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Bringing About Curriculum Innovations: Implicit Approaches in the OECD Area

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BRINGING ABOUT CURRICULUM INNOVATIONS: IMPLICIT APPROACHES IN THE OECD AREA

OECD Education Working Paper No. 82

Kiira Kärkkäinen

Different implicit approaches to promoting innovation in education can be explored through the decision making of curriculum – reflecting what is taught to students and how the students are taught. Are innovations in curriculum expected to derive from centrally driven processes? Or has much room been left for those innovations within schools? What kind of role may be played by different stakeholders such as experts, teachers or parents in curriculum innovation? This paper discusses various innovation rationales for the central and school-based approaches to curriculum decision making and provides an overview of OECD education systems in this continuum. In addition to formal decision making, various structural factors that may have an effect on those decisions are analysed and the ways the different stakeholders can influence curriculum innovations discussed. The paper combines various OECD and UNESCO data with a focus on public lower-secondary education.

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ABSTRACT

Innovation is essential for the education sector.

The ways in which curriculum decision making is organised reflects different implicit approaches on how educational systems pertain to promote innovation in education. Curriculum holds an outstanding place when seeking to promote innovation in education, as it reflects the vision for education by indicating knowledge, skills and values to be taught to students. It may express not only *what* should be taught to students, but also *how* the students should be taught. Curriculum innovations can include new subjects, combinations of old subjects or cross-cutting learning objectives. They may also take a form of new content, concepts, sequencing, time allocation or pedagogy.

This paper characterises two contrasted approaches to curriculum decision making and bringing about innovations in education. At one extreme, a prescriptive central curriculum implicitly places the initiative for educational innovations at the level of the central administration. This approach provides strong incentives for schools and teachers to adapt innovations that would not otherwise take place. Innovations, supported by policy measures and informed by research, are brought within the reach of all schools and teachers in an equitable manner. The challenge is then to accommodate local needs and ensure the commitment to and implementation of innovations by schools and teachers. At the other extreme, decentralised curriculum decision making provides schools – and perhaps even teachers – with room to create their own educational innovations. This approach allows for experimentation relevant to individual students and local communities. Innovations are meant to spread through horizontal networks of schools and teachers. The challenge is then to provide incentives for individual schools and teachers to innovate or adapt innovations and ensure that they have equal capacity to do so.

The paper provides an overview of various possible approaches linking curriculum policy to educational innovation, it shows that OECD countries can mix these approaches and it discusses elements that can affect those innovations in reality. Focusing on public lower-secondary education, it draws on various OECD and UNESCO data. First, the paper suggests that OECD education systems differ clearly when looking at formal curriculum decision making, although no system relies on a purely central or school-based approach to curriculum innovations. Second, several elements can reduce the "innovation power" of the central curriculum and the "innovation flexibility" of the decentralised curriculum. Third, stakeholders – such as experts, teachers and parents – are able to influence curriculum innovations differently at central and school levels. Innovations in central-level curriculum appear to have widespread possibilities to rely on expert knowledge with consultation with practitioners, parents and the wider public. School level curriculum innovations appear to build mainly on principals and teachers' knowledge with an indirect influence from experts and parents.

RESUMÉ

L'innovation est essentielle pour l'éducation.

Les politiques sur les programmes scolaires reflètent de manière implicite les façons par lesquelles les systèmes éducatifs cherchent à promouvoir l'innovation dans l'éducation. En effet, les programmes scolaires occupent une place centrale lorsqu'il s'agit de favoriser l'innovation dans l'éducation, puisqu'ils indiquent une direction pour l'éducation en spécifiant les connaissances, les compétences et valeurs à enseigner aux élèves. Ils concernent non seulement le contenu de l'apprentissage mais également la pédagogie à appliquer. Les innovations curriculaires peuvent intégrer de nouvelles matières, des combinaisons de matières traditionnelles ou encore un apprentissage transversal. Elles peuvent également concerner de nouveaux contenus ou concepts, une réorganisation du séquençage de l'apprentissage ou une nouvelle approche pédagogique.

Ce rapport présente deux approches archétypales contrastées liant la prise de décision curriculaire et l'innovation pédagogique. La première approche place implicitement l'initiative de l'innovation au cœur de l'administration centrale. Cette approche donne aux écoles et aux enseignants de fortes incitations à adopter des innovations qui n'auraient pas lieu autrement. Les innovations, encouragées par des mesures politiques et informées par la recherche, sont diffusées de manière équitable à toutes les écoles et tous les enseignants. Le défi est d'adapter les innovations aux besoins locaux et d'assurer leur mise en œuvre effective par les écoles et les enseignants. Dans la deuxième approche, les décisions sur les programmes scolaires sont décentralisées afin de permettre aux écoles – et peut-être aux enseignants – de créer leurs propres innovations curriculaires et de les diffuser de manière horizontale. Cette approche laisse libre cours à une expérimentation adaptée aux besoins des étudiants et aux communautés locales. Le défi est d'inciter écoles et enseignants à innover ou adapter les innovations en s'assurant qu'ils ont des ressources égales pour le faire.

Ce rapport donne un aperçu des différentes approches liant politiques curriculaires et innovations pédagogiques, montre que les pays de l'OCDE mélangent ces approches, et discute certains éléments qui peuvent avoir un impact sur l'innovation dans la pratique. Il se concentre sur l'enseignement secondaire public en s'appuyant sur diverses données de l'OCDE et de l'UNESCO. Premièrement, le rapport suggère que les systèmes scolaires des pays de l'OCDE ont des politiques curriculaires différenciées, même si aucun système ne répond exactement à l'une des deux approches archétypales. Deuxièmement, plusieurs facteurs peuvent réduire la « puissance d'innovation » du modèle centralisé et la « flexibilité d'innovation » du modèle décentralisé. Troisièmement, les parties prenantes influencent de manière différente les innovations pédagogiques lorsque les prises de décision curriculaires se font au niveau central ou au niveau des écoles. Le modèle centralisé semble s'appuyer largement sur les connaissances des experts avec la consultation des enseignants, des parents et du grand public. Le modèle décentralisé semble s'appuyer sur les connaissances des directeurs d'écoles et des enseignants avec l'influence implicite des experts et des parents d'élèves.

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INTRODUCTION

Emphasis put on innovation is today greater than ever – in the education sector also. Education systems need to become more innovative in their quest to improve quality, access and equity in a cost-effective manner. Seen as something novel and/or improved in its context, sector or to the world, innovation is defined in this paper as "the implementation of a new or significantly improved product (good or service) or process, a new marketing method, or a new organisational method" (OECD/Eurostat, 2005).

In search of ways to promote innovation in the education system, the curriculum holds an outstanding place by reflecting the vision its designers have for education (Box 1). Statements in curriculum documents tend to reflect the development and the cultural heritage of a society. They may also refer to persistent problems needing educational responses or aim to increase the relevance of education to the world of work and adult life (OECD, 1998). At the same time, curriculum is a historical construction (Cuban, 1992; McCulloch, 1998). It includes subjects that have "always" been there (Jackson, 1992; Cuban, 1992) and entails the legacy of previous education documents (OECD, 1998).

Curriculum specifies what kind of knowledge, skills and values should be taught to students and why is that so, but it may also specify the desired ways of how students should be taught. In this paper, curriculum is defined as comprising not only *what* should be taught to students, but also *how* the students should be taught. The paper focuses on intended – or official – curriculum, although the concept of curriculum has also sometimes been enlarged to comprise all educational, including outside-of-school experiences (Jackson, 1992).

Consequently, changes in curriculum may bring about educational innovations concerning what is taught to students, but also regarding to how students should be taught (Box 1). Curriculum innovations can take a form of completely new subjects or combine old subjects with new ones. They can include, for example, new content, concepts, sequencing and time allocation within or across already existing subjects, while curriculum innovations can even translate to new and improved ways of teaching students. As well as introducing new curriculum within the existing school system, change initiatives can also take a form of establishing completely new kinds of schools with a certain kind of new curriculum (McCulloch, 1998). In OECD countries, so-called key competences and student-centred approaches to teaching have been recently promoted in several curriculum frameworks, while cross-curricular or integrated studies are increasingly common in many countries. Few countries support the development of specialist schools and programmes (Looney, 2009; Annex 1). As a case in point, while many European countries are seen as evolving towards a competence-based curriculum – "understood as a combination of knowledge, skills, attitudes and values" – the approaches on how to go about it tend to differ (Halász and Michel, 2011).

Policy formulations may rely on approaches focusing on skills/competences, subjects, themes, personal development or goals and principles (Annex 2).

Box 1. Approaches to the curriculum

The very first fundamental questions for the curriculum are what knowledge, skills and values it should include and why is that so. McNeil (1977), for example, identified four types of orientations for curriculum objectives (1) humanistic, (2) social reconstruction, (3) technologist and (4) academic. The first conception focuses on personally satisfying experiences, such as the growth and personal integrity of each individual, while the second puts larger social needs over individual ones. The technologist view sees curriculum as a technological process for efficiently producing ends demanded by policy makers. Finally, academic orientation emphasises curriculum as a means to introduce learners to subject matter disciplines and organised fields of study. In addition, curriculum can be also seen as a (5) cognitive process, where its main task would be to develop a set of cognitive skills applicable to learning almost anything (discussed in Jackson, 1992).

As well as the desirable objectives, the curriculum often addresses the issue of how these objectives should be reached. Different approaches can lie beneath the curriculum organisation, identified for example by Schubert (1982) as follows: (1) intellectual traditionalism, (2) social behaviourist and (3) experientialist. The first entails a curriculum organised around subjects and forwarded through topics. The second mode implies a curriculum, which is organised around and evaluated against a desired behavioural objective. The last approach refers to building up students' apperception and interests through a sequence of problem-solving experiences that synthesise knowledge of learners, subject matter and milieu (discussed in Goodlad and Su, 1992).

From a more operational standpoint, curriculum organisation deals with elements such as (1) scope, (2) continuity, (3) sequence and (4) integration. Scope determines the breadth of subjects and topics offered over a given time, while continuity ensures re-visitation of a theme or skill over a certain period of time such as over the length of secondary education. Sequence refers to the deepening of a skill or concept over a certain period of time by building on a preceding one. Integrated organisation aims to promote a mutually reinforcing relationship between elements such as concepts, skills and values across the curriculum (Goodlad and Su, 1992). In addition to treating each subject as a separate component, there can be different cross-curricula approaches including (1) activities identified for consistent treatment in some or all subjects, (2) activities, such as a project, added to the normal timetable outside subject boundaries and (3) integrated elements, relevant for society or student interests, going beyond traditional subject boundaries (OECD, 1998).

With the aim of identifying a comprehensive overview of possible curriculum innovations, Leithwood (1981) proposes nine specific dimensions to be considered: (1) platform, (2) objectives, (3) student entry behaviours, (4) assessment tools and procedures, (5) instructional material, (6) learner experiences, (7) teaching strategies, (8) content and (9) time. Platform refers to beliefs and assumptions behind curriculum decisions such as positions, orientations or principles. Objectives represent the intended outcomes from broad aims to standards of student performance. Student entry behaviours refer to competency requirements for a particular programme. Assessment tools are defined as test items and test forms. Instructional material includes written, visual, audio or other material. Learner experiences refer to different learner profile descriptions. Teaching strategies is seen as patterns of teacher behaviour. Content comprises facts, concepts, principles or generalisations and thought systems. Finally, decisions on time are seen as a way to "indicate preferred patterns on emphasis" regarding the other eight curriculum dimensions (Leithwood, 1981).

Differences in ways of organising curriculum decision making may translate into various approaches on how to bring about innovation in the education system. Where the curriculum decision-making power is allocated and who takes part in the related processes can reflect the expected origins of innovations regarding educational content, pedagogy and – perhaps even – objectives. Would innovations be expected to come about through centrally driven processes or perhaps originate from schools and classrooms? Are there some structural elements that may influence different origins in reality? For example, how can researchers, teachers, parents or employers influence the decisions on curriculum innovations? Allocating more decision-making power at lower levels of the education system has been an important objective of the educational reform since the 1980s in many OECD countries. It has been expected that this would increase local responsiveness, effectiveness and quality of schooling – as well as improve the potential for innovation. At the same time, however, frequent examples of strengthening the influence of central authorities on curriculum have occurred in the OECD area (OECD, 2008).

This paper aims at depicting different implicit approaches OECD countries have to bringing about curriculum innovations and discussing elements that may in reality affect the origins of those innovations. It focuses on public lower-secondary education due to data availability, although it will occasionally draw on examples concerning other levels of education. The paper builds largely on various OECD data, especially on data collected for the OECD Education at a Glance 2008, 2010 and 2011. Country profiles of the world education systems as compiled by the UNESCO International Bureau of Education (IBE) for its sixth edition of World Data on Education 2006/2007[1] have also been an important data source for this paper. This has been the case in particular regarding the involvement of various stakeholders in curriculum decision-making processes[2].

The paper suggests that OECD education systems clearly differ in their implicit approaches to bringing about curriculum innovations, when considering formal allocation of curriculum decision-making power between central authorities and schools. At the same time, some structural elements can *de facto* influence the "innovation power" of the central level and "innovation flexibility" at school level. Finally, the paper discusses the influence the different stakeholders may have on curriculum innovations and their involvement in central and school-level curriculum decision-making processes in OECD education systems.

CURRICULUM INNOVATIONS: WHERE CAN THEY ORIGINATE FROM?

Innovations on what is taught to students and how students are taught may be expected to originate from the level of the system where curriculum decision making is formally distributed. Variations in this distribution imply different benefits and challenges for innovation in education. OECD education systems appear to opt for different approaches in bringing about curriculum innovations.

Levels of curriculum decision making

Formal curriculum decision making can implicate several levels of the education systems from national, state, regional, provincial and municipal levels to schools and classrooms. On the one hand, in some countries, curriculum decision-making power can be divided among several levels. For example in Korea, curriculum decision making involves the central government, regions as well as schools. In several Nordic countries, the curriculum decision-making levels include the central government, local communities as well as schools and teachers. On the other hand, some countries can concentrate much curriculum decision-making power at one level of the system. In New Zealand, most – although not all – of curriculum-related decisions are taken by schools (OECD Education Database).

For analytical purposes, however, a simplified division on formal curriculum decision making can be made among central and school levels – or societal and institutional curriculum (Goodlad and Su, 1992). The central – or policy level – curriculum refers to a formal body of law and regulations (Elmore and Sykes, 1992), the objectives of which are often published through the statement of a core curriculum (OECD, 1998). For Goodlad, the societal curriculum refers to broad macro-level goals and guidelines, while the institutional curriculum means more context-specific and detailed plans by educational institutions (Goodlad and Su, 1992).

In this paper, central curriculum refers to curriculum decision making by both national and state levels, but also by regional and provincial levels[3]. While in most OECD countries central curriculum equals national level decision making, in most federal OECD countries central curriculum decision making tends to take place rather at the state than at the national level (Annex 3). For example in the United States, the constitution forbids formulation of a common curriculum at the national level. On the other hand, development of national curriculum[4] – initial subjects areas were published in 2010 – has recently started in Australia where curriculum development was previously done on a state-by-state basis. Although the distribution of curriculum decision-making power among various central levels of the system can also have important implications for innovation, it will not be discussed within the scope of this paper.

In this paper, school-level curriculum covers decision making by schools, school boards, committees, teachers, and, in some cases, local communities. Local level is included in the school level category instead of the central category, since in many cases local communities can be fairly small, while central level

refers to system-wide decision making. It is recognised, however, that this division is not straightforward, especially when it comes to curriculum decision making by big cities. Local communities can decide upon at least some aspects of the curriculum mainly in the Nordic countries as well as in Estonia, Japan and Scotland.

Box 2. Differences in central-level curriculum prescription

German *Länder*	Poland	Finland
German *Länder* are responsible for the primary school syllabuses as well as syllabuses in other school types. In addition to content to be taught to students, the syllabuses generally cover the programme objectives and teaching methods that are meant to be detailed at local or school level. The purpose of the more recent syllabuses has been to indicate directions and describe key points for further lesson development. Nearly all syllabuses address interdisciplinary issues such as the environment or Europe, "the educational and didactic profile of the subjects" and the features concerning school levels or grades. Generally compulsory objectives and contents are determined for each subject. Indications on special teaching methods typically take a form of recommendation. *Source:* UNESCO (2007d)	The Polish Ministry of National Education is responsible for preparing core curricula for pre-primary, general and vocational education. The core curriculum defines "the common foundations of the education system" and describes the aims of different school types. The curriculum indicates selected content and expected achievements. Schools have leverage to develop detailed class timetables based on the central framework timetables that define the minimum course hours. Schools are provided with a list of teaching programmes that include objectives, contents, assessment procedures and the ways to achieve the objectives. These programmes can be used as such or only partly. Within the framework of the core curriculum, teachers can also develop their own teaching programmes. *Source:* UNESCO (2007h)	The Finnish National Board of Education determines the national core curriculum that contains subject-specific objectives and core contents. For example core subjects to be taught to students and distribution of teaching hours between subjects are defined in the curriculum. The core curriculum also addresses elements such as the principles of pupil assessment, educational guidance, good learning environment, and the concept of learning. Within the national framework, the schools and the local education authorities should design their own curricula. In lower-secondary education, for instance, students and parents can choose some optional subjects, the provision of which is to be determined locally. Teachers can decide on the teaching methods they use. *Source:* Finnish National Board of Education, http://www.oph.fi/english

Central curriculum forms the framework for the school level curriculum, but there can be significant variations in the central curriculum prescription across OECD countries (Box 2). Central curriculum can direct to various extents only what should be taught in schools or both what should be taught and how (Elmore and Sykes, 1992). One the one hand, central curriculum can describe only general objectives and educational principles leaving significant room for curriculum decision making by schools and teachers. On the other hand, central authorities can be extensively engaged in defining the content of education by indicating aims, content areas and minimum attainment targets with guidelines and examples of interpretation – sometimes in great detail. The central curriculum may direct not only curriculum content and its organisation, but also teachers' instruction practices (OECD, 1998; Marsh and Willis, 2007). The prescription can apply to teaching materials, including textbooks – a device on which teachers widely rely

in their daily practices (Cuban, 1992; Elmore and Sykes, 1992; OECD, 1998). Whatever the extent of prescription, central curriculum and school level curriculum are not exclusive, but in reality tend to be rather intertwined.

Expected role of curriculum in innovation

Many researchers argue that neither pure centralisation nor decentralisation works for curriculum decision making and related innovations. Very prescriptive central-level curriculum guidance may not allow teachers to bridge students' experiences and learning goals, as it can lack ownership and commitment to change. At the same time, widespread and sustainable change cannot automatically rely only on schools that are assumed to be motivated without central level support and leadership. Curriculum standards and frameworks can provide general goals and a vision for innovation – to be eventually dovetailed in schools according to local environment (Fullan, 2007; Darling-Hammond, 1998). The relationship between central-level and school-level curriculum can often be that of mutual adaptation – or "re-invention" (Darling-Hammond, 1998) – with centrally-planned innovations being adapted to specific contexts (Snyder, Bolin and Zumwalt, 1992; Marsh and Willis, 2007).

To promote innovation in education through modular structure, "the trade-off between freedom to experiment and general coordination needs to be properly managed" (OECD, 2004). This implies "the coherent certification of educational outcomes in a system that allows multiple processes and hence experimentation" (OECD, 2004). Between the extremes of centralisation and decentralisation, the challenge is to combine the need for local heterogeneity and diversity with a fair distribution of benefits across the education system (Bentley, 2008).

For analytical purposes, here the relationship between implicit innovation approaches and formal curriculum decision making is reflected through two "extremes". At one extreme, innovations in educational content, objectives and pedagogy, among others, would be expected to originate from the central level of the education system with a highly prescriptive central curriculum. At the other extreme, formal curriculum decision-making power would be, to a large extent, decentralised with the expectation that schools would be the sources of innovation on what is taught to students and how the students are taught. These two extreme approaches can be expected to benefit innovation in the education system differently, while both of them could also present some challenges from the innovation point of view.

Central approach

At the *centralised* end, a highly prescriptive central curriculum would be seen as a vehicle to scale up experienced-to-be-good content and pedagogical innovations across educational systems. Innovations would be expected to originate from curriculum decision making and development processes at the central level, led by governments and central agencies. The goals and the methods of eventual innovations would be similar to all schools and teachers, whose role would be to adapt and implement the innovations. Maintaining the curriculum decision-making power at the central level could be expected to benefit innovation in education in following ways:

- Regarding *incentives* to innovate, the prescriptive central curriculum would act as a legal trigger to promote innovations across the education system. The governments and central agencies draw much of their decision-making authority on laws and regulations (Elmore and Sykes, 1992;

Cuban, 1992) as well as, potentially, also on tradition, norms and charismatic leadership (Tyree, 1993). Legally binding central curriculum could act as an incentive to push for large(r)-scale adaptation of novel improvements throughout the education system. Although central level curriculum alone cannot guarantee that innovation will materialise in the classrooms, the chance that this will happen without it may be even slimmer. For example, recent OECD work on vocational education and training in six countries[5] suggests that strong top-down political push and leadership can often be required to overcome barriers hindering adoption and diffusion of systemic innovation in education (OECD, 2009d).

- From the *equity* standpoint, central curriculum would bring the – priority (Westbury, 2007) – innovations in educational content and pedagogy within the reach of all schools and teachers, regardless of their individual capacity. Central curriculum would be a common resource for schools and teachers, disseminated throughout the education system. It could allow a more equitable distribution of innovations throughout the education system (see for example Darling-Hammond, 1998), considering that mechanisms of choice can potentially benefit already advantaged groups in society (OECD, 2007a).

- From the *capacity* perspective, innovations in central curriculum would be able to draw on a variety of evidence, while being adequately supported by other dimensions of the education policy. The governments and central agencies can support innovations in central curriculum, for example, through research and development activities, teacher preparation as well as student assessment and testing policies (Elmore and Sykes, 1992).

Nevertheless, the highly prescriptive central curriculum poses some challenges for innovation in education. It would provide no – or only very little – room for non-directional experimentation and, hence, could hinder the emergence of radical, unexpected innovations. In addition, centrally disseminated innovations may not be relevant enough for the specific needs of individual students or local contexts. The challenges of complex situations and complex teaching activity tend to require production of local professional knowledge instead of pure cloning of innovations (Snyder, Bolin and Zumwalt, 1992; OECD, 1998; see also Bailey, 2000; Marsh and Willis, 2007). Finally, the willingness of teachers and other actors in the lower levels of the system to actually implement centrally driven curriculum innovations cannot be taken for granted. For example, political and value conflict may appear between central curriculum policy and local reality (Elmore and Sykes, 1992). This was the case of federally funded, large-scale science, mathematics and social studies curriculum programmes led by the National Science Foundation (NSF) in the United States in the 1950s and 1960s. Failing to deal adequately with local organisational and political circumstances was found to contribute, among other things, to the failure of the reforms (Snyder, Bolin and Zumwalt, 1992).

School-based approach

On the other hand, in the *decentralised* end, innovation would be expected to come about by allowing schools and teachers to exercise "innovativeness" (Fullan, 2007) regarding pedagogy, educational content and – perhaps even – objectives. By allocating curriculum decision-making power to the school level, central authorities would expect schools and teachers to be the main sources of innovations. These innovations would not be uniform over the education system, but they would be responsive to needs of

individual students and local communities. Allocating the curriculum decision-making power to the school level would be expected to benefit innovation in education in following ways:

- From the *experimentation* standpoint, allocating curriculum decision-making power to the school level would provide space for schools and teachers to innovate diversely towards non-predetermined directions. These innovations would rely on the professional competence of the practitioners. Instead of laws and regulations, authority for curriculum decision-making could draw on elements such as teachers' professional judgement and experience, professional reference groups and informal networks (Elmore and Sykes, 1992).

- As to the *relevance* of innovations, school level curriculum would allow them to respond to the needs of both individual students and local communities. Teachers close to students would be expected to assess the learning needs of individual students without one-size-fits-all teaching (Bailey, 2000; Darling-Hammond, 1998). Allocating curriculum decision-making power to the school level would also make it possible to take into account that schools and their contexts are different and an innovation working in one school does not mean that it would do so in another (Marsh and Willis, 2007).

- Regarding the *spread* of innovations, new and improved educational content and pedagogies initiated at the school level would spread horizontally from one school to another (for example, see Fink, 2000). Innovations would move through teacher personal acquaintance networks (Snyder, Bolin and Zumwalt, 1992; see also OECD, 1998; Elmore, 1996). Different types of networks could bring individuals or institutions together in a "horizontal partnership" that could form a powerful force for the dissemination of innovative educational practices (Sliwka, 2003). Sometimes school level innovations could have a bottom-up effect, when positive experiences from a few schools would find their way into general policy (Elmore and Sykes, 1992; Bentley, 2008).

However, from the innovation perspective, allocating curriculum decision-making power to the school level is not without problems either. It is not guaranteed that individual teachers and schools on a large scale have enough incentives to develop and, especially, disseminate innovations or adapt those developed by others (OECD, 2004). Schools and teachers are not necessarily even aware of the innovativeness of their curriculum. At the same time, all schools and teachers may not possess equal resources and the know-how to come up with good quality innovations for their curriculum. It is argued that isolated schools' inability and lack of interest in spreading the innovative practice partly contributed to the eventual failure of the progressive movement in the United States. As part of the progressive movement, extensive curriculum reform projects in 1920s and 1930s in Denver and Washington D.C. treated teachers as key developers and initiators of the curriculum (Elmore, 1996).

Formal curriculum decision making in OECD countries

The implicit approaches OECD countries apply to innovation in education may be examined through data on formal distribution of curriculum decision-making power at various levels of the education system. Does an OECD country prefer the dissemination of centrally developed curriculum innovations throughout the system or rely more on schools (and teachers) as sources of innovation? Consequently, does it rely on

prescriptive central curriculum or would it allocate much curriculum decision-making power to the lower levels of the system? These questions are examined through educational decision-making data on public lower-secondary education in 26 OECD education systems[6] collected in 2007 originally for the OECD Education at a Glance 2008.

For the analysis, the two curriculum dimensions as well as the nature of curriculum decision making are considered. First, the allocation of curriculum decision-making power needs to be examined through two curriculum dimensions, namely (1) *what should be taught to students* and (2) *how students should be taught*. Accordingly, the data analysis focuses on selected indicators concerning educational planning and content as well as organisation of instruction. Second, whether a decision is taken autonomously by schools or in a centrally set framework can reflect also on the nature of curriculum decision making and, implicitly, the approach for innovation. A set framework implies some central influence – such as a binding law, a pre-established list of possibilities or a budgetary limit – on independent decision making on curriculum and innovation by schools. Autonomy means that decisions are not constrained by other than the general – as opposed to education-specific – constitution or legislation. Therefore, decisions on curriculum and potentially related innovations can be taken by (1) *schools in full autonomy*, (2) *schools within a central framework* or (3) *central level in full autonomy.*

Overall, central curriculum tends to either determine or influence decision making on what is taught to students in the OECD area, whereas schools have more decision-making power regarding how students are taught.

What should be taught to students

A starting point is to look at *what* should be taught to students, meaning curriculum content and programmes – innovations which seem to be largely influenced by the central level in most OECD systems. According to data collected in 2007 on public lower-secondary education, central authorities tend to hold decision-making responsibility when it comes to educational planning and structures – referring to issues such as creating or abolishing a grade level, designing programmes of study in general or in a particular school, choosing subjects taught in a particular school and defining course content. In 2007, at least 50% of these kinds of decisions in public lower-secondary education were taken at central or state level in more than half of the 26 OECD education systems with available data – in Portugal and Spain the proportion was 100%. Central level can exercise some influence on curriculum decision making through set frameworks, as in the Netherlands, where all the decisions regarding educational planning and structures were taken at school level, but within the framework set by a higher authority (OECD, 2008).

Table 1. Decision making on what is taught to students in OECD countries in 2007

(Public lower-secondary education, four selected indicators)

	Level of decisions regarding planning and content			
	Defining course content	Designing programmes of study	Selecting programmes offered	Selecting range of subjects
Australia	C	S - F	S - F	S - F
Austria	C	C	S*	C
Belgium (fl.)	S - F	C	S - F	S - F
Belgium (fr.)	m	m	m	m
Canada	m	m	m	m
Chile	m	m	m	m
Czech Republic	S - F	S - F	S - F	C
Denmark	L - F*	C	L - F	C
England	S - F	S - F	S - F	S - F
Estonia	S - F	L - F	L - F	S - F
Finland	L - F	L - F	L - F	L - F
France	S - F	C*	S*	S - F
Germany	C	C	C	C
Greece	m	m	m	m
Hungary	S - F	S - F	S	S
Iceland	C	C	m	C
Ireland	m	m	m	m
Israel	m	m	m	m
Italy	C	C	C	C
Japan	S - F**	C	C	S - F **
Korea	S - F	C	C	C
Luxembourg	S - F	C*	C*	C*
Mexico	C	C	C	C
Netherlands	S - F	S - F	S - F	S - F
New Zealand	S	S - F	S	S
Norway	C	C	C	C
Poland	m	m	m	m
Portugal	C	C	C	S - F
Scotland	C*	L - F	S - F	S - F
Slovak Republic	m	m	m	m
Slovenia	C	C	C	C
Spain	C	C	C	C
Sweden	C	C	L - F	C
Switzerland	m	m	m	m
Turkey	C	m	C	C
United States	m	m	m	m

C = Central level in full autonomy, including decision making at federal, state and regional or provincial levels; S = School level in full autonomy, including decision making by schools, school boards and committees; S - F = School level within central framework; L - F = Local level within central framework; m = Missing; * = In consultation with another level in the system; ** = Based on additional comments provided with the data. “Selecting range of subjects” for Portugal, based on 2012 comments by national authorities.

Source: Authors' analysis based on OECD (2008); OECD Education Database 2007.

After a more detailed study of the data collected in 2007, central influence on innovations in what is taught to students is confirmed (Table 1). Designing specific programmes of study for particular types of school means deciding which courses, how many of them and at what levels, are included in a particular programme. Programmes of study for public lower-secondary education were designed by the central authorities in 16 of the 26 OECD education systems for which data was available. In nine systems, schools or local municipalities designed the programmes, but within a centrally set framework. The picture changed only slightly regarding the selection of programmes of study in a particular school – meaning decisions on programme duration, target age group and grade levels as well as on streams and general pedagogical orientation within schools. Schools in Austria, France, Hungary and New Zealand were the only ones taking these decisions in full autonomy. As to choosing the range of subjects – such as mathematics – or a subject element – such as algebra – taught within programmes of study, only Hungarian and New Zealander schools take these decisions in full autonomy. New Zealand was the only system, where course content – such as topics and levels of difficulty for students to reach – was planned autonomously by school, whereas in 13 OECD systems it was decided by central authorities.

How students should be taught

As the curriculum may also deal with *how* the students should be taught, one needs to look at formal curriculum decision making on instruction practices – to a large extent responsibility to the schools in 2007. Public lower-secondary schools – in some cases together with local communities – were mainly responsible for decisions on teaching methods, choice of textbooks, grouping of students, day-to-day student assessment and the number of instruction periods in all 26 OECD education systems for which data was available (OECD, 2008).

Nevertheless, predominantly, school level decision making does not necessarily mean decision making in full autonomy. At least 75% of decisions on the organisation of instruction were taken within a framework set by a higher authority in Austria, Czech Republic, Germany, Portugal and Spain. Only in Korea and the Netherlands all these kinds of decisions taken by schools – respectively 78% and 89% of all instructional decisions,– were taken in full autonomy (OECD, 2008).

Instructional curriculum decision making and the expected origins of innovation on how students are taught can also be examined from a more qualitative standpoint (Table 2). Overall in the OECD area, schools appear to be provided with the most space for innovation on teaching methods, referring to instructional strategies or didactical principles. While being autonomously decided by schools in most countries, a central framework for schools' decisions on teaching methods was provided only in the Czech Republic and Spain in 2007. This was the case in nine countries with regard to day-to-day student assessment – referring to assessment periodicity, scale of grading, content of proofs, nature of tests, but excluding examinations or tests administered to students in different schools. Only in Luxembourg were both teaching methods and day-to-day student assessment autonomously decided at the central level, which probably reflects the size of the country.

Table 2. Decision making on how students are taught in 2007

(Public lower secondary education, four selected indicators)

	Level of decisions regarding Instruction			
	Selecting instruction time period	Choosing textbooks	Assessing pupils' regular work	Selecting teaching method
Australia	C	S	S - F	S
Austria	C	S - F	S - F	S
Belgium (fl.)	C	S	S	S
Belgium (fr.)	m	m	m	m
Canada	m	m	m	m
Chile	m	m	m	m
Czech Republic	C	S - F	S - F	S - F
Denmark	L - F	S	S - F	S
England	S	S	S*	S
Estonia	S - F	S - F	S - F	S
Finland	L - F	L	S	S
France	C	S	S	S
Germany	C	S - F	S - F	S
Greece	m	m	m	m
Hungary	S - F	S - F	S	S
Iceland	C	C**	S	S
Ireland	m	m	m	m
Israel	m	m	m	m
Italy	C	S - F	S	S
Japan	S - F	L	S	S
Korea	C	S	S	S
Luxembourg	S - F	C	C	C
Mexico	C	C	S	S
Netherlands	C	S	S	S
New Zealand	S - F	S	S	S
Norway	C	S	S	S
Poland	m	m	m	m
Portugal	C	S - F	S	S
Scotland	S - F	S	S	S
Slovak Republic	m	m	m	m
Slovenia	C	S - F	S - F	S
Spain	C	S - F	S - F	S - F
Sweden	L - F	S	S	S
Switzerland	m	m	m	m
Turkey	C	C	S - F	S
United States	m	m	m	m

C = Central level in full autonomy, including decision making at federal, state and regional or provincial levels; S = School level in full autonomy, including decision making by schools, school boards and committees; L = Local level in full autonomy; S - F = School level within central framework; L - F = Local level within central framework; m = Missing; * = In consultation with another level in the system; ** = Based on additional comments provided with the data. "Selecting teaching method" for Portugal based on 2012 comments by national authorities.

Source: Authors analysis based on OECD (2008); OECD Education Database.

Another interesting case in point is the choice of textbooks, considering that they are used to a very large extent by teachers in their day-to-day classroom work (Cuban, 1992; Elmore and Sykes, 1992; OECD, 1998; Marsh and Willis, 2007). In 2007, schools or local authorities had full autonomy over the choice of textbooks in public lower-secondary education in 13 of the 26 OECD education systems for which data are available, whereas in nine countries that choice was made within the centrally set framework. Only in Luxembourg, Mexico and Turkey, decisions over textbooks were taken by the central authorities in full autonomy.

In most OECD systems, however, the central level autonomously decided on the total number of instruction hours per year. Instruction time periods were determined at central level in 16 of the 26 OECD education systems for which data was available in 2007, whereas in nine countries, schools or local communities could make the decision within a centrally set framework. England was the only OECD system where instruction time periods could be decided by schools in full autonomy.

Outlining implicit approaches to curriculum innovations

Overall, a broad outline of the implicit approaches that OECD education systems have to curriculum innovations can be made through formal allocation of curriculum decision-making power.

Several elements need to be kept in mind regarding the overall typology on implicit approaches to innovation based on distribution of formal curriculum decision-making power. First, the extent of central curriculum prescription or, alternatively, school level curriculum freedom for innovation, can include elements on both *what* should be taught to students and *how* the students should be taught. Second, it is useful to examine distribution of formal curriculum decision making between *central* and *school* levels, although several other levels of the system can be implicated in the decision making. In this respect, nature of decision making – fully *autonomous* or within *a set framework* – also needs to be taken into consideration. Theoretically, the two dimensions lead to nine possible alternatives for implicit approaches for bringing about curriculum innovation.

Regarding the *what* and *how* dimensions of the typology, selected curriculum indicators from the 2007 OECD data collection are used to determine a country's overall implicit innovation approach. Four selected indicators regarding the *what* dimension in terms of curriculum planning and content are *defining course content, designing programmes of study, selecting programmes offered, and selecting ranges of subjects* (Table 1). Four selected indicators for the *how* dimension corresponding organisation of instruction are *selecting the instruction time period, choosing textbooks, selecting the teaching method, and assessing pupils' regular work* (Table 2). Although the restriction to the eight indicators[7] can be somewhat arguable, they are a good illustration of the different aspects of curriculum (Box 1, Box 2).

The implicit innovation approach category for each OECD country is determined by considering the type of decision making separately regarding both what- and how- dimensions of the curriculum. For both dimensions, the type of decision making is chosen according to the majority of the four indicators. In a few cases, where the four indicators are evenly distributed between two different decision making types, the category for the *what* dimension have been chosen based on the locus of the “defining course content" indicator. The *how* dimension has been determined by the “selecting instruction time” indicator.

Approaches in OECD education systems

A variety of implicit approaches to curriculum decision making emerge in the OECD area, although in reality no one country applies an "extreme" approach in a pure form (Table 3). Overall, reliance largely on schools as origins of curriculum-related decisions appears as slightly more popular than reliance on the central level. At the same time, several OECD countries seem to opt for a rather centrally-driven approach, while few countries appear to mix the two origins of decisions according to the *what* and *how* dimensions of the curriculum.

Broadly, the overall approaches to curriculum-related innovations can be entitled (1) *School-based approach*, (2) *Mixed approach* and (3) *Central approach*:

- The *school-based approach* seems to prevail in 13 OECD education systems that appear to rely more on schools than on central authorities to bring about curriculum innovations. New Zealand stands out as the OECD country where schools can autonomously decide upon most elements for potential innovations regarding both what is taught to students and how students are taught. In addition, in eleven other countries curriculum decision-making power is largely allocated to school level. In eight OECD education systems, schools mostly decide autonomously on how students are taught, while most decisions on what is taught to students are taken within a central framework. In the Czech Republic, Denmark, Estonia and Hungary, most decisions regarding both curriculum dimensions are made by the schools, however not autonomously, but within a central framework.

- The *mixed approach* is less popular, with five OECD countries – Italy, Korea, Norway, Portugal and Sweden – appearing to rely on both central and school levels in bringing about curriculum innovations. In these countries, most innovations on what is taught to students are expected to originate autonomously from the central level, whereas schools can autonomously innovate on how students are to be taught. In no OECD country, however, is direct central influence on how students are taught combined with more freedom for schools to innovate on what to teach students.

- The *central approach* emerges also as a popular approach with eight OECD countries implicitly expecting curriculum innovations to originate from the central level. In the two smallest OECD countries – Iceland and Luxembourg – as well as in the two less affluent OECD countries – Mexico and Turkey – most curriculum innovations regarding both what is taught to students and how students are taught are expected to originate from the central level. Furthermore, in four other countries – Austria, Germany, Slovenia and Spain – what is taught to students is mainly autonomously decided at central level, while most innovations by schools on how students are taught are also guided by the central framework.

Finally, since the data analysis of formal curriculum decision making and implicit approaches to innovation is restricted to public lower-secondary education, a somewhat different picture could emerge on other types or levels of education. Consequently, education systems could apply slightly different implicit approaches to innovation according to different levels of education or with regard to private education. In particular, it seems plausible that curriculum for compulsory education may be more centrally directed than

that for upper-secondary education or pre-schools. Similarly, private institutions could have more leverage for curriculum innovations than the public ones. To explore these issues in detail is, however, not within the scope of this paper.

Table 3. Overall curriculum decision making in OECD countries by level and type in 2007

(Public lower secondary education, eight selected indicators)

		Decisions on what is taught to students		
		School level in full autonomy	**School level within central framework**	**Central level in full autonomy**
Decisions on how students are taught	**School level in full autonomy**	New Zealand	Australia, Belgium (fl.), England, Finland, France, Japan, Netherlands, Scotland	Italy, Korea, Norway, Portugal, Sweden
	School level within central framework	~	Czech Republic, Denmark, Estonia, Hungary	Austria, Germany, Slovenia, Spain
	Central level in full autonomy	~	~	Iceland, Luxembourg, Mexico, Turkey

Central level includes decision making at federal, state and regional or provincial levels. School level includes decision making by schools, school boards and committees as well as by local municipalities.

The categories are determined by the majority of the four indicators for educational planning and the four for organising instruction, respectively. In the case of Denmark, Hungary, Iceland, Japan and Mexico, when there has been an equal distribution of indicators between two different decision-making types, the eventual approach has been determined based on a definition of course content and selecting the instruction time period, for *what* and *how* dimensions, respectively.

See Tables 1 and 2 for details.

Source: Authors' analysis based on OECD (2008); OECD education database 2007.

CURRICULUM INNOVATIONS: WHAT STRUCTURES CAN INFLUENCE THEIR ORIGINS?

Within the formal curriculum decision-making structures, education systems may also differ regarding *de facto* curriculum flexibility or direction – and room or direction for innovation. On the one hand, some structural factors in the education system – such as flexible instruction time or teacher autonomy – can diminish the "innovation power" of the central curriculum and increase the "innovation flexibility" for school-level in reality. On the other hand, school-level innovations on what is taught to students and how students are taught may in reality be explicitly or implicitly directed from the central level through standards or high-stakes accountability measures.

Some elements of "innovation flexibility" in the central curriculum

"Innovation power" of the central curriculum may be implicitly or explicitly reduced and, consequently, "innovation flexibility" for the school level increased by some structural factors, including (1) *flexibility in instruction time*, (2) *teacher autonomy* and (3) *poor alignment*.

Flexibility in instruction time

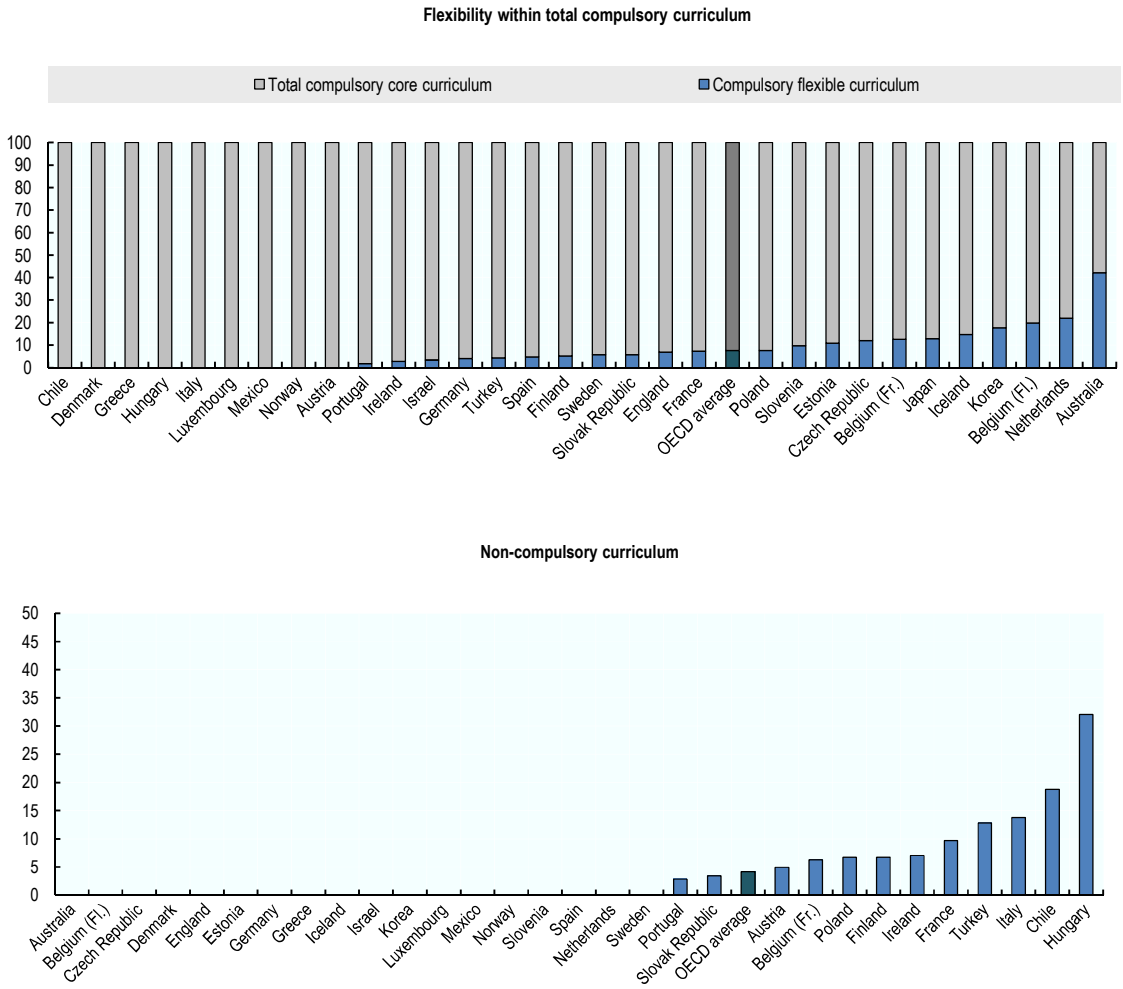
Curriculum content that is largely decided upon at the central level can explicitly leave some free space for schools to innovate on what is taught to students – or for students to choose what to study. The compulsory curriculum – referring to the overall amount and allocation of instruction to be provided by nearly all schools and students – can be divided into compulsory core curriculum and the compulsory flexible curriculum. The former means the minimum required time devoted to core subjects and study areas, the latter referring to flexibility or choice for schools or students regarding time spent on a subject or subject areas. For example, a school may choose to offer more classes in art and only the minimum in science within the required compulsory timeframe. Moreover, in addition to the compulsory curriculum, the overall instruction time the students are entitled to can include a non-compulsory part. The non-compulsory curriculum is the students' average entitlement to instruction time beyond the compulsory hours of instruction. It may differ from school to school or take the form of elective subjects (OECD, 2011).

Although generally predetermined for schools and students overall, in many OECD systems there is some flexibility for potential innovations in the use of instruction time– with variations from country to country. While compulsory core curriculum on average was 92% of the compulsory curriculum for 12-14 year olds in the OECD area in 2009, compulsory flexible curriculum covered at least 10% of the compulsory curriculum in 10 OECD countries (Chart 1). In Australia, it covered as much as 42% of compulsory curriculum, while the share of the compulsory flexible curriculum was at least 20% in both the Netherlands (22% in 2006) and the Flemish Community of Belgium (20%). As to non-compulsory curriculum, whereas it was nil in most OECD education systems in 2009, there are some notable

exceptions (Chart 1). In Hungary, it formed as much as 32% of the intended instruction time. Non-compulsory curriculum for 12-14 year olds was above 10% of the intended instruction time in Chile (19%), Italy (14%), Turkey (13% in 2007) and France (10%).

Chart 1. Curriculum flexibility in OECD countries in 2009

(% of intended instruction time for 12-to-14-year-olds)



Categories not applicable for New Zealand and Scotland. Year 2007 instead of 2009 for Sweden and, regarding compulsory curriculum, for the Czech Republic. Year 2006 instead of 2009 for the Netherlands and New Zealand. OECD average refers to countries with available and applicable data, regardless of the year. 12-14 year-olds includes 12-13 year-olds only for Italy and Belgium (fr.).

Source: OECD (2011); OECD (2009b); OECD (2008).

Overall, in many OECD countries, schools and/or students have some noteworthy flexibility to innovate on the use of instruction time (Chart 1). Flexibility in the use of instruction time for schools, students and/or regions, either within the compulsory curriculum or outside it, is at least 20% of the intended instruction time in four OECD systems – Australia, Hungary, the Netherlands and the Flemish Community of Belgium. Flexibility within the compulsory curriculum and/or outside it was at least 10% in 11 other systems. Moreover, although central level is indicated to decide autonomously on the selecting range of subjects in Korea, Iceland, the Czech Republic and Slovenia, compulsory flexible curriculum forms a notable share of compulsory curriculum in these countries, 18%, 15%, 12% and 10%, respectively. At the same time, only in five countries – Denmark, Greece, Luxembourg[8], Mexico and Norway – schools and students appear not to have flexibility in the use of intended instruction time.

Teacher autonomy

Less explicitly, teacher autonomy is an important element of *de facto* use of "innovation flexibility" for the school level regarding central level curriculum. The ultimate introduction and/or adaptation of curriculum innovations in classrooms depend essentially on the individual teachers – not just on the individual schools. It is argued that administrators and principals, caught in the middle of top-down policies and local demands, need eventually to bargain also for teachers' support. This may result in a "monitoring free zone" for teachers, where they can choose to shape the curriculum in the way they consider appropriate (Cuban, 1992; Elmore, 1996).

While teachers are in a position to influence what happens, or does not happen, in their classrooms on a daily basis, the actual taught or enacted curriculum[9] is not guaranteed to follow the formal curriculum intentions (Goodlad and Su, 1992; Jackson, 1992; Snyder, Bolin and Zumwalt, 1992; Cuban, 1992; Elmore and Sykes, 1992; Elmore, 1996; OECD, 1998; McCulloch, 1998; UNESCO IBE, 1998; OECD, 1998; Marsh and Willis, 2007; Westbury, 2007). Even within a very prescriptive and well-resourced curriculum, teachers may choose to emphasise selected points in the curriculum – for example according to test requirements (Looney, 2009) – or they may vary curriculum content and sequence according to the needs of their specific class (Marsh and Willis, 2007). The teachers' participation in school-level curriculum decision making in OECD education systems will be further discussed in the last section of this paper.

Poor alignment

As another important element, poor alignment among innovations introduced by the central curriculum and related policy instruments can also decrease the power of centrally driven innovations. This applies to aligning assessment as well as tangible and intangible capacity support for teachers with the central curriculum. For example, a new cross-curricula subject – such as technology – can lack recognised content, concepts and techniques, while there may not be corresponding academic community and/or specifically qualified teachers available, especially at the secondary and tertiary levels (Goodlad and Su, 1992; Goodson, 1998; Marsh and Willis, 2007; see also Westbury, 2007). Indeed, the concept of curriculum as a resource can be seen to be dependent on the ability of the people who may eventually use that resource (Wesbury, 2007). On the other hand, with adequately aligned instruments, curriculum policy can be a reasonably effective means for broadly determining the content taught in schools (Elmore, 1992). Inversely, assessments that do not match well with the objectives stated in the curriculum may not serve their intended purpose (Morris, 2011).

Table 4. Curriculum alignment regarding 21st century skills and competences in OECD countries in 2009

(Primary and lower-secondary education)

	Regulations and guidelines regarding 21st century skills and competences			Impact on teacher training programmes	Impact on assessment at the system level
	Existence or partial existence	Addressing also teaching	Addressing also assessment		
Australia	N +	a	a	a	a
Austria	Y	Y	N	Y	N
Belgium (fl.)	Y	Y	Y	Y	Y
Belgium (fr.)	m	m	m	m	m
Canada	m	m	m	m	m
Chile	m	m	m	m	m
Czech Republic	Y	m	m	m	m
Denmark	m	m	m	m	m
England	m	m	m	m	m
Finland	Y	Y	N	Y	N
France	m	m	m	m	m
Germany	m	m	m	m	m
Greece	m	m	m	m	m
Hungary	m	m	m	m	m
Iceland	m	m	m	m	m
Ireland	Y	Y	Y -	Y -	N
Israel	m	m	m	m	m
Italy	Y	m	m	m	m
Japan	m	m	m	m	m
Korea	Y	Y	N +	Y	N
Luxembourg	m	m	m	m	m
Mexico	Y	Y	Y -	Y -	N
Netherlands	Y	N	N	Y	N
New Zealand	Y	Y	Y	Y	N
Norway	Y	N +	N +	N	N
Poland	Y	Y	Y	Y	Y
Portugal	m	m	m	m	m
Scotland	m	m	m	m	m
Slovak Republic	Y	Y	Y -	N	Y -
Slovenia	m	m	m	m	m
Spain	Y	Y	Y -	Y	N
Sweden	m	m	m	m	m
Switzerland	m	m	m	m	m
Turkey	Y	Y	Y	Y -	Y
United States	m	m	m	m	m

Y = Yes; N = No; Y - = Yes, but not specific for the skills/competences; N + = Under development; a = Not applicable; m = Missing.

21st century skills and competences here include critical thinking, problem solving, decision making; communication, collaboration, information literacy, research and inquiry, media literacy, digital citizenship, ICT operations and concepts, flexibility and adaptability, initiative and self-direction, productivity and/or leadership and responsibility.

Source: Adapted from Ananiadou and Claro (2009); OECD New Millennium Learners Survey 2009; National authorities for the Czech Republic (2012).

Incoherence between central level curriculum and student assessments in particular can hinder the *de facto* "innovation power" of the central curriculum (Tyree, 1993; OECD, 1998). By re-allocating time and realigning priorities, curriculum may become narrower than intended, if focus is increasingly put on tests (Looney, 2009). Introducing new subjects to curriculum can be particularly difficult, especially if they need to fight for their place against traditional subjects valued through testing (Goodson, 1998). For instance, Goodson (1983) found that the new subject of environmental studies combining geography, biology and rural studies was slowly phased out in England in the 1980s as it lacked high academic and testing status (discussed in Cuban, 1992). In OECD countries, adequate alignment between the central curriculum and system-level assessments cannot be taken for granted (Table 4). The recent survey on 16 OECD countries suggested that, while the great majority of the countries cover the so-called 21st century skills in their curriculum regulations or guidelines, these skills were rarely specifically included in student assessments and school evaluations. Instead they tended to be seen as part of general assessment policies (Ananiadou and Claro, 2009).

At the same time, lack of aligned tangible and intangible capacity support for teachers may reduce the implementation of innovations provided by the central curriculum. From the tangible side, good quality, easy-to-use teaching materials can hold a vital place for the implementation of the central curriculum. In Korea, lack of adequate materials for teachers was identified as a barrier to implementing the Seventh National Curriculum of 1997[10]. While traditional textbooks a very large extent tend to be used by teachers in their day-to-day classroom work (Elmore and Sykes, 1992; Cuban, 1992; OECD, 1998; McCulloch, 1998), many textbooks were found to be either missing, out-of-date or considered methodologically inappropriate during the inspections carried out in the Slovak Republic in 2002-2003 (UNESCO, 2007i; Simcakova, 2004). Regarding intangible capacity, teachers do not necessarily possess – or they are not offered enough sustainable support to acquire (Elmore, 1996; Bailey, 2000) – the needed skills and knowledge to implement innovation brought by central curriculum (Snyder, Bolin and Zumwalt, 1992; Elmore and Sykes, 1992; see also Levin, 2007). In Turkey, according to Yasar and Serement (2009), most teachers did not have the capacity to adequately implement the new 2005 secondary school geography curriculum that radically differed from the previous curricula.

Some OECD countries appear to be making efforts to combine innovations provided by the central curriculum with capacity support. Both Germany and Austria can be seen as relying to a large extent on a central approach in bringing about curriculum innovations with much formal decision-making power held at the central level. In the German *Länder*, once the revised or re-organised curriculum and related syllabuses are introduced in schools, in-service teacher training activities are being carried out and textbooks are revised by the publishers. The introduction of new curricula can make normally voluntary in-service training participation obligatory (UNESCO, 2007d). In Austria, the introduction of a separate ICT training programme for prospective teachers at universities accompanied the inclusion of ICT in the primary school curriculum. An increasing number of teachers have been also reported to be receiving extensive in-service training on IT skills (UNESCO, 2007a). Following the introduction of the so-called 21st century skills in their curriculum regulations or guidelines, many OECD countries for which data was available also indicated an impact on teacher training and/or guidelines (Table 4).

Some elements of "innovation direction" for the school-level curriculum

Curriculum innovations by schools can be implicitly or explicitly directed from the central level through elements such as (1) *standards*, (2) *high-stakes accountability*, and (3) *textbook selection*.

Standards

Standards and binding attainment targets at the central level may, in reality, direct the innovations by schools. "[S]tandards can refer to the level of achievement in a subject at a certain age" such as proficiency in a native language at the age of 15 (Morris, 2011). They "define the knowledge and skills [...] students are expected to have attained at different stages of their education" (Looney, 2011). These standards are often embedded in the central curriculum objectives – as in the case of Sweden or Belgium. For example, in the Flemish Community of Belgium, while some curriculum objectives take the form of desirable goals, other objectives are required attainment targets (Box 3).

Box 3. Curriculum objectives in the Flemish Community of Belgium

The central curriculum in the Flemish Community of Belgium includes final objectives *(eindtermen)* and developmental objectives *(ontwikkelingsdoelen)*. Final objectives comprise the minimum knowledge, insights, skills and attitudes to be attained by a specific group of students. Developmental objectives are seen as desirable minimum objectives for a specific group of students.

The compulsory minimum objectives in the curriculum can take either subject-specific or cross-curricula form. While subject-related objectives for knowledge, understanding and skills are generally considered as essential, attitudinal aspects are not required to be reached but only strived for. As to cross-curricular objectives, they are to be strived for through projects or several subjects.

Source: Replies of the Flemish Community of Belgium to the 21st century skills and competences country questionnaire (2009).

Overall, central authorities in most OECD countries use increasingly national examinations or assessments based on standards or curriculum goals at public lower-secondary education (Table 5). In 2009, 19 countries examined and/or assessed all students based on a criterion-reference test that "assesses the extent to which students have reached the goals of a set of standards or national curriculum" (OECD, 2011). Central authorities conducted a criterion-reference test based on national examinations to all public lower-secondary education students in 11 countries. Such national assessments were administered to all students in eight countries, most of which had established them since the year 2000. The most common subjects covered by national examinations and assessments are mathematics and the national language (OECD, 2011).

Table 5. Standard or curriculum-based national examinations and assessments in OECD countries in 2009

(Public lower-secondary education)

	Criterion-reference test based examinations and/or assessments	Examinations					Assessments				
		Year of establishment	Applicaple programmes	Based on criterion-reference test	Devised and graded at the central level	Administered by all schools	Year of establishment	Applicaple programmes	Based on criterion-reference test	Devised and graded at the central level	Administered by all schools
Australia	N	m	All	N	Y	Y	2003	All	N	Y	Y
Austria	a	a	All	a	a	a	a	All	a	a	a
Belgium (Fl.)	Y	a	All	a	a	a	2004	All	Y	Y	N
Belgium (Fr.)	a	a	All	a	a	a	a	All	a	a	a
Canada	m	m	All	m	m	m	m	All	m	m	m
Chile	Y	a	All	a	a	a	1988	All	Y	Y	Y
Czech Republic	a	a	All	a	a	a	a	All	a	a	a
Denmark	Y	1975	All	Y	Y	Y	2009	All	Y	Y	m
England	a	a	All	a	a	a	a	All	a	a	a
Estonia	Y	1992	General	Y	Y	Y	a	All	a	a	a
Finland	Y	a	All	a	a	a	1998	All	Y	Y	N
France	Y	1988	All	Y	Y	Y	a	All	a	a	a
Germany	Y	1949	All	Y	Y	Y	2007	All	Y	Y	Y
Greece	a	a	All	a	a	a	a	All	a	a	a
Hungary	Y	a	All	a	a	a	2001	All	Y	Y	Y
Iceland	N	a	All	a	a	a	2009	All	N	Y	Y
Ireland	Y	1926	All	Y	Y	Y	a	All	a	a	a
Israel	N	a	All	a	a	a	2002	All	N	Y	Y
Italy	Y	1962	All	Y	Y	Y	2008	All	N	Y	Y
Japan	Y	a	All	a	a	a	2007	All	Y / N	Y	Y
Korea	Y	a	All	a	a	a	2001	All	Y	Y	Y
Luxembourg	Y	a	All	a	a	a	2007	All	Y	Y	Y
Mexico	Y	a	All	a	a	a	2006	All	Y	Y	Y
Netherlands	Y	1968	General	Y	Y	Y	a	All	a	a	a
New Zealand	m	m	All	m	m	m	m	All	m	m	m
Norway	Y	2007	All	Y	Y	Y	2004	All	N	Y	Y
Poland	Y	2002	All	Y	Y	Y	a	All	a	a	a
Portugal	Y	2005	General	Y	Y	Y	a	All	a	a	a
Scotland	Y	1962	All	Y	Y	Y	a	All	a	a	a
Slovak Republic	N	a	All	a	a	a	2004	General	N	Y	Y
Slovenia	m	m	All	m	m	m	m	All	m	m	m
Spain	Y	a	All	a	a	a	2007	All	Y	Y	Y
Sweden	Y	a	All	a	a	a	1998	All	Y	Y	Y
Switzerland	m	m	All	m	m	m	m	All	m	m	m
Turkey	a	a	All	a	a	a	a	All	a	a	a
United States	Y	2001	All	m	Y	Y	1969	All	Y	Y	N

Y = Yes; N = No; a = Not applicable; m = Missing. A criterion-reference test assesses the extent to which students have reached the goals of a set of standards or national curriculum. Central level includes; central, state, provincial/ regional authorities or sub-regional or inter-municipal governments. Federal states or countries with highly decentralised school systems may experience regulatory differences between states, provinces or regions. In addition to central level, schools, school boards or committees devise and grade national exams in France and national assessments in Sweden. National examinations and assessments were piloted in the Czech Republic in academic year 2011/2012.

Source: Adapted from OECD (2011).

Indeed, allocating curriculum decision making to school level does not necessarily translate to a "pure" freedom for schools and teachers to innovate. The "paradox" of simultaneous decentralisation and centralisation has been noted by Bullock and Hywel (1997) in countries such as England and New Zealand – meaning greater government powers over defining educational priorities and schools deciding how to implement those priorities (discussed in Glatter, Mulford and Shuttleworth, 2003). While schools can increasingly decide on the content and methods, they are also increasingly required to help "*all* students to meet centrally defined standards for learning" (Looney, 2011). Overall, criterion-reference test-based national examinations and/or assessments for all lower-secondary education students are in use in more than half of the OECD education systems, where schools hold much curriculum decision-making power – and, at the first glance, leverage for innovation (Table 3, Table 5). This is also the case for the four countries, where implicit approach to curriculum innovations appears to be more mixed overall.

High-stakes accountability

While schools seem to be the main sources of curriculum-related innovations in several OECD systems, these innovations may be directed by external accountability measures in some of them. For example, schools can be affected by the results of national examinations or by external inspection – "a mandated, formal process of external evaluation with the aim of holding schools accountable". Among other things, external school inspections can collect information on school curriculum and address student performance or instruction quality (OECD, 2011). In 2009, either school inspection or national exams could have high-stake influence on schools in few OECD countries, where many curriculum decisions are taken at the school level (Table 6). For example, in England and the Czech Republic, school inspections – carried out in at least 25% of the schools every year – are seen as having a high influence on the likelihood of closing a lower- secondary school. In the Czech Republic this influence was seen to have an effect on financial rewards or sanctions for a school. In the Netherlands, national examinations based on a criterion-reference test at the lower-secondary level were considered to have a high influence on a schools closure, whereas in France this impact was seen to be moderate.

In particular, high-stakes assessments, evaluations and/or higher education policy can in reality trigger some and hinder other curriculum-related innovations by schools, teachers and students. For example, concern for subject-based standards at school-leaving level or high-stake higher education entrance examinations can reinforce the role of certain traditional subjects and academic focus in curriculum (OECD, 1998; McCulloch, 1998; Goodson, 1998; Levin, 2007; Looney, 2009; Morris, 2011). Curriculum may also become narrower, as teachers may increasingly focus on the tests by, among other things, re-allocating time and re-aligning priorities, instead of taking a broad view on teaching (OECD, 1998; McCulloch, 1998; Goodson, 1998; Looney, 2009; Morris, 2011). In Korea, with regard to the Seventh National Curriculum of 1997, teachers viewed the increased student choice of elective subjects as negative, as, overall, the subjects chosen ended up being limited to a few core subjects useful for university entrance examinations[11]. Overall, in 13 OECD countries, students in all public lower-secondary schools are administered national examinations (Table 5) that can affect their "eligibility to progress to a higher level of education or attainment of an officially-recognised degree" (OECD, 2011).

Table 6. Curriculum decision making and influence of accountability measures in OECD countries

(Lower secondary education)

	Level of curriculum decision-making (2007)		Selected accountability measures (2009)								
			Evaluation by inspectorate					National examinations			
					Influence on schools				Influence on schools		
	What is taught to students	How students are taught	Data on curriculum collected	% of public schools inspected every year	Size of the budget	Another financial reward or sanction	Likelihood of a closure	Based on criterion-reference test	Size of the budget	Another financial reward or sanction	Likelihood of a closure
Australia	S - F	S	m	m	m	m	m	N	m	m	m
Austria	C	S - F	Y	m	M	M	M	a	a	a	a
Belgium (Fl.)	S - F	S	Y	15	L	H	H	a	a	a	a
Belgium (Fr.)	m	m	N	30	N	N	L	a	N	N	N
Canada	m	m	m	m	m	m	m	m	m	m	m
Chile	m	m	N	m	N	H	H	a	a	a	a
Czech Republic	S - F	S - F	Y	33	L	H	H	a	a	a	a
Denmark	S - F	S - F	N	a	a	a	a	Y	m	m	m
England	S - F	S	Y	25	L	L	H	a	L	L	M
Estonia	S - F	S - F	N	10	N	N	N	Y	N	L	N
Finland	S - F	S	a	a	m	m	m	a	m	m	m
France	S - F	S	N	m	L	L	H	Y	N	N	M
Germany	C	S - F	N	50	N	N	N	Y	L	L	N
Greece	m	m	a	a	a	a	a	a	N	N	N
Hungary	S - F	S - F	N	a	a	a	a	a	N	N	L
Iceland	C	C	Y	8	N	N	a	a	a	a	a
Ireland	m	m	Y	10	N	N	M	Y	L	N	L
Israel	m	m	Y	100	L	N	N	a	M	N	N
Italy	C	S	N	a	a	a	a	Y	N	N	N
Japan	S - F	S	N	a	m	m	m	a	a	a	a
Korea	C	S	Y	33	N	L	N	a	a	a	a
Luxembourg	C	C	a	a	L	a	a	a	N	N	N
Mexico	C	C	N	a	a	a	a	a	a	a	a
Netherlands	S - F	S	N	55	N	N	H	Y	N	N	H
New Zealand	S	S	m	m	m	m	m	m	m	m	m
Norway	C	S	m	20	m	m	m	Y	m	m	m
Poland	m	m	Y	20	N	m	N	Y	N	m	N
Portugal	C	S	Y	25	N	N	N	Y	N	N	N
Scotland	S - F	S	Y	17	a	a	H	Y	N	N	N
Slovak Republic	m	m	Y	20	L	M	H	a	N	N	N
Slovenia	C	S - F	m	m	m	m	m	m	m	m	m
Spain	C	S - F	N	100	N	N	N	a	a	a	a
Sweden	C	S	a	17	m	m	m	a	m	m	m
Switzerland	m	m	m	m	m	m	m	m	m	m	m
Turkey	C	C	Y	a	L	L	H	a	N	N	N
United States	m	m	m	m	m	m	m	m	m	m	m

C = Most decisions taken at central level in full autonomy; S = Most decisions taken at school or local level in full autonomy; S - F = Most decisions taken at school or local level within the central framework; Y = Yes; N = No / No influence; L = Low; M = Moderate; H = High; a = Not applicable; m = Missing. For Poland, the year 2010 instead of 2009 regarding accountability measures. For Sweden, the percentage of schools for inspection refers to the proportion of municipalities in which all schools have inspections each year. Federal states or countries with highly decentralised school systems, may experience regulatory differences between states, provinces or regions.

Source: OECD (2011); OECD (2008); OECD Education Database.

Textbook selection

As a more implicit element, curriculum innovations by schools may be, to varying degrees, centrally directed through textbook selection. In Japan, textbooks are chosen by local authorities (OECD, 2008), but the books, mainly produced by commercial publishers, must be authorised by the Ministry of Education. This authorisation process normally includes an examination of the draft textbooks by the Textbook Authorisation Council as well as by the Ministry officials and teachers representatives reporting back to the Council. Based on the Council's recommendation, the Minister approves or disapproves each of the proposed textbooks (UNESCO, 2006c). In New Zealand, where most formal curriculum decisions – including the choice of textbooks – are taken autonomously by schools, development of curriculum materials are generally contracted by the Ministry of Education to a crown-owned commercial company, Learning Media Limited (UNESCO, 2006d). On the other hand, Dutch schools have autonomy to choose teaching materials that are commercially produced, distributed and sold. The schools' choice is then facilitated by a consumer guide provided by the National Teaching Materials Information Centre (UNESCO, 2007g).

Depicting some structural influence on curriculum innovation approaches

As well as formal decision-making structures, education systems may differ regarding structures that impact *de facto* "innovation power" of the central level or "innovation flexibility" for the school-level curriculum. These structures can eventually form part of the implicit approach education systems have for bringing about novel improvements on what is taught to students and how students are taught. Taking into account the data limitations, some of these elements are considered within the scope of this paper.

Based on the distribution of *formal curriculum decision-making* power, three overall approaches on bringing about curriculum innovations were formulated earlier (Table 3). First, the *school-based approach* is seen as prevailing, when most decisions on both what is taught to students and how students are taught are taken by schools either in full autonomy or within a central framework. Second, a country is considered as having a *mixed approach* to curriculum innovations when most decisions on what is taught to students are taken autonomously at central level, but most decisions on how students are taught are taken by schools in full autonomy. Third, the *central approach* includes countries where most decisions on what is taught to students are taken autonomously at central level and a centrally-defined framework at least is provided for most decisions on how students are taught. Decision-making data used to determine these groupings concerned public lower-secondary education and were collected for the OECD in 2007.

To take into account some *structural influence* on curriculum innovations, two elements are additionally considered here in relation to the initial decision-making and innovation approaches (Table 6, Chart 1). The three approaches may be complemented by considering (1) the potential high-stakes impact of accountability measures on schools and (2) the flexibility provided for schools and students in using instruction time. The former element may be seen as a way to direct curriculum innovation by schools, while the latter would increase the flexibility for innovation at school level. In a few cases, where there seems to be both increased direction and flexibility, central direction is considered to be a prevailing element. To this end, 2009 data on accountability measures and intended instruction time collected for the OECD are used (Chart 1, Table 6). The accountability data covers public schools in lower secondary education and the instruction time data concerns 12-14 year-olds.

Three additional dimensions can be distinguished along the direction-flexibility axis. First, the structural influence on curriculum decision making and innovations is considered to be *high* when national examinations or external inspections can have a high or medium influence on the size of the school budget, other financial rewards or sanctions or the likelihood of school closure. In this category, possible flexibility in intended instruction time is seen as subordinate to direction. Second, the structural influence can be considered as relatively *neutral*. In this case, both compulsory flexible curriculum and non-compulsory curriculum are below 15% of the intended instruction time. At the same time, national examinations or school inspections either do not exist or they have little or no impact on school finances or closure. Third, the structural influence on school curriculum decision making and innovations can be considered to be low when compulsory flexible curriculum and/or non-compulsory curriculum form 15% or more of the intended instruction time or the division of instruction time is not applicable in the country. Here national examinations or external school inspections either do not exist or they have no or low impact on school finances or closure.

Approaches in OECD education systems

Taking some elements of structural influence into account regarding overall curriculum decision making appears to create some differences among OECD countries (Table 7). This seems to be especially the case in countries with a mainly school-based innovation approach, while fewer differences emerge regarding those with mixed or central innovation approaches. Overall, in nine OECD education systems the impact of more structural elements can be seen to be rather neutral. Data on curriculum decision making, high-stakes accountability and flexibility in instruction time is available for 20 OECD education systems.

While the curriculum decision-making approaches are used as a basis for country groupings, structural influence is used as a separate dimension to distinguish between the countries within each group:

- Regarding the *school-based approach*, countries within this largest group can be divided into three different sub-approaches when taking the potential structural influence into consideration. First, the *flexible school-based approach* combines mainly school-level decisions with notable flexibility in the use of instruction time, providing additional possibilities for schools to initiate curriculum innovations. Of the OECD education systems with available data, this approach appears to be relevant for Hungary. Second, the structural impact seems to be rather modest in both directions in three other countries – Estonia, Finland and Japan. These countries seem to rely on a *simple school-based approach* in bringing about innovation on what is taught to students and how students are taught. Third, in the Czech Republic, France, England, the Flemish Community of Belgium and Scotland, curriculum decisions are taken mainly by schools, but may be directed by the impact of school inspections or national examinations. Hence, the *directed school-based approach* to curriculum innovations appears to be relevant for these countries.

- As to the *mixed approach*, some changes can be found for Korea. Regarding the three countries for which data was available, in Korea, the mixed approach to formal curriculum decision making seems to be combined with notable flexibility in the use of instruction time to a *flexible mixed approach*. The influence of structural factors seems to be rather modest in Italy and Portugal which seem to rely on a *simple mixed approach* to curriculum innovations with central

level playing an important role regarding what is taught to students and school level having space to innovate regarding how students are taught.

- With regard to the *central approach*, countries appear to differ according to three different dimensions. In a *flexible central approach*, in Iceland, the important role for central level in curriculum innovations is combined with flexibility in the use of instruction time. At the same time, the four other countries for which data was available – Germany, Luxembourg, Mexico and Spain – seem to rely on a *simple central approach* with no or a modest influence of structural elements on curriculum decision making. Mainly central curriculum innovations in Austria and Turkey seem to be supported by assessments and evaluations suggesting that they rely on a *directed central approach*.

When illustrating potential structural influences on curriculum decision making, the mixed implicit approach to curriculum innovations may turn out to be more popular than appears at first glance. While the Czech Republic, France, England, the Flemish Community of Belgium and Scotland seem to implicitly apply a directed school-based approach to curriculum innovations, they may not be very different from the countries in the mixed category. At the same time, Iceland's approach to curriculum innovations seems to be more flexible than that of other countries in the central category, moving it towards the mixed approach.

Table 7. Implicit approaches to bringing about curriculum innovations in OECD countries

(Public lower secondary education, 12-14 year-olds)

		Curriculum decision-making		
		School-based	**Mixed**	**Central**
Structural influence	**Low** *(highly flexible)*	Hungary	Korea	Iceland
	Neutral	Estonia, Finland, Japan	Italy, Portugal	Germany, Luxembourg, Mexico, Spain
	High *(control from a distance)*	Belgium (Fl.), Czech Republic, England, France, the Netherlands, Scotland	~	Austria, Turkey

School based = Most decisions on both what is taught to students and how students are taught are made by schools either in full autonomy or in a central framework.

Mixed = Most decisions on what is taught to students are taken autonomously at central level, but most decisions on how students are taught are taken by schools in full autonomy.

Central = Most decisions on what is taught to students are taken autonomously at central level and a central framework is provided for most decisions on how students are taught are taken by schools.

Low = Compulsory flexible curriculum or non-compulsory curriculum are equal to or greater than 15% of the intended instruction time for 12-14 year olds or the division of instruction time is not applicable and national examinations or school inspections do not exist or they have little or no influence on schools regarding the size of the budget, other financial rewards or sanctions or the likelihood of school closure.

Neutral = Compulsory flexible curriculum and/or non-compulsory curriculum are below 15% of the intended instruction time for 12-14 year olds and national examinations or school inspections do not exist, or they have no or low influence on schools, regarding the size of the budget, other financial rewards or sanctions or the likelihood of school closure.

High = National examinations or school inspections have high or medium influence on schools regarding the size of the budget, other financial rewards or sanctions or the likelihood of school closure.

See Annex 3, Tables 1, 2 and 6 as well as Chart 1 for further details.

Source: Author's analysis based on OECD (2011); OECD (2008); OECD Education Database 2007.

CURRICULUM INNOVATIONS: HOW CAN VARIOUS STAKEHOLDERS INFLUENCE THEIR DEVELOPMENT?

Decisions on intended curriculum and innovations brought about by it do not occur in a vacuum, but they are often influenced by a variety of stakeholders both at central and school levels. In modern democratic societies, the final formal decisions potentially leading to innovations tend to be only the tip of the iceberg, being preceded by a more or less lengthy preparatory, consultation and/or negotiation period. During this period, significant compromises may be made and more or less influential voices may be heard from inside and outside the education system – more or less explicitly. On the other hand, a decision may be taken without consulting the relevant parties sufficiently – those being influenced by it, the ones eventually implementing it or those holding specific expertise on the subject. This applies also to curriculum decision making, where politicians tend to play a key role, for example, as initiators of development processes. In general, stakeholder consensus can be seen as a significant driver for innovation in education and lack of consensus a barrier to it (OECD, 2009d).

Stakeholders, curriculum decision making and innovation

Different stakeholders can influence curriculum decision making from supply and demand perspectives. Both at central and school levels, these stakeholders may include educational researchers, publishing companies, teachers, principals, parents and the wider public.

Supply and demand perspectives

Regarding innovation, the influence of the different stakeholders in curriculum decision making is to be considered both from the *supply* and *demand* perspectives.

On the *supply* side, innovation is driven by knowledge (OECD, 2007c; OECD, 2009e, OECD, 2010c) that can be brought into curriculum decision making by various stakeholders – "carriers of knowledge" (OECD/Eurostat, 2005). In addition to traditional research and development activities, innovation relies on sufficient human capital and skilled people. Skills and knowledge flows can be seen to be particularly important for innovation in services (OECD, 2007c; OECD, 2009e; Box, 2009; OECD, 2009c; Toner, 2011) – and education is a human resource-intensive public service. Advanced democracies tend to differ as to "the degree to which they are capable of drawing on the information generated by the various actors, analysing this information and using the resulting knowledge for supporting decision making and implementation" (Fazekas and Burns, 2012).

Adequate stakeholder involvement in curriculum decision making can be crucial for innovation also from the *demand* point of view. Interests – particularly vocal interests – drive political processes and what people believe may matter more than research and empirical evidence in political decision making (Levin,

2007). For example, in the case of recent Technical Baccalaureate Reform for vocational education and training in Mexico, the decision making was seen as mainly guided by the widespread belief among stakeholders that the reform was urgent. At the same time, there were doubts about how much the actual evidence gathered would influence the decisions taken (OECD, 2009d). On the other hand, if the introduction of the new central or school level curriculum would entail effects that may be negatively perceived by the public, incentives to undertake such an innovation may be diminished. The innovation could contribute to the politicians being voted out of office before any of the assumed benefits start to show, considering that, contrary to the private sector, in the public sector "5% of clients complaining can lead to political disaster" (Levin, 2007). The role of demand as a key driver for innovation is increasingly recognised in the private sector also, especially with innovation in services being linked to consumer demand (Box, 2009; OECD, 2009c; OECD, 2009e; OECD, 2010c).

Types of stakeholders

Decisions on curriculum and innovation can be influenced by three broad types of stakeholders from inside and outside the education system: (1) *experts*, (2) *practitioners* as well as (3) *parents and the wider public*. One person can play several roles at the same time. In addition to being a practitioner, a teacher can also be a parent and an expert conducting research.

Experts can be seen as stakeholders who can supply evidence-based knowledge to the decision making for introducing innovations in curriculum at central or school levels. They may hold expertise in specific subject matters, or education, curriculum and assessment in general, while conducting studies and research for scientific evidence (Jackson, 1992). In addition to academics and researchers, the category here also includes other stakeholders with accumulated expertise, conducting development and evaluation activities as well as systematically using data. An expert could then be an independent consultant, an employer of a private firm or a civil servant working within a public administration in charge of curriculum development-related processes. In the private sector, publishers especially can act as powerful lobby groups at central or local levels to have their textbooks included in the intended curriculum. In a more subtle manner, they may also change the textbook content and consequently influence what is taught in classrooms (Cuban, 1992; Elmore, 1992).

In addition, teachers and principals may play the role of expert for curriculum decision making, especially at school level, perhaps with the support of outside experts. The action research approach, appearing in the United States and the United Kingdom since the 1980s, treated teachers as researchers grouped to search for improvements in educational programmes and practice on a regular basis (Marsh and Willis, 2007).Teachers and educators were treated as the key experts for research, development and dissemination of curriculum under the National Diffusion Network (NDN) programmes run from the mid-1970s in the United States. These programmes, entailing regular monitoring and support for teachers, were a systematic attempt to identify locally developed and successful educational programmes, to raise awareness about them and provide training for their diffusion (Snyder, Bolin and Zumwalt, 1992).

Practitioners – in this case referring basically to teachers and principals – can be seen as important stakeholders for curriculum development both from the supply and demand perspectives. On the supply side, practitioners can bring practical knowledge into the curriculum decision-making process – incremental innovation can be seen as largely driven by learning, by doing and using (Toner, 2011).

Teachers in particular can be expected to have a more practical, often problem-oriented view on classroom reality (Jackson, 1992). They can be seen as artisans, who work alone in a personally designed environment and develop most of their skills through trial and error (OECD, 2004).

From the demand standpoint, the influence the practitioners can have on curriculum decision making and related innovations is no less important. Considering that teachers' essential role regarding the taught curriculum in classrooms, enhancing their ownership and commitment can be seen as essential for successful educational innovation (Fullan, 2007; Darling-Hammond, 1998). This can translate into providing teachers with adequate space and support in developing school-level curriculum, but also to the genuine involvement of teachers in the development of the central curriculum framework (Snyder, Bolin and Zumwalt, 1992; OECD, 1998; Darling-Hammond, 1998). In particular, school leadership is often seen as central for providing adequate support and encouragement for teachers to develop and/or adapt curriculum innovations (Snyder, Bolin and Zumwalt, 1992; OECD, 1998; Marsh and Willis, 2007).

Parents and the wider public can also influence curriculum decision making and innovations especially from the demand standpoint. Parents are particularly recognised as having strong expectations on what their children should be taught, how and in what kind of organisation (Cuban, 1992; Marsh and Willis, 2007; Hargreaves, 2000). Within classrooms, students as direct users of education can negotiate with teachers on issues such as rules and the quantity of work (Marsh and Willis, 2007). At the same time, the community at large can have a notable influence on curriculum decision making – in developed societies virtually everyone has some experience and, consequently, opinions about schooling (Levin, 2007). The wider public can have strong views on what future generations of society should be taught and how (Cuban, 1992; Elmore, 1996; Levin, 2007) – for example, curriculum can play a major role in forming citizens and the collective memory (Westbury, 2007). Employer groups have an interest in what kind of skills and knowledge will be provided for the future labour market (Cuban, 1992; Elmore, 1996; Marsh and Willis, 2007).

Some challenges for innovation

While important, stakeholder involvement in and influence on curriculum decision making can also create some challenges for innovation both from the supply and demand perspectives. In reality, the *possibility* of influencing curriculum decision making is not necessarily based on an adequate *capacity* to support curriculum innovations or automatically translate to *willingness* to do so.

Regarding supply, expert and practitioner involvement in and influence on curriculum decision making do not guarantee quality and a use of knowledge that supports innovation:

- Regarding experts, educational research and development is not necessarily used and supported in way that is effective for fostering innovation. Although the volume of testing and assessment activities has increased in OECD countries, little is still known about how and/or how effectively this evidence is used in policy making. Commonly, even though not universally, educational research and development in OECD education systems is characterised by low investment in research, low levels of especially quantitative research capacity and weak links between research, policy and innovation (OECD, 2009b; OECD, 2007b). A policy maker's time and capacity to use knowledge may be limited, making it "clear that *promoting* the use of evidence in policy making

is not the same thing as *ensuring* its use" (Fazekas and Burns, 2012). Knowledge transfer and mobilization throughout nations can also be seen generally as weak in OECD countries (OECD, 2009d).

- Practitioners may not automatically have adequate capacity to initiate or support innovations in school-level curriculum. For example, during decentralisation in Hungary, the mismatch between the former system and the new pedagogical cycles of the National Core Curriculum in 1995 was identified as one of the key challenges of the reform. The mismatch left the two last grades in upper-secondary schools without curricular guidelines and led secondary schools to plan local curriculum on the basis of school-leaving examination requirements. The implementation process of the Core Curriculum required extensive centrally driven efforts to develop teachers' competence, preparation of school-based programmes being a "completely new phenomenon in public education" (UNESCO, 2007e; Halász, Garami, Havas and Vágó, 2001).

As to demand, while the exclusion of stakeholders can have trade-offs in terms of ownership (OECD, 2009d), their influence on curriculum decision making does not automatically support innovation:

- It cannot be taken for granted that practitioners wish to innovate or adopt innovations, although they are the main users and/or developers of the curriculum in classrooms. Despite trends towards new types of curricula and some successful schools and teachers always differing from the mainstream practice, many maintain that this tends to happen only on a small scale (Goodlad and Su, 1992; Cuban, 1992; Snyder, Bolin and Zumwalt, 1992; Elmore and Sykes, 1992 and 1996; McCulloch, 1998; OECD, 1998; Marsh and Willis, 2007; Looney, 2009). At the same time, while good school leadership can be seen as essential in encouraging teachers to innovate, it is less clear how common effective and "innovation-friendly" school leadership is in reality. On average, three-quarters of teachers in the 24 countries[12] that participated in OECD Teaching and Learning International Survey (TALIS)[13] in 2007-2008 reported that they received no recognition for being more innovative or for improving the quality of their work (OECD, 2009a).

- Demand and support for curriculum innovations by parents and the wider public cannot be taken for granted either. The failure of progressive education reforms in the United States to materialise on a large scale can be seen as partly resulting in the eventual isolation of progressive ideas from the mainstream public discourse (Elmore, 1996). Research by Spindler and Spindler (1982) on the German village of Schönhausen in the 1960s and 1970s demonstrated how the influence of the local environment and values can alter the new central curriculum away from its intended meaning and goals. Teachers' classroom practice upheld village traditions against modern values as planned in the curriculum, for example, through a change in the content of a school play (discussed in Cuban, 1992).

- Parents and the wider community may prefer traditional alternatives over innovation, when given a choice. Local competition for students and recourses between "innovative" and "traditional" schools may end up benefiting the latter (Fink, 2000; see also McCulloch, 1998). For example, research on quasi-market forces in education suggests that many empowered consumers reveal preferences that are not necessarily supportive to innovation in terms of curricular and pedagogical approaches. Competing schools may often end up standardising their practices in

order to attract a desired type of students (Lubienski, 2009). School choice is associated with greater diversification in the social composition of different schools (OECD, 2007a; Musset, 2012), parents choosing schools according to several different factors instead of academic record alone (Sanders and Epstein, 1998; Musset, 2012). Parents tend to be concerned about their own, individual child rather than about school or system-wide endeavours aimed at benefiting all children (Fullan, 2007; Hargreaves, 2000; Westbury, 2007).

Direct stakeholder involvement in curriculum decision making in OECD countries

Various stakeholders can exercise direct and explicit influence on curriculum innovations through formal participation in decision making at central and school levels. They may have a role in curriculum development processes – intentional and often collective activity or process aimed at beneficial educational change (Marsh and Willis, 2007). This can mean not only participation in different working groups, but also in consultative committees or advisory bodies.

Experts, with a somewhat consultative role for practitioners, parents and the wider public, seem to drive curriculum development at central level, whereas practitioners appear as the key players at school level. The following discussion draws on the qualitative UNESCO IBE World Data on Education 2006/2007 as well as on relevant OECD data, especially on TALIS 2007-2008.

Central curriculum

In general, experts tend to have an important role to play in developing curricula at the central level (Jackson, 1992). Large-scale curriculum development projects – such as the recent literacy and numeracy programmes in the United Kingdom – tend to require large expert teams and make extensive use of surveys and questionnaires (Marsh and Willis, 2007). Already the NSF-led programmes in the United States in the 1950s and 1960s relied heavily on the expertise of academic specialists and, to a lesser extent, on teachers, in designing a new type of content and novel strategies for its delivery (Cuban, 1992; Elmore and Sykes, 1992; Elmore, 1996). In Korea, the recent curriculum development process built on commissioned research and was conducted by a working group composed largely of experts from the Korea Educational Development Institute (Box 4). Indeed, in most OECD countries, experts tend to participate in curriculum development work undertaken within specific governmental committees or working groups – sometimes even within agencies particularly specialised on curriculum. In Ireland, curriculum development is undertaken by the National Council for Curriculum and Assessment, an advisory body to the Minister of Education (UNESCO, 2007f). In Australia, the Government has established an independent authority – the Australian Curriculum, Assessment and Reporting Authority (ACARA)[14] – to oversee the development work of the national curriculum. At the same time, private publishing houses can play a direct role in the central curriculum development process in some countries. In Poland, publishing houses are indicated to play a major role in the development of new teaching programmes for the curricula (UNESCO, 2007h; Wisniewski, 2001).

With regard to practitioners, they appear to have a specific role in developing the central curriculum in some OECD countries. In Austria, preparatory work for the curriculum is undertaken by teachers' working groups (UNESCO, 2007a). The curriculum in the German *Länder* is generally developed by a specific commission comprised of teachers, head teachers, school inspectors, *Land* representatives and higher education experts in the related disciplines. In Germany, the participation of teachers in the syllabus

revision commissions is seen as having a strong further training effect (UNESCO, 2007d). In the Czech Republic, teachers are involved in central-level preparation of textbooks (UNESCO, 2007b). The examples of Austria and Germany illustrate that in education systems, where curriculum innovations are implicitly expected to originate from the central level, practitioners can play a role in their development.

Box 4. Developing central curriculum in Korea and Hungary

Experts and curriculum development process in Korea

In Korea, educational experts played an important role in developing the new curricula for elementary and secondary schools in the 1990s, while the Ministry of Education held the decision-making leverage in this regard. After an advisory body directly answerable to the President – the Educational Reform Committee – called for the Seventh Curricular Revision, the Korea Educational Development Institute (KEDI) was commissioned in March 1996 to carry out the basic and general research. The Educational Reform Committee provided a basic scheme for the curricula and, along those lines, KEDI developed measures to improve them. Mainly KEDI personnel also staffed the Curricular Revision Research and Development Group – consisting of four different teams – in charge of curricular design. In addition to the Group, the Research Committee for Curricular Revision reviewed and consulted on the process and outcomes. With a view to deciding on the general design and subject curricula, the framework assembled personnel from the Ministry, KEDI researchers, a basic research team leader, other curriculum experts, school teachers, and subject specialists. Public conferences, seminars, and hearings to formulate and review the overall design were held during the process. The Seventh Elementary and Secondary School Curricula were announced in December 1997 following several series of reviews and corrections.

Consultations for the National Core Curriculum in Hungary

In Hungary, public education reform has been marked by the introduction of the National Core Curriculum (NCC) in 1995 and the subsequent school-level curriculum design process. Basically, the NCC acts as a national framework for compulsory content for the first ten years of education, while the school level curriculum – created or adapted – regulates classroom processes. The central level curricular documents and the NCC were elaborated in the framework of professional and political debates. All schools and professional pedagogical organisations were consulted on the basic principles of the framework curricula and the first lessons plans – a questionnaire and informal consultations were used to depict their views. Overall, about 60% of teachers accepted the NCC according to opinion poll data. The criticism voiced mainly concerned the process of implementation rather than the curriculum document itself.

Source: UNESCO (2006e and 2007e)

However, overall, practitioners appear to play a rather consultative – although often formal – role in central-level curriculum development in the OECD area. In particular, professional associations of teachers and school administrators often have their say in central level curriculum development processes (Cuban, 1992; Elmore and Sykes, 1992). In most countries, the participation of teacher representatives in central level curriculum development processes seems to take place especially through – mainly advisory – councils or committees. In France, a consultative and jurisdictional role in the development of the primary and secondary education curriculum has been vested in a council comprising experts, teachers, inspectors and representatives of the socio-economic and cultural sphere (UNESCO, 2007c). In some OECD countries, more widespread consultations of practitioners also appear to be taking place. In Hungary, schools and teachers were consulted on the draft curricula through systematic data collection (Box 4). In Finland, the curriculum development process for the basic education curriculum of 2004 involved the

municipalities that have been given much of the curriculum decision-making power. More than 100 municipalities, with the right to comment, received the latest versions of the decisions by the curriculum steering group comprising different stakeholders from different sectors of society[15].

In addition, the role of parents and the wider public appears to be mainly consultative in central curriculum decision-making processes in the OECD area. The consultative role of parent associations in education decision making is formalised in ten OECD countries, meaning that their governments are obliged to consult parent associations on major policy decisions (Annex 5). In Ireland, parents can have their voice heard in national decisions concerning education through the National Parents' Council (UNESCO, 2007f). Although perhaps in a less formalised manner, the wider public can also be consulted on the central level curriculum decisions in several OECD countries. In Korea, more than 4 500 people in all participated in conferences, seminars, and hearings for formulating and reviewing the overall central curriculum scheme for the Seventh National Curriculum of 1997, resulting in revisions and corrections to the draft curriculum (UNESCO, 2006e). Extensive public consultation was also undertaken in New Zealand for draft curriculum statements for English and Maori medium schools[16]. Whereas many OECD countries appear to consult socio-economic partners for central curriculum decision making, this seems to be particularly the case for vocational education and training.

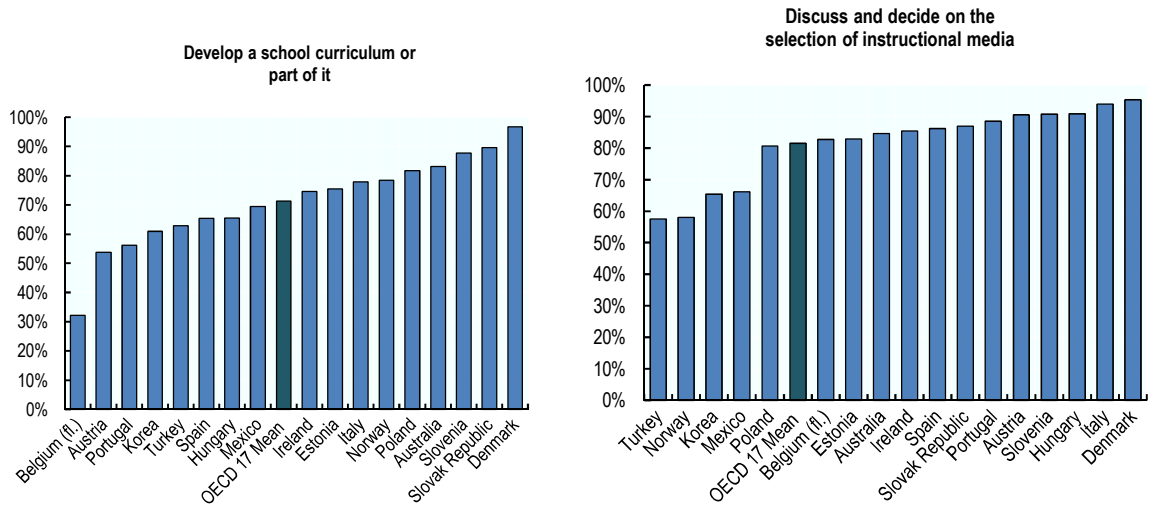
School-level curriculum

Practitioners tend to play a particularly important role regarding school-level curriculum (Jackson, 1992). For example, most teachers appear to be directly involved in the development of the school curriculum, regardless of the implicit approach to curriculum innovations in their country (Chart 2). On average, for the 17 OECD countries participating in TALIS, in 2007-2008, 71% of teachers reported that they develop a school curriculum or part of it at least once a year. This was the case for at least 50% of teachers in great majority of countries – including Slovenia, Mexico, Spain, Turkey and Austria, where the overall implicit approach to curriculum innovations appears to be more central than school-based. More than 80% of teachers reported developing a school curriculum or part of it at least once a year in five countries, namely Denmark, Slovak Republic, Slovenia, Australia and Poland. Only in the Flemish Community of Belgium – that appears to opt for a rather school-based implicit approach to curriculum innovations – less than 50% of teachers participated in curriculum development at least once a year. This illustrates that no country can apply an entirely central approach to curriculum innovations, while allocating curriculum decision-making power to the school-level does not necessarily translate to teacher-driven innovations.

Moreover, practitioners are involved in selecting instructional materials used in schools (Chart 2). For 17 OECD countries with available TALIS data for 2007-2008, on average 82% of teachers reported that they discussed and decided on the selection of instructional media – such as textbooks – at least once a year. In all countries at least half of teachers took part in such decisions, regardless of their implicit approach to curriculum innovations. Although in Mexico and Turkey, textbook selection is in principle centrally determined, teachers still seem to have some influence on those decisions. At the same time, in most countries, more than 80% of teachers discussed and decided on the selection of instructional materials.

Chart 2. Teachers participating in school-level curriculum development at least once per year

(% of self-reporting lower-secondary education teachers 2007-2008)



Source: OECD TALIS Database 2009.

Box 5. Research in initial teacher education in Finland

Today in Finland, university-based teacher education programmes are highly selective and lead to master's degrees. They have at least four distinguishing qualities:

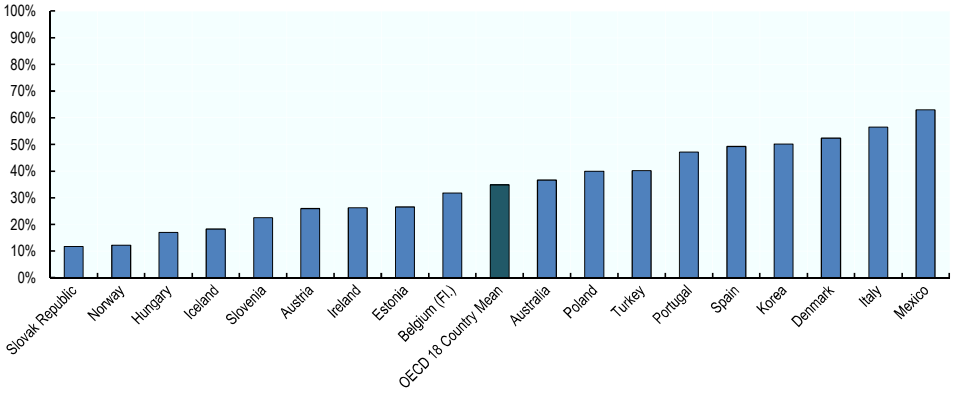
- *Research based.* Teacher candidates are not only expected to become familiar with the knowledge base in education and human development, but they are required to write a research-based dissertation as part of their master's degree. Upper grade teachers typically pick a topic in their subject area; primary teachers typically study some aspect of pedagogy. The rationale for a research-based dissertation is that teachers are expected to engage in disciplined inquiry in the classroom throughout their teaching career.
- *A very strong clinical component.* Linda Darling-Hammond (2010) describes this aspect of Finnish teacher preparation as follows: "Teachers' preparation includes both extensive course work on how to teach – with a strong emphasis on using research based on state-of-the-art practice – and at least a full year of clinical experience in a school associated with the university. These model schools are intended to develop and model innovative practices, as well as to foster research on learning and teaching. Within these model schools, student teachers participate in problem-solving groups, a common feature in Finnish schools. The problem-solving groups engage in a cycle of planning, action, and reflection/evaluation that is reinforced throughout the teacher education program…"
- *Strong focus on developing pedagogical content knowledge.* Because teacher education in Finland is a shared responsibility between the teacher education faculty and the academic subject faculty, there is substantial attention to subject-specific pedagogy for prospective primary as well as upper-grade teachers.
- Good training for all Finnish teachers in diagnosing students with learning difficulties and in adapting their instruction to the varying learning needs and styles of their students.

Source: Extracted and adapted from OECD (2010b).

With regard to teachers acting as school-level experts, some OECD countries encourage schools and teachers to undertake research. Teachers' role as experts may already be incorporated in the initial teacher training programmes. For example, Finnish teachers are initially trained to conduct research in addition to practical "clinical" experience (Box 5). At the same time, other countries use in-service professional development to encourage teachers to conduct curriculum-relevant research. Australia supports schools and teachers to undertake research as part of professional development programmes that aim at curriculum development that responds to the needs of students and the local community. The outcomes of these activities may be used to inform system-wide curriculum development and they are meant to be disseminated through professional networks (UNESCO, 2006a). In addition, Japan and Korea have also included research activities in the teachers' professional development programmes. (UNESCO, 2006c; UNESCO, 2006e).

Chart 3. Teachers participating in individual and collaborative research

(% of self-reporting lower-secondary education teachers 2007-2008 who undertook specified professional development activities in the previous 18 months)



Source: OECD TALIS Database 2009.

Overall, however, the frequency of research activities conducted by teachers appears modest and varies greatly across OECD countries (Chart 3). Regarding 18 OECD countries with available TALIS data, on average, only 35% of TALIS teachers taking part in professional development participated in individual or collaborative research on the topic of their interest in 2007-2008. Only in Mexico, Italy, Denmark, Korea and Spain, roughly half or more teachers indicated having taken part in such research as a professional development activity.

Indirect stakeholder influence on curriculum decision making in OECD countries

Decisions on curriculum – and related innovations – can also be influenced indirectly or less explicitly. Less visible channels of influence may include, among others, social networks and informal contacts among various stakeholders. For example, media in particular can have an important positive or negative impact on curriculum decision making and innovation by reinforcing or altering stakeholder expectations and public opinion (Marsh and Willis, 2007; Levin, 2007, Cuban, 1992; OECD, 1998).

Experts seem to be able to have an indirect influence on both central and school curricula, while parents and wider public may influence the school-level curriculum decision making in particular. The following discussion draws largely on qualitative UNESCO IBE World Data on Education 2006/2007 as well as on relevant OECD data.

Central curriculum

In addition to their direct involvement, different experts can indirectly influence curriculum development and decision making at central level. Regular monitoring and evaluation of educational outcomes as well as of the central curriculum are also used to support curriculum development processes in many OECD countries. In Japan, nationwide student assessment surveys conducted by the National Institute for Educational Policy Research provide assistance for curriculum planning also (UNESCO, 2006c). Recently, in Mexico, research findings were a driver for introducing 21st century skills to the secondary and primary education curricula during the reforms of 2006 and 2008. In many OECD countries, inclusion of 21st century skills to the curriculum has also been triggered by the OECD Programme for International Student Assessment (PISA) and other international studies (Ananiadou and Claro, 2009). In many Federal countries, specific bodies or agencies have been established for regular national-level information sharing, consultation and co-operation. A few countries – such as Australia, Canada, Korea, the Netherlands and the United Kingdom –outsource educational research to external experts. For example in the Netherlands, both universities and external research companies are commissioned to undertake studies and evaluations for education policy preparation and implementation (UNESCO, 2006a; UNESCO, 2006b; UNESCO, 2006e; UNESCO, 2007g; UNESCO, 2007j).

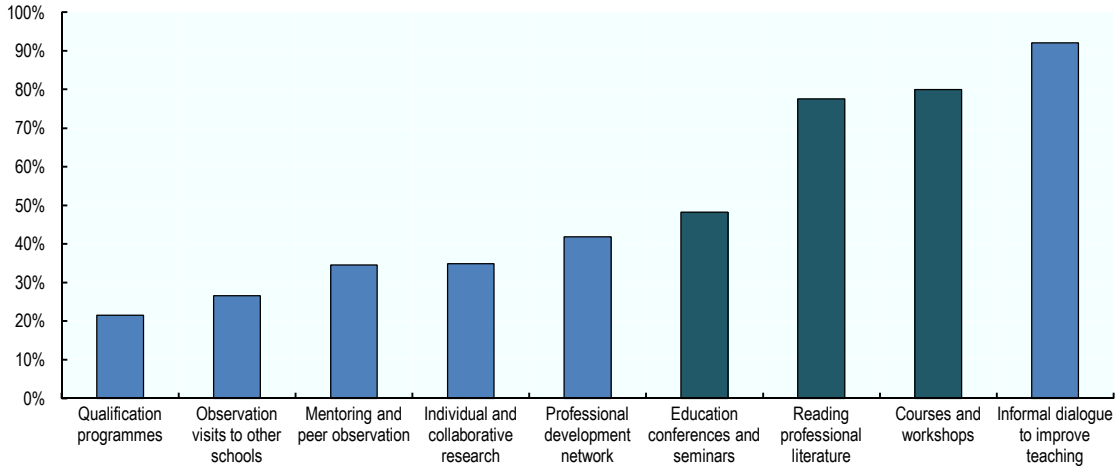
Parents and the wider public can also indirectly influence development of and decisions on central curriculum. For example, in most OECD countries, parent associations have an informal role in advising governments on educational decision making (Annex 5). Parents and the wider public may also be able to indirectly influence the central level curriculum decision making through democratic elections.

School-level curriculum

Experts can indirectly influence school-level curriculum development through teachers' professional development activities. For 18 OECD countries with available TALIS data, on average 88% of lower-secondary education teachers in 2001-2008 undertook an average of 17 days of professional development over an 18-month period (OECD TALIS 2009 database). Activities enabling teachers to gain knowledge from education experts appear to be among the most popular types of professional development (Chart 4). In an average OECD country, 80% of teachers taking part in professional development attended courses and workshops on methods, subject matter or other educational topics. Seventy-seven percent of teachers read professional literature such as journals, evidence-based papers or thesis. In addition, nearly half the teachers reported participating in education conferences or seminars, where research results were presented and educational problems discussed.

Chart 4. Types of professional development undertaken by teachers in an average OECD country

(% of self-reporting lower-secondary education teachers in 2007-2008 who undertook professional development activities in the previous 18 months; Country mean for 18 OECD TALIS countries)



Source: OECD TALIS Database 2009.

Moreover, several initiatives to encourage the systematic use of data evidence at school level have recently emerged in the OECD area. For example, in New Zealand, the Ministry of Education and the University of Auckland have developed a specific tool to assess literacy and numeracy with a view to helping teachers monitor student progress in relation to national standards. This tool allows a comparison of individual students, particular subgroups, or whole classes. In France, centrally developed software with standard indicators is made available to secondary schools to help them assess their own performance against national levels, while the development of specific, local indicators is also encouraged (UNESCO, 2006d; UNESCO, 2007c). Overall, according to preliminary indications from the on-going OECD mapping of data information systems, 15 OECD countries[17] report having some kind of data system in place at some level of their education system[18]. While many of these countries seem to have either school-based or a mixed implicit approach to curriculum innovations, most of the data information systems – diverse in terms of their coverage, functions and use – have been initiated only later than 2005. Only Finland, Germany, Luxembourg[19] and Switzerland report not having such a system in place.

Table 8. Curriculum decision making and possibilities for parental influence on schools in OECD countries

(Public lower secondary education)

	Level of curriculum decision-making (2007)		Possibilities for parental influence through school choice (2009)				
				Financial incentives to promote school choice			
	What is taught to students	How students are taught	A general right to enrol in any public school	Any financial incentive	School vouchers or scholarships	Funding following students	Obligatory financial contributions from parents
Australia	S - F	S	m	m	m	m	m
Austria	C	S - F	Y	N	N	N	N
Belgium (Fl.)	S - F	S	Y	Y	Y	N	Y
Belgium (Fr.)	m	m	Y	Y	Y	N	N
Canada	m	m	m	m	m	m	m
Chile	m	m	Y	Y	Y	Y	N
Czech Republic	S - F	S - F	Y	Y	N	Y	N
Denmark	S - F	S - F	Y	N	N	N	N
England	S - F	S	Y	N	a	N	N
Estonia	S - F	S - F	Y	Y	Y	Y	N
Finland	S - F	S	N	Y	a	Y	N
France	S - F	S	N	Y	Y	Y	N
Germany	C	S - F	N	Y	Y	N	N
Greece	m	m	N	N	N	N	N
Hungary	S - F	S - F	Y	Y	N	Y	N
Iceland	C	C	N	Y	N	Y	N
Ireland	m	m	Y	Y	N	Y	N
Israel	m	m	N	Y	Y	N	Y
Italy	C	S	Y	Y	Y	N	N
Japan	S - F	S	N	N	N	N	N
Korea	C	S	N	N	N	N	N
Luxembourg	C	C	Y	N	N	N	N
Mexico	C	C	Y	N	a	N	N
Netherlands	S - F	S	N	Y	N	Y	N
New Zealand	S	S	Y	Y	Y	N	N
Norway	C	S	N	N	N	N	N
Poland	m	m	N	Y	Y	Y	N
Portugal	C	S	Y	N	a	N	N
Scotland	S - F	S	N	Y	N	Y	N
Slovak Republic	m	m	Y	Y	Y	Y	N
Slovenia	C	S - F	m	m	m	m	m
Spain	C	S - F	Y	Y	Y	N	N
Sweden	C	S	N	Y	N	Y	N
Switzerland	m	m	N	N	N	N	N
Turkey	C	C	a	a	a	a	a
United States	m	m	m	N	a	m	N

C = Central level in full autonomy; S = School or local level in full autonomy; S - F = School level within central framework; Y = Yes; N = No; m = Missing; a = Not applicable. Federal states or countries with highly decentralised school systems may experience regulatory differences between states, provinces or regions. Regarding school choice, year 2008 instead of 2009 for New Zealand and Switzerland.

Source: OECD (2011); OECD (2008).

In addition, parents – and students – can also have an impact on school-level curriculum decisions indirectly through school choice. As well as freedom of choice, financial incentives can play an important role in facilitating the choice of school and increasing the parents' influence on schools through "market

accountability". For public schools, these incentives can include availability of vouchers or scholarships, funding following students leaving for another school or obligatory financial contributions for parents (OECD, 2011). In 2009, parents had a general right to enrol their children in any public lower-secondary school and some kind of financial incentives were available to promote choice of schools in nearly a third of OECD countries (Table 8). Only five countries – Greece, Japan, Korea, Norway and Switzerland – reported having neither free school choice nor financial incentives to that end at the lower secondary level. The freedom to choose a public school without any financial incentive exists in few countries, while some others had financial incentives without a general right to choose the public school of enrolment. In the latter case, instead of a general right, parents may have a choice of school where places were available such as in France, Germany, Poland and Sweden (OECD, 2010a). Of countries with a mainly school-based implicit approach to curriculum innovations, the Czech Republic, Estonia, Hungary, New Zealand and the Flemish Community of Belgium provide both room and incentives for school choice – and parental influence on public lower-secondary schools. This was also the case in Italy and Spain, relying on mainly mixed and central approaches to curriculum innovations.

At the same time, public opinion can indirectly influence curriculum development and decision making at school or local level. Local school administrators and principals need to maintain credibility and promote the success of their schools to parents and local community. Local or school-level decision makers can find themselves resisting or accepting changes in the curriculum as seen to be necessary for ensuring or gaining public support (Cuban, 1992; Elmore, 1996; Fink, 2000; see also Marsh and Willis, 2007). For example, *La main à la pâte* initiative launched in mid-1990s by the French Academy of Sciences to promote inquiry-based science education in primary schools in France has benefited from some positive media coverage, creating a favourable general public opinion among parents and other stakeholders. Possible demand facilitated the horizontal diffusion of the initiative by pushing new schools to engage in inquiry-based science education already included in the central curriculum[20].

Stakeholders and implicit approaches to curriculum innovations

Direct and indirect influence of different stakeholders in curriculum decision-making processes at central and school levels can be beneficial for innovation both from supply and demand standpoints. Especially experts and practitioners can support innovation processes by contributing different kinds of knowledge. At the same time, the adequate involvement of practitioners and beneficiaries may help build sufficient demand for curriculum innovations and their eventual implementation. Within the scope of this paper, differences in stakeholder involvement can be only broadly illustrated due to data limitations.

All types of stakeholders seem to have some opportunities to influence curriculum innovations in the OECD area, although with variations between central and school levels as well as across countries:

- At *central level*, experts appear to play a key role in influencing curriculum decision making, whereas the role of practitioners, parents and the wider public appears often consultative or advisory. Experts seem to be very much involved in development processes and various "background" evidence gathered by them may indirectly influence decisions on curriculum – without being limited to systems with a mainly central approach to curriculum innovations. At the same time, the involvement of practitioners in central level processes may be more pronounced in some countries with a central approach to curriculum innovations.

- At the *school level*, curriculum development and decision making seems to explicitly rely largely on practitioners, while experts, parents and the wider public may influence it more indirectly. Most teachers seem to be in some way involved in the development of the school curriculum, even in countries with a rather central implicit approach to innovation. At the same time, countries with a more school-based approach to curriculum innovations appear to be providing support for expert influence on curriculum decision making at school level. For example, some countries encourage research by teachers themselves and others support data use at school level that can indirectly influence curriculum decision making. As for parents, they may indirectly influence school level curriculum decision making especially through the choice of schools, particularly in some countries with mainly a school-based implicit approach to innovation.

Overall, several OECD countries seem to be in some way reflecting their implicit approaches to curriculum innovations in providing opportunities for the various stakeholders to influence these decisions. On the one hand, many OECD education systems with a rather school-based approach to curriculum innovations seem to be making efforts to strengthen the influence of experts at school level. On the other hand, some countries with a mainly central approach to curriculum innovations may allocate an important role to practitioners in preparatory work for the curriculum, while there may be less focus on the support provided at school level.

FINAL OBSERVATIONS

This paper suggests that OECD education systems rely on different implicit approaches in bringing about innovations on what is taught to students and how the students are taught.

Implicit approaches on how to bring about curriculum innovations can be roughly reflected through formal allocation of curriculum decision making power between central authorities and schools. On the one hand, holding more curriculum decision making power at central level could be supportive for innovation by legally providing legal incentives to schools and teachers to adapt certain innovations that would not otherwise take place. Central curriculum decision making can bring innovations equitably within the reach of all schools and teachers, and support innovation *via* related policy measures. On the other hand, giving a lot of curriculum decision making power to schools could support innovation by allowing schools and teachers to experiment directions that are not pre-determined. This could also increase the relevance of innovations for individual students and local communities, while relying on horizontal networks for innovation diffusion. At the same time, both approaches have some significant, although different, challenges for innovation in education and it is argued that neither pure centralisation nor pure decentralisation is an ideal universal solution.

Although no OECD education system relies on a purely central or school-based approach in bringing about curriculum innovations, they differ when looking at formal curriculum decision making. Most OECD education systems – 13 out of 26 – appear to rely more on schools than on central level in bringing about curriculum innovations. Yet, several OECD systems – 8 out of 26 – seem to implicitly expect curriculum innovations to originate more from the centrally driven processes than from schools. At the same time, five OECD countries appear to rely on a rather mixed approach to curriculum innovations – meaning that most innovations on what is taught to students are expected to originate from the central level, but schools are allowed autonomy to innovate on how students are to be taught.

Simultaneously, some structural elements can *de facto* influence the "innovation power" of the central curriculum and "innovation flexibility" of the school level curriculum. On the one hand, flexibility in the use of instruction time, autonomy for teachers in classrooms and poor alignment of curriculum objectives, assessment, materials and teacher training can reduce the "innovation power" of the central curriculum. On the other hand, centrally set standards and attainment targets, high-stakes accountability as well as pre-selection of textbooks can *de facto* direct innovation by schools and, hence, reduce their "innovation flexibility". When attempting to take some structural elements into account influencing curriculum decision making, the picture on implicit approaches to innovation seems to become more diversified in the OECD area.

Moreover, decisions on curriculum and related innovations do not take place in a vacuum, but can be influenced by different stakeholders both at central and school levels. In particular, experts, and also

practitioners, can contribute different kinds of knowledge to innovation processes. At the same time, the adequate involvement of education practitioners, parents and the wider public in curriculum decision-making processes may help build support and demand for eventual innovations and their implementation. In the OECD area, experts appear to have widespread possibilities for directly and indirectly influencing innovation in the central curriculum, while practitioners, parents and the wider public seem to play a mainly consultative role in central decision making. On the other hand, curriculum decision making at school level seems to rely largely on practitioners with indirect opportunities for expert and parental influence. With regard to the different implicit innovation approaches, several OECD education systems seem to be providing opportunities for the various stakeholders to influence curriculum decision making at the level where most curriculum innovations are expected to be initiated.

Finally, what kind of curriculum-decision making would be the most conducive to innovation in education? In terms of formal and structural arrangements, education systems need to balance some central influence on curriculum decision making with enough flexibility at school level. The optimal balance between centralisation and decentralisation depends on the conditions under which decisions on curriculum are taken:

- Under certain conditions, it seems preferable for an education system to rely on more – but not completely – centralised decision making to bring about curriculum innovations. This decision making needs to be accompanied by well-aligned policy instruments, use of research evidence as well as by the involvement of practitioners, parents and the wider community. This kind of arrangement appears preferable when the education system is faced with poorly trained teachers and principals or few possibilities for motivating them to innovate on a large scale. Conducting research or the use of research findings at school level would also be weak, but the influence of parents on schools could be strong, even though poorly informed.

- Under other conditions, allocating much of the curriculum decision making to schools with relatively light central direction may be more conducive to innovation. This kind of arrangement appears preferable when school-level curriculum decision making can rely on a large pool of adequately trained teachers and principals. Teachers and principals would also have considerable opportunities and be accustomed to conducting research, use research findings or consult experts to support their decision making. There would be incentives available to reward innovativeness as well as the adoption and dissemination of innovations. The influence of parents on curriculum decision making would be somewhat limited, especially if adequate provision and use of information could not be guaranteed.

For an education system to organise its curriculum decision making in a way that is the most conducive to innovation, it first needs to assess the conditions under which those decisions are made. At what level can research and evidence be best – or at least sufficiently – fed into curriculum decision making? Do stakeholders who are expected to decide on the curriculum have sufficient capacity to do so? Can those stakeholders – or others with significant influence on the decision making – be expected to actually favour innovation?

NOTES

[1] See UNESCO World Data on Education: *www.ibe.unesco.org/Countries/WDE/2006/index.html*

[2] It needs to be kept in mind that this analysis is based on fairly broad data focusing largely on public lower secondary education. More precise and complete country approaches to curriculum innovation would require more detailed data on structural elements which could affect curriculum decision making. Furthermore, more detailed and harmonised data on the extent and quality of stakeholder participation in curriculum decision making and innovation processes would be needed. Finally, implicit innovation approaches, for example, regarding primary, upper-secondary or private education, could differ from those for public lower-secondary education.

[3] Regional and provincial levels apply especially to the case of Korea.

[4] Covering from Foundation year to Year 12, the first learning areas to be addressed are English, Mathematics, Science and History. See the Australian Curriculum: http://www.australiancurriculum.edu.au/Home

[5] Australia, Denmark, Germany, Hungary, Mexico and Switzerland.

[6] Australia, Austria, Czech Republic, Denmark, England, Estonia, Finland, Flemish Community of Belgium, France, Germany, Hungary, Iceland, Italy, Japan, Korea, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Portugal, Scotland, Slovenia, Spain, Sweden and Turkey.

[7] The available indicators concerning educational planning and structures – the what dimension – are the creation or closure of a school; creation or abolition of a grade level; designing programmes of study; selection of programmes of study offered in a particular school; selection of a range of subjects offered in a particular school; definition of course content; setting of qualifying examinations for a certificate or diploma; and credentialing. The available indicators regarding organisation of instruction – the how dimension – are bodies determining the school attended; decisions affecting school careers; selecting the instruction time period; choice of textbooks; choice of software/ learning ware; grouping of pupils within schools; provision of additional support activities to pupils; choice of teaching methods; and assessment of pupils day to day work (OECD Education Database 2007).

[8] Although there is no automatic system that allows schools to have certain flexibility in the use of the intended instruction time in Luxembourg, they can make an application for a pedagogical project. Within this they will be allowed some changes in the compulsory core curriculum for potential innovations if they abide by a required minimum time devoted to core subjects and study areas. The changes can be up to 10% of the intended instruction time. It must be noted that only a few schools take advantage of this possibility.

[9] Curriculum can be roughly divided into layers of (1) intended curriculum, (2) enacted curriculum and (3) experienced curriculum. The intended curriculum indicates written aims and plans expressed in different official documents, while the enacted curriculum reflects curriculum delivered by teachers in classrooms and the experienced curriculum refers to eventual student learning (Cuban, 1992; Jackson, 1992).

[10] Background note on Curriculum in Korea prepared by Yun Kyung Min during her internship at the OECD Centre for Educational Research and Innovation in 2009

[11] Background note on Curriculum in Korea prepared by Yun Kyung Min during her internship at the OECD Centre for Educational Research and Innovation in 2009

[12] Australia, Austria, Belgium, Brazil, Bulgaria, Denmark, Estonia, Hungary, Iceland, Ireland, Italy, Republic of Korea, Lithuania, Malta, Malaysia, Mexico, Netherlands, Norway, Poland, Portugal, Spain, the Slovak Republic, Slovenia and Turkey.

[13] See OECD Teaching and Learning International Survey: *www.oecd.org/TALIS*

[14] See ACARA: http://www.acara.edu.au/curriculum/curriculum.html

[15] Replies from Finland to the 21st century skills and competences country questionnaire (2009).

[16] Replies from New Zealand to the 21st century skills and competences country questionnaire (2009).

[17] Australia, Belgium (Fl.), France, Hungary, Italy, Japan, Korea, Mexico, New Zealand, Slovak Republic, Spain, Sweden, the Netherlands, the United Kingdom and the United States

[18] See *www.oecd.org/document/7/0,3746,en_2649_35845581_45303047_1_1_1_1,00.html* for an overview of the on-going work on data information systems. See *www.oecd.org/dataoecd/27/59/46437533.pdf* for the presentation (October 2010) of preliminary results of the mapping of data information systems.

[19] However, since 2011, the Ministry of Education in Luxembourg is running a first experience of gathering all the available data concerning schools both at primary and at secondary level. The data coming from different sources is aggregated by the Quality Agency of the SCRIPT, which is the co-ordinating body in the Ministry for Innovation and Research. The collected and aggregated data is then given back to each school in the form of a structured document called *"Rapport Lycée"* to assist the school in their school development process.

[20] Presentation by Professor Pierre Léna in *New Milestones for Inquiry-based Science Education in Primary Schools in Europe* Pollen Project European Conference held in Berlin on 29 May 2009.

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ANNEX 1 – EMERGING CURRICULUM THEMES IN OECD COUNTRIES

Overall, curriculum conceptions have widened from academic knowledge alone to more general knowledge, from unchanging knowledge to uncertain knowledge as well as from intellectual skills to more practical skills, while the emphasis has been increasingly put on the student (Marsh and Willis, 2007). Several OECD countries promote so-called key competences in their national curriculum frameworks – including skills and competences such as "learning-to-learn", teamwork or communication (Table 9). In many countries, cross-curricular or integrated studies are more and more common through interdisciplinary project work, integrating academic and vocational streams or by encouraging basic literacy and numeracy within the framework of other subjects. At the same time student-centred approaches to teaching are promoted in several curriculum guidelines, while few countries support the development of specialist schools and programmes (Looney, 2009).

Table 9. Emerging themes in OECD countries

Key competences	Cross-curricular or integrated studies	Student-centred approaches	Development of specialist schools and programmes
Austria, Belgium, the Czech Republic, France, Finland, Germany, Hungary, Italy, Luxembourg, New Zealand, Norway, Switzerland, United Kingdom	Belgium, Japan, Korea, Netherlands, Poland, Switzerland, Sweden, Turkey, United Kingdom	Canada, Finland, Ireland, Japan, Korea, Turkey	Netherlands, United Kingdom

Source: Adapted from Looney (2009).

ANNEX 2 – APPROACHES TO BRINGING ABOUT COMPETENCE-BASED CURRICULUM

Table 10. Rough approaches to translating key competences into curriculum policy formulations in Europe

Functional approaches	Countries
Mostly skills or competence-based	Cyprus [1 2], Germany, Ireland, Lithuania, Poland, Slovenia, and United Kingdom
Mostly subject-based	Bulgaria, Italy, Malta and Portugal
Thematic approaches	
Mostly through major issues of society	Denmark and Slovakia
Mostly through developing personal qualities	Austria (primary school), the Czech Republic, Greece, Hungary and Luxembourg
Goals and principles based	Finland, Latvia, the Netherlands and Sw eden
Mixed approach (functional and thematic)	Belgium, Estonia and France

Source: Halász and Michel (2011).

1. Footnote by Turkey

The information in this document with reference to « Cyprus » relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognizes the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the “Cyprus issue".

2. Footnote by all the European Union Member States of the OECD and the European Commission

The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

ANNEX 3 – CENTRAL LEVEL CURRICULUM IN OECD COUNTRIES

Table 11. Central level curriculum prescription in OECD countries in 2006-2007

National level	State or provincial level
Austria, Chile, Czech Republic, Denmark, Estonia, Finland, France, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Turkey	Australia*, Belgium, Canada, Germany, Switzerland, United Kingdom, United States

* National level curriculum currently being developed

Source: OECD Education Database (2007); UNESCO IBE World Data on Education, 6th Edition, (2006/2007).

ANNEX 4 – DETAILS ON THE IMPLICIT APPROACHES TO CURRICULUM INNOVATIONS

Table 12. Curriculum decision making, influence of accountability measures and flexibility on instruction time in OECD countries

(Public lower secondary education)

	Overall approach to curriculum decision-making regarding what is taught to students and how students are taught	High or medium influence of evaluations by inspectorate or national examinations on the size of the school budget, other financial rewards or sanctions for the schools or the likelihood of school closure	Compulsory flexible curriculum or non-compulrory curriculum at least 15 % of intended instruction time
Australia	S	m	Y
Austria	C	Y	N
Belgium (Fl.)	S	Y	Y
Belgium (Fr.)	m	N	N
Canada	m	m	m
Chile	m	Y	Y
Czech Republic	S	Y	N
Denmark	S	m	N
England	S	Y	N
Estonia	S	N	N
Finland	S	a	N
France	S	Y	N
Germany	C	N	N
Greece	m	N	N
Hungary	M	N	Y
Iceland	C	N	Y
Ireland	m	Y	N
Israel	m	Y	N
Italy	M	N	N
Japan	S	a	N
Korea	M	N	Y
Luxembourg	C	N	N
Mexico	C	a	N
Netherlands	S	Y	Y
New Zealand	S	m	a
Norway	M	m	N
Poland	m	N	N
Portugal	C	N	N
Scotland	S	Y	a
Slovak Republic	m	Y	N
Slovenia	C	m	N
Spain	C	N	N
Sweden	M	m	N
Switzerland	m	m	m
Turkey	C	Y	N
United States	m	m	m

C = Mainly central approach with most decisions on what is taught to students are taken autonomously at central level and a central framework is provided for most decisions on how students are taught to be taken by schools; M= Mainly mixed approach with most decisions on what is taught to students are taken autonomously at central level, but most decisions on how students are taught are taken by schools in full autonomy; S = Mainly school-based approach with most decisions on both what is taught to students and how students are taught are made by schools either in full autonomy or in a central framework; Y = Yes; N = No; a = Not applicable; m = Missing. See tables 1, 2 and 6 as well as chart 1 for further details.

Source: OECD (2011); OECD (2008); OECD Education Database 2007.

ANNEX 5 – ROLE OF PARENTS IN DECISION MAKING ON EDUCATION POLICY

Table 13. Roles of parent associations regarding governmental decision making on education policy in OECD countries in 2008

	Formal role	Advisory role	Information provider
Australia	m	m	m
Austria	m	Y	m
Belgium (Fl.)	Y	N	N
Belgium (Fr.)	N	Y	N
Canada	m	m	m
Chile	m	m	m
Czech Republic	N	Y	N
Denmark	Y	Y	N
England	N	N	Y
Estonia	N	Y	Y
Finland	N	Y	Y
France	Y	Y	N
Germany	N	Y	Y
Greece	N	Y	Y
Hungary	Y	Y	N
Iceland	Y	Y	Y
Ireland	Y	Y	a
Israel	m	Y	m
Italy	N	Y	N
Japan	N	Y	N
Korea	N	N	Y
Luxembourg	N	Y	Y
Mexico	N	Y	Y
Netherlands	N	Y	Y
New Zealand	N	Y	Y
Norway	Y	Y	N
Poland	Y	Y	Y
Portugal	Y	Y	N
Scotland	m	m	m
Slovak Republic	a	a	a
Slovenia	N	Y	N
Spain	Y	Y	Y
Sweden	N	Y	Y
Switzerland	N	Y	Y
Turkey	m	m	m
United States	N	Y	Y

Y = Yes; N = No; a = Category not applicable; m = Missing data; Formal role = Government is obliged to consult parent associations on major policy decisions; Advisory role = Informal role for parent associations in advising the government; Information provider = Parent associations inform parents about relevant developments in education. Federal states or countries with highly decentralised school systems may experience regulatory differences between states, provinces or regions.

Source: OECD (2010a).

RECENT OECD PUBLICATIONS OF RELEVANCE TO THIS WORKING PAPER

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