress and to update their strategy and implementation plans if necessary.

The design and implementation of competence-based curriculum change is a complex process, and many factors must be contemplated by the policy actors involved. Country context and governance need to be considered when designing the most appropriate plans and change processes. The very different examples from Finland, Ireland, the Netherlands, and Portugal provide a sense of the variety of approaches. They also illustrate how these countries have designed and managed their own curriculum interventions and made adjustments along the way. Because implementation takes time, these countries are still evaluating their experiences and adapting their approaches, while all the time supporting changes in the education system and in schools and other settings. There is a continuous need for regular formative evaluation, as well as long-term summative evaluations on impact, which may lead to more significant changes in the overall approach.

6. Conclusions

An exploratory review of the literature, including research papers, studies, and reports, has identified some of the critical steps necessary to design and implement competence-based curriculum interventions. The examples from the four countries studied provide a diversity of approaches and experiences, in terms of country context, education governance, and policy design and implementation.

Each country embarked on system-wide interventions aimed at curriculum reform, of which key competences constituted a significant part. Therefore, the findings of this report in relation to these interventions are as much about policy development and the ongoing, sustained implementation of curriculum change as they are about competences.

The case descriptions in Chapter 4 provide information about the competences developed and the approach taken by each country. They also illustrate the complexity of the implementation processes and the high level of change demanded from systems, schools, teachers and learners.

Examining the experiences of the four countries in the context of the literature enables the following critical factors to be identified for the integration of key competences into school curricula:

- The effectiveness of curriculum change processes is greatly influenced by the **country context and education governance** – whether the country has a centralised or decentralised education system and curriculum change process, and how the culture supports teacher involvement in curriculum design. It therefore

follows that when looking at the experiences of other countries, it is best to adopt an approach of policy learning rather than policy borrowing.

- Clarity as to the **policy design** is crucial to successful implementation. The way in which a policy is debated and supported by evidence, and the logic between the "policy problem" and its solution determines how it will be accepted and how its implementation will be supported.

- The process of deliberation on the appropriate **set of competences** selected is important and is specific to each country. Each country's context and priorities at the time of the policy design tend to be determining factors in the decisions made about which competences to include. If there is to be real engagement around what is important to the education system of a particular country, it is to be expected that there is unlikely to be a uniform approach between countries.

- **Implementation and change strategies** are likely to consist of a balance of top-down and bottom-up approaches. The most suitable approach for a particular education system will depend very much on its own context – but whether top-down or bottom-up, or a combination of the two, strategies for implementing reform require leadership for change management and knowledge sharing. It is important to consider the balance between curriculum regulation (providing direction) and curriculum space (promoting and supporting curriculum development initiatives at school level). Planning for piloting, testing or phased implementation, depending on the policy design and country context, can improve the implementation experience by testing ideas, building trust and teacher capacity, and communicating ideas to a broad group of stakeholders.

- Well-planned and authentic **engagement with stakeholders** during the early stages of policy design and implementation supports the implementation, ownership, and sustainability of initiatives over the longer term. The inclusion of creative strategies that facilitate collaboration between the layers of the education system and promote active participation and knowledge sharing helps to facilitate real engagement and to support shared sense-making. Communicating final decisions with stakeholders is important, to show that their views have been heard.

- How **teachers and schools are supported** during implementation is also influenced by the country context and the involvement of teachers in curriculum development. Support for schools as learning organisations helps to build their capacity to manage change. Support for teachers and school leaders should not be provided in a "one-size-fits-all" manner. The support system needs to be responsive to the needs and wishes of teachers and teacher teams.

- **Curriculum coherence** is essential to ensuring a shared understanding of the change and the consistency of the message. Coherence in terms of purpose; a clear, shared vision; and consistency of approach, as well as alignment between learning goals and objectives and the teaching and assessment methods used, are important to supporting understanding of the policy logic across the system.

- Systems and schools need **time, space and support** to implement change. Large, comprehensive reforms may begin with smaller incremental changes, to better

support systemic change. The effects of timing and pace on the implementation process are uncertain; however, these should not be overlooked, as they are directly linked to the success of implementation.

- An effective system of **monitoring and evaluation** provides ongoing feedback that can contribute to the adjustment of implementation plans in real time. Monitoring mechanisms should be flexible and should provide sound, relevant information without being a burden on schools. More formal, long-term evaluations are also important.

The absence, or poor management, of the critical factors above often results in obstacles to the effective implementation of policy change. It can lead either to the policy's failure to succeed or to significant delays in its implementation.

This exploratory review of the literature will inform future discussions on the design and implementation of system-wide competence-based curriculum interventions. Given the crucial role of country context, governance and levels of centralisation, further in-depth studies would be useful to understand how countries consider these factors and adapt their policy designs and change strategies. In addition, given the complexity of these interventions and the time required for them to embed and become sustainable, longitudinal studies that gather evidence from the commencement of the reform to some years post-implementation would be of interest.

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