

CHAPTER 1. LOWER SECONDARY EDUCATION ACROSS COUNTRIES

This chapter argues that lower secondary is a key level within education systems, and that success in this specific level has a positive impact in education achievement overall. However, lower secondary education has not been a clear focus of research or policy priority across countries. A comparative analysis shows different ways in which it is delivered across countries and raises issues such as the duration of lower secondary school, how this level fits with primary or upper secondary, the role it plays in comprehensive schooling, and teaching and learning approaches to maintain the motivation of students.

After a review of the literature on the purpose and the types of lower secondary education prevalent across OECD countries, the chapter presents some conclusions on the current situation and the challenges to improve this level, and international evidence and research findings on how lower secondary can be more effective.

Introduction and background to the report

A strong lower secondary education can contribute to better educational attainment overall, as it is a fundamental level to lay the foundation of educational, social, and economic outcomes that follow. The report *Improving lower secondary schools in Norway* aims to help education authorities in Norway and other OECD countries to understand the importance of lower secondary education and to find approaches to strengthen this key education level. The report provides an overview of the structure of lower secondary education and the key challenges it faces across OECD countries. It then develops a comparative framework of the key policy levers for success in lower secondary and adapts it to Norway's specific context. The recommendations focus on strengthening teacher quality, designing school improvement strategies, ensuring effective student pathways and focusing on the process of policy implementation. The report is a result of OECD's increased efforts to support education reforms to improve outcomes across the OECD and its partner countries.

This report is part of the country education policy and implementation review process at the OECD (Box 1.1). The report and recommendations are based on evidence, qualitative and quantitative¹ research and comparative analysis, as well as the specific work of the OECD-Norway Steering Group on the Quality of Lower Secondary Education to Norway, composed of international and OECD experts. The OECD undertook research and analysis on lower secondary education policies and practices, and then reviewed and adapted the international knowledge base to the specific challenges facing Norway in this area. To ensure the contextualisation of the recommendations to Norwegian education policies and the engagement of stakeholders, the process was complemented with consultation events and the OECD Seminar for Leaders in Education Improvement. Annex 1 provides more specific details of the review and events related to the review.

Box 1.1. The OECD country education policy and implementation reviews

The OECD-Norway review follows increasing efforts by the OECD to strengthen capacity for education reforms across the OECD and its partner countries. The methodology aims to promote effective policy design and implementation. It focuses on supporting specific reforms by tailoring comparative analysis and recommendations to specific country context and by engaging and developing capacity of key stakeholders throughout the process. More specifically, this requires:

- **Comparative analysis:** Comparative reports provide analysis and research evidence on the given policy issue.
- **OECD Recommendations:** The OECD develops a set of recommendations based on a study visit of the Steering Group, on comparative analysis, previous OECD work related to the country and to the topic.
- **Consultation and engagement:** Workshops are organised in the country to consult and engage with key national stakeholders, to discuss key messages and present research and international practices, to encourage reflection and support for the reform.
- **The OECD Seminar for Leaders in Education Improvement:** This tailored seminar combines a country visit with academic training to provide participants with capacity building in policy design and implementation. Participants travel to a relevant practice country, and during 4 days develop a comparative perspective, exchange ideas and experiences with leaders from another country and work together to develop an implementable plan of action for their own context.
- **An OECD Steering Group:** To guide the work, provide analysis, advice, support and liaison, the OECD establishes a specialised group of experts that combines international and OECD educational policy expertise with policy and implementation knowledge.

More information can be found on the site www.oecd.org/edu/improvingschools.

Why is lower secondary education important?

Lower secondary is a fundamental level of education with two complementary objectives. First, it offers to all students an opportunity to obtain and consolidate a basic level of knowledge and skills considered necessary for adult life. Second, it should provide a relevant education for all students as they choose either to continue studying further on in an academic or a more vocational route, or to enter the labour market (Cuadra and Moreno, 2005; Crahay and Delhaxhe, 2003; OECD, 2004). In many countries, lower secondary marks the end of compulsory education and prepares students for either further academic or more vocational studies. It is a key stage of basic education, in transition between primary and upper secondary. The first years of secondary education are the best chance to get the students at risk of dropping out from school back on track. Box 1.2 presents a definition of this level according to the International Standard Classification of Education (ISCED).

At least two elements must be considered to understand the importance of secondary education today. One is that lower secondary education contributes to consolidate basic skills required for economic competitiveness, as countries increasingly need an educated labour force with the skills and the knowledge to operate in today's global markets (Opertti, Brady and Duncombe, 2009). These sophisticated competences cannot be developed only in primary schools; nor can they be developed in low quality secondary schools that fail to prepare students for a world of rapid technological and economic change (Sahlberg, 2007). A second element is that, alongside and complementary to primary education, as highlighted by Cuadra and Moreno (2005), a fundamental role of secondary education is "to equip students and graduates to become active, contributing partners in their communities." Secondary education then plays a crucial role in educating early adolescents to be capable of exercising their rights and duties.

In addition to consolidating basic levels of knowledge, there is a specific feature of lower secondary education: it caters to early adolescents between the ages of 10 to 15 years old. This is a time when young people go through a profound transition in their social, physical and intellectual development, as they leave childhood for adulthood, and their role in school and society changes. The psychological literature highlights that some of the needs and characteristics attributed to young adolescents are unique to this age. Dramatic physical changes take place which the individual must incorporate into his or her evolving body image. Social and emotional maturation leads to a shift in the behavioural characteristics valued by early adolescents, including changes in relationships with parents (Paikoff and Brooks-Gunn, 1991 in Véronneau and Dishion, 2011). Resentment of authority figures and movement toward peers as primary social referents is common (Dishion, Nelson and Bullock, 2004 in Véronneau and Dishion, 2011). However, adolescence is as much a social construct as a biological one. Therefore, the exact nature of the transformation that adolescents go through may vary according to their given social context.

Box 1.2. An ISCED definition of lower secondary education

Lower secondary education (ISCED 2) generally continues the basic programmes of the primary level, although teaching is typically more subject-focused, often employing more specialised teachers who teach classes in their field of specialisation. Lower secondary education may either be “terminal” (*i.e.* preparing students for entry directly into working life) and/or “preparatory” (*i.e.* preparing students for upper secondary education). This level usually consists of two to six years of schooling (the mode of OECD countries is three years). The specific ISCED 1997 categories are as follows:

ISCED 2A: General/ pre-vocational programmes designed to prepare students for direct access to level 3 in a sequence that would ultimately lead to tertiary education, that is, entrance to ISCED 3A or 3B.

ISCED 2B: Programmes designed to prepare students for direct access to programmes at level 3C.

ISCED 2C: Vocational programmes primarily designed for direct access to the labour market at the end of this level (sometimes referred to as “terminal” programmes).

Upper secondary education (3A, 3B, 3C): The final stage of secondary education in most countries. Instruction is often more organised along subject-matter lines than at ISCED 2 and teachers typically need to have a higher level or more subject-specific qualification than at ISCED 2. There are substantial differences in the typical duration of ISCED 3 programmes, both across and between countries, typically ranging from two to five years of schooling. The entrance age is typically 15 or 16 years old.

Source: OECD (1999), *Classifying Educational Programmes: Manual for ISCED-97 Implementation in OECD Countries*, OECD, Paris.

Countries have developed different configurations of schools for this level of education. In some countries, lower secondary is grouped with primary education. Many OECD countries have chosen to address the specific needs of this age group by separating them from other students into a different structure, with clear boundaries from both primary and upper secondary education. Nevertheless, there is a noticeable absence of research evidence on the comparative efficacy of the different structures of lower secondary education. In fact, this research area seems relatively neglected in comparison with the primary and upper secondary stages of education.

The move from primary to secondary education often results in a specific transition, when students leave their familiar schools to enter larger and more impersonal secondary schools. They are taught by several teachers and surrounded by a larger group of peers. At the same time, the nature of academic studies becomes more difficult and students are required to be more autonomous in the management of their work. As lower secondary students are required to adapt to their many physical, social and academic transitions, they may experience confusion and decreased motivation towards school. A high incidence of disengagement, disruptive behaviour and boredom often occurs during the first years of secondary school (Australian Curriculum Studies Association, 1996 in Chadbourne, 2001; Hargreaves, Earl & Ryan, 1996 Alspaugh, 1998). For some students,

this period can be considered as the beginning of a downward spiral in school-related behaviours and motivation (Eccles *et al.*, 1991). Yet, traditionally, secondary schools have not been particularly responsive to the transitional needs of young adolescents.

Lower secondary education today: between inclusion and differentiation

There is debate surrounding the role of lower secondary in relation to the education system: whether it presents a continuation of primary education or whether its main aim should be to prepare students for the upper secondary phase. Aligning lower secondary too closely with the primary phase can result in students being insufficiently prepared academically for the next stages to come. However, when lower secondary is oriented mostly towards upper secondary education, the gap between primary and secondary education is widened, leading to problems in progression and continuity (Greenaway, 1999).

Most OECD countries have established two relatively distinct levels of secondary education, namely lower and upper secondary. Lower secondary mainly serves as a prolongation of primary education and is the final phase of compulsory schooling in many countries. Upper secondary education is often, but not always, divided into several tracks of study leading to different destinations.

Nowadays, lower secondary school has two complementary objectives (Cuadra and Moreno, 2005). On the one hand, lower secondary schools offer all students the opportunity to obtain a certain set of knowledge and skills considered necessary for adult life. On the other hand, they aspire to provide relevant education for each and every student, either to support further study or a pathway leading to the labour market (Crahay and Delhaxhe, 2003). Therefore, lower secondary education has many particularities. It has to be at the same time terminal (as it is generally the last phase of compulsory education) and preparatory (as it also needs to prepare students to enter higher studies). It has to foster the integration of all students, giving them a common base of knowledge, while at the same time setting high expectations for them, offering courses according to their academic abilities.

Those particularities make the design of lower secondary education especially challenging. For Cuadra and Moreno (2005), the study of lower secondary schools represents a fascinating research subject, as it intrinsically embodies the dilemma of education: “The type of articulation between primary and secondary education, and between secondary and tertiary education, defines and depicts in an unequivocal way the overall features of a country’s education system. (...) Secondary education is a bridge between primary education, the labour market, and tertiary education. The bridge can have many lanes and pathways, so that everybody fits, or it may act as a bottleneck, squeezing a minority of privileged students from primary through tertiary education and heavily conditioning participation rates and the quality of both primary and tertiary education.” Therefore, according to the education policy choices made, lower secondary can either be the “weakest link” or the keystone of education systems.

In summary, lower secondary is important because it is the best opportunity to develop and consolidate basic skills and competencies for all students that will allow them to be successful in adulthood, as it is in many countries the last stage of compulsory

education. Success in key subjects in lower secondary is a prerequisite to successfully enter either upper secondary education or the labour market with the adequate competences. At the same time, the first years of secondary education are the last chance to identify students at risk of dropping out or failure and get them back on track in time to succeed in their further studies.

Characteristics of this education level

Lower secondary education is the level that caters to early adolescence between the ages of 10 and 15. It starts between the ages of 10 and 13 and ends between the ages of 13 and 16, and is compulsory across OECD and partner countries. This is typically a time when young people go through a profound transition in their social, physical and intellectual development, as they leave childhood for adulthood. These years are a critical point for maturation as children's roles in school and society change.

Lower secondary has different configurations across OECD countries. A common trait is that it is part of compulsory education, but it only marks the end of compulsory education in about half of the countries. Not only does the organisation of education systems vary between countries, but also the length of time for a student to complete an educational level. For example, in Norway the typical age group ranges from 13 to 16 years (three years); whereas in Germany it is 10 to 16 years (six years) and in Hungary 10 to 14 years (four years) (Table 1.1).

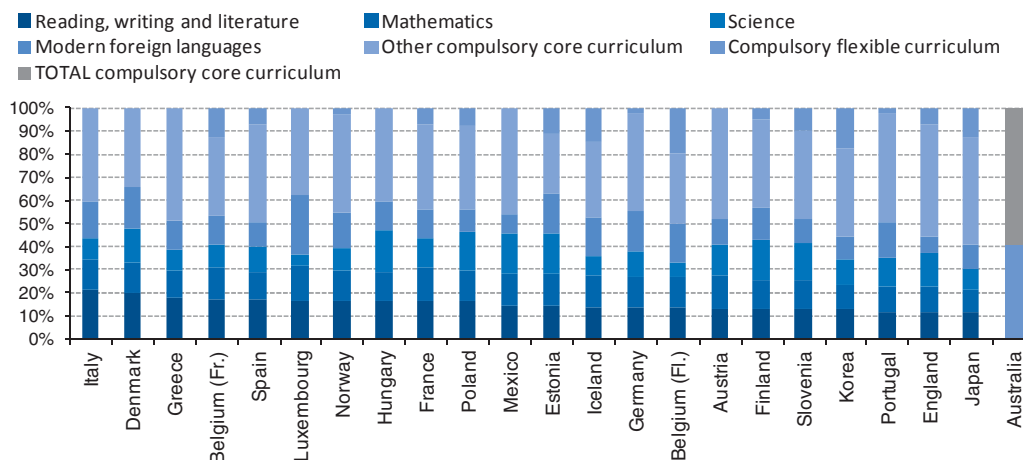
In addition, the analysis shows three patterns of institutional provision across countries:

- a) countries with a single structure for primary and lower secondary schools;
- b) countries with distinct structures for primary, lower secondary and upper secondary education;
- c) countries in which primary is separate and lower and upper secondary are grouped together.

In terms of the curriculum, while seven study areas form the major part of the curriculum in OECD countries, the teaching of reading and writing, mathematics and science are on average 40% of the core compulsory instructional time for 12-to-14-year-olds, the age group corresponding to lower secondary education (Figure 1.1). The rest is distributed among foreign languages, and other compulsory core curriculum. It is also important to note that there is a varying degree of compulsory flexible curriculum for 12-to-14-year-olds, which ranges from 40% in Australia and 18% in Korea to less than 5% in Italy, Hungary, Norway or Austria for example (OECD, 2010b).

Figure 1.1. Instruction time per subject for 12-to-14-year-olds, 2008

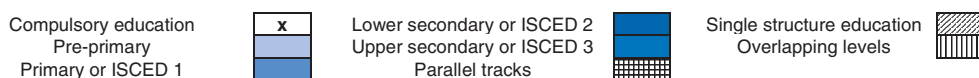
Percentage of intended instruction time devoted to various subject areas within the total compulsory curriculum



Source: OECD (2010a), *Education at a Glance 2010: OECD Indicators*, OECD, Paris.

An analysis by Benavot in 2004 on the curriculum trends in 185 countries sustains that there was great curriculum stability at the secondary level between 1985 and 2000, in every region of the world. When comparing the proportions of total instructional time allocated to various curricular areas in lower secondary education in the same period of time, overall curriculum changes appear to have been more modest than might have been expected (World Bank, 2005).

Table 1.1. Structure of compulsory education in OECD countries



The "x" denotes the number of years where education is compulsory. For example, in Austria compulsory education ranges between the ages 6 to 15 years old. Primary education ranges from 6 to 10 years old and lower secondary education from the ages of 10 to 14 years old. The first year of upper secondary education is also compulsory.

Country	Age and duration of primary and secondary education															
	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Australia				x	x	x	x	x	x	x	x	x				
Austria				x	x	x	x	x	x	x	x	x				
Belgium				x	x	x	x	x	x	x	x	x	x	x	x	
Canada				x	x	x	x	x	x	x	x	x	x	x		
Chile				x	x	x	x	x	x	x	x					
Czech Rep.				x	x	x	x	x	x	x	x	x	x			
Denmark				x	x	x	x	x	x	x	x	x				
England			x	x	x	x	x	x	x	x	x	x	x			
Estonia				x	x	x	x	x	x	x	x	x	x			
Finland				x	x	x	x	x	x	x	x	x	x			
France				x	x	x	x	x	x	x	x	x	x			
Germany				x	x	x	x	x	x	x	x	x	x			
Greece				x	x	x	x	x	x	x	x	x				
Hungary				x	x	x	x	x	x	x	x	x	x	x	x	
Iceland				x	x	x	x	x	x	x	x	x	x			
Ireland				x	x	x	x	x	x	x	x	x	x			
Italy				x	x	x	x	x	x	x	x	x	x			
Israel			x	x	x	x	x	x	x	x	x	x	x			
Japan				x	x	x	x	x	x	x	x	x	x			
Korea				x	x	x	x	x	x	x	x	x	x			
Luxembourg		x	x	x	x	x	x	x	x	x	x	x	x			
Mexico	x	x	x	x	x	x	x	x	x	x	x	x	x			
Netherlands			x	x	x	x	x	x	x	x	x	x	x			
New Zealand				x	x	x	x	x	x	x	x	x	x			
Norway				x	x	x	x	x	x	x	x	x	x			
Poland				x	x	x	x	x	x	x	x	x	x			
Portugal				x	x	x	x	x	x	x	x	x	x			
Scotland			x	x	x	x	x	x	x	x	x	x	x			
Slovak Rep.				x	x	x	x	x	x	x	x	x	x			
Slovenia				x	x	x	x	x	x	x	x	x	x			
Spain				x	x	x	x	x	x	x	x	x	x			
Sweden				x	x	x	x	x	x	x	x	x	x			
Switzerland				x	x	x	x	x	x	x	x	x	x			
Turkey				x	x	x	x	x	x	x	x	x	x			
United States			x	x	x	x	x	x	x	x	x	x	x			

Note: Years of reference between 2006 and 2010. Ages may also vary in different areas inside countries.
 Source: Table created from data obtained at OECD (2010c), ISCED mapping-UOE data collection, OECD, Paris, Eurydice (2010), Description of National Education Systems and Policies, http://eacea.ec.europa.eu/education/eurydice/eurybase_en.php, International Bureau of Education (2010), Profile of the education systems, <http://www.ibe.unesco.org/en/worldwide.html>

Lower secondary education is a result of its historical evolution

Historically, secondary education as a whole, including upper secondary education, was at the service of universities and had the mission of preparing students for higher studies (Cuadra and Moreno, 2005). This was the objective for grammar schools, *gymnasiums*, *lycées*, etc. The modern secondary school appeared at the end of the 19th

century, partly with a terminal role of preparing students to enter the labour market. It was also segmented into different tracks: general, academic and vocational. Some school systems favoured eight years of elementary and four years of secondary education, but most had six years of each to better facilitate the movement of students into the labour force. With the passage of child labour laws early in the twentieth century, the need arose to prepare many more students for secondary schools (Hough, 1995). In several parts of the world, in particular in the United States, the emphasis was made on achieving a secondary education of universal coverage, subject-based and focused on academic learning.

The history of lower secondary education indicates that a separate lower secondary school has become the norm in most countries. This has been more due to societal considerations than to evidence supporting the need for a separate school for early adolescents. Indeed, “secondary schools systems evolved from small academies of subject specialisation for selected elites, into extensions of the factory-life systems of mass education where students were processed in large batches, and segregated into age-grade cohorts or classes” (Hargreaves *et al.*, 1996). There is evidence suggesting that separate schools and the transitions they require can cause problems that negatively affect students’ engagement for schooling and academic progress (Dinham and Rowe, 2008). However, the question of the optimal grade span configuration and of educational context is very complex as it will be reported later on.

At the same time, two basic models of secondary education can be identified historically. On one hand, secondary education provision has traditionally divided learners into separate and different pathways and/or schools, where academic disciplines have been separated from practical disciplines of vocational education. On the other hand, comprehensive secondary schools have also appeared, providing a core set of curriculum options together with substantial elective subjects to adapt to the specific needs of each individual learner (Benavot, 2006).

Today, it is acknowledged that to meet the needs of early adolescent learners, a more child-centred environment may be required (Pardini, 2002). While in the past, secondary education mainly served the elite, in most OECD countries today, almost everyone has access to at least 12 years of formal education. Today, the majority of the population complete this stage of compulsory education, as in most countries, schooling is compulsory until 16 years old. Furthermore, the majority of students continue studying after the period of mandatory schooling: in average more than 80% of 15-to-19-year-olds are still enrolled in education (OECD, 2010a).

Box 1.3. Lower secondary education in the United Kingdom and the United States

Lower secondary education in the United Kingdom does not follow a single approach or model, but Local Education Authorities (LEAs) instituted various different models in the 1960s:

- Middle (ages 8-12)
- Combined first and middle (ages 5-12)
- Middle (ages 9-12)
- Middle (ages 9-13)
- Middle (ages 10-13)
- Junior High (ages 10-14)

This variety of combinations means that in some LEAs, students may transfer from one school to another at every age from 7 to 13. Between the 1960s and the 1980s, this diverse array of educational stages were mainly organised in a three-tier system: First School, Middle School and High School. The number of middle schools began to fall in the later 1980s with the introduction of the National Curriculum. The new curriculum now splits into key stages at age 11 and has encouraged the majority of LEAs to return to a system divided into primary and secondary schools. There are now fewer than 250 middle schools still operational in the United Kingdom, whereas there were around 2000 in the early 1980s.

Middle schools in the United States: In the first half of the 19th century, most school districts in the United States organised schools into two levels. The elementary level consisted of eight years while the secondary level consisted of four years. Under this system, it appeared that the performance of children in the middle years did not measure up to that of their peers in the earlier and later grades. As a result, the junior high school was born and became the prevalent school model for young adolescents for most of the 20th century. Still, early adolescents often continued to exhibit under-performance in school. In addition to relatively low academic achievement, negative traits generally included problem behaviours, reflecting their alienation from the curriculum and structure of the school. In response, after 1960 and until the present time, educators have advocated a variety of middle school configurations aimed at addressing the unique developmental needs of these students. Between 1970 and 2000, the number of public middle schools in the United States grew from 1,500 to 11,500 (which typically span grades sixth through eighth or fifth through eighth). These new middle schools displaced both traditional eight-year (K-8) primary schools and junior high schools (serving grades seventh to eighth or ninth).

At present, states and school districts are re-evaluating the practice of educating young adolescents in stand-alone middle schools. Educational authorities, in Massachusetts, Pennsylvania, Ohio, Tennessee, Oklahoma, Maryland, and New York, and the large urban districts of Cincinnati, Cleveland, Philadelphia, and Baltimore, are challenging the notion that grouping students in the middle grades in their own school buildings is the right approach. They are adopting instead the eight-year model, which combines primary and lower secondary within the same structure. Reasons given for making the change were usually related to dissatisfaction of educational leaders and parents, low academic achievement, absenteeism, discipline referrals, and suspension rates.

Sources: Evangelou M. *et al.* (2008), "What Makes a Successful Transition from Primary to Secondary School?", Department for Children, Schools and Families, Research Brief n° 19; Office of Program Evaluation (2010), "An Overview of the Literature on Middle School Configurations", *Fairfax County Public Schools*; Rockoff J. and B. Lockwood (2010), "Stuck in the Middle: Impacts of Grade Configuration in Public Schools", Columbia Business School.

A clear typology can be found despite differences across countries

School systems face challenges in addressing the needs of diverse student populations in secondary education. Countries have responded through different configurations. Some have adopted non-selective and comprehensive school systems that seek to provide all students with the same opportunities, whereas others respond to the diversity challenge by sorting children between schools or classrooms, with the aim of serving them according to their academic potential. It is possible to establish a typology based on how students are grouped together.

One of the main challenges of lower secondary education is managing different kinds of student heterogeneity – socio-economic, linguistic, or in terms of abilities, without sacrificing inclusiveness. Should school systems maintain this heterogeneity within the schools and within the classrooms? Or should lower secondary schools put together students of similar characteristics and abilities, to obtain homogeneous classrooms through streaming and tracking, different levels of courses, and grade repetition? As the typology presented in Table 1.2 shows, these questions are answered differently across countries.

Table 1.2. A typology of lower secondary education across OECD countries

Type of model		Common classes	Ability grouping	Grade repetition	Individual support	Countries
Differentiated			X	X		Germany, Austria, Switzerland, Belgium, Luxembourg, Netherlands, Hungary, Czech Republic
Comprehensive	With vertical differentiation	X		X		France, Italy, Spain, Greece
	With horizontal differentiation	X	X		X	United Kingdom, United States, Canada, Australia, New Zealand
	With personalised learning	X			X	Finland, Norway, Sweden, Iceland, Denmark

The typology presented in Table 1.2 shows two basic models in which heterogeneous lower secondary students are catered to: the differentiated and the comprehensive model. In the differentiated model, students are not kept in common classes and there is use of streaming and tracking. Differentiation refers to the way in which students are sorted in different schools and/or programmes (vocational or academic, for example).

Within the comprehensive model, the system uses different approaches to target heterogeneity, including ability grouping, grade repetition and individualised support. Vertical differentiation refers to the ways in which students can progress through educational systems as they become older (through year repetition or automatic progression). Horizontal differentiation refers to differences in instruction within an

education level. At the school level, it corresponds to the grouping of students by their ability levels. Table 1.3 presents further country detail on the use of these approaches.

Table 1.3. Types of differentiation in lower secondary across countries

	Students who repeated one or more grades %	Age of first selection	Number of school types	Schools that group students by ability in all subjects %
Australia	8	16	1	4
Austria	13	10	4	6
Belgium	35	12	4	19
Canada	8	16	1	13
Chile	23	16	1	30
Czech Republic	4	11	5	7
Denmark	4	16	1	6
Estonia	6	15	1	12
Finland	3	16	1	1
France	37	16	1	W
Germany	21	10	4	11
Greece	6	15	2	0
Hungary	11	11	3	3
Iceland	1	16	1	11
Ireland	12	15	4	9
Israel*	8	15	2	23
Italy	16	14	3	14
Japan	0	15	2	11
Korea	0	14	3	4
Luxembourg	37	13	4	49
Mexico	22	15	3	16
Netherlands	27	12	7	44
New Zealand	5	16	1	5
Norway	0	16	1	5
Poland	5	16	1	4
Portugal	35	15	3	8
Slovak Republic	4	11	5	7
Slovenia	2	14	3	5
Spain	35	16	1	7
Sweden	5	16	1	9
Switzerland	23	12	4	39
Turkey	13	11	3	28
United Kingdom	2	16	1	8
United States	14	16	1	7

Source: OECD (2010b), *PISA 2009 Results: What Makes a School Successful?* Vol. 4, OECD, Paris.

Concerning the outcomes of these different configurations, evidence points to the importance of comprehensive schooling and in favour of delaying or altogether avoiding tracking of students by ability. The OECD report entitled *No More Failures* (OECD, 2007), presented evidence regarding the negative impact of early tracking in school outcomes. More recently, the PISA 2009 study (OECD, 2010b) analysed how education practices relate to the reading performance of 15-year-olds. It identified school systems that perform above the OECD average for reading and in which students' socio-economic background has a smaller impact on reading performance than on average across OECD

countries. The study found that the way students are sorted into schools and classrooms and the way that students' heterogeneity is managed are related to student performance and to equity in education. Across studies, the research evidence is consistent: school systems in which all students have the same opportunities to learn (the same programmes and schools), and in which grade repetition is not used frequently as a tool to manage student ability diversity, achieve better results than those in which tracking is practiced.

Challenges facing lower secondary education

Lower secondary education faces many challenges across countries as a level which finds itself in between primary and upper secondary education. It is often not responsive enough to the specific developmental and intellectual needs of early adolescents (Eccles, Lord and Midgley, 1991); some countries have difficulties ensuring high academic achievement, and many may be left behind at this stage, and transitions from primary into lower secondary may be difficult. It is important to ensure an effective lower secondary education by making it responsive to the specific needs of young adolescents, by ensuring that teachers are well prepared, and that it is delivered in the appropriate school environment and practices.

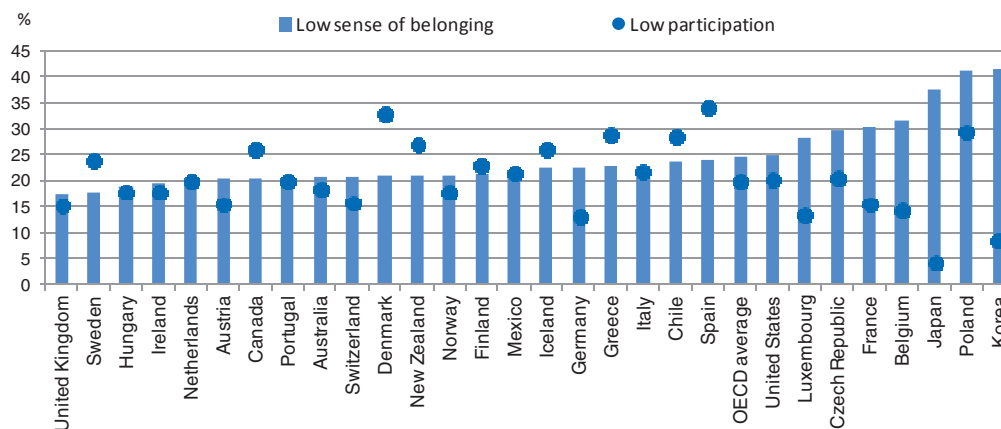
School practices may fail to engage all students

There is evidence of the effect of the practices taking place in schools to support lower secondary students. Cuadra and Moreno (2005) argue that some of the systematic changes in the classroom environment associated with secondary education are particularly harmful at early adolescence. First, lower secondary classrooms, as compared with primary-school classrooms, are characterised by a greater emphasis on discipline and teacher control, a less personal teacher-student relationship, and fewer opportunities for student decision-making when the students' desire for control over their own lives is growing. Second, there is also an increase in practices such as high-stakes assessment and public evaluation of the students work. This emphasis on competition, social comparison, and ability self-assessment at a time of heightened self-focus seems to have negative effects on motivation, as it disrupts social networks at a time when adolescents are especially concerned with peer relationships (Eccles, Lord and Midgley, 1991).

Low levels of student engagement in lower secondary education can be found in the majority of OECD countries. In this report, the concept of student engagement is used in a broad sense to refer to students' attitudes and motivation towards schooling and their participation in school activities. Sense of belonging and participation at school are two of the most important measures of student engagement. PISA gives an interesting example of students' engagement with schooling in general, assesses student engagement at 15 years old² across OECD countries, through two dimensions measured in 2000: *sense of belonging* and *school participation*³. Disengagement from school is not limited to a minority of students: on average, across the OECD countries, about one in four students reported having a low sense of belonging, and about one in five students reported having low participation. Countries do not vary substantially in the prevalence of students with a low sense of belonging, around 25% in most countries. However, Belgium, Japan, Korea and Poland have a large share of disengaged students. Countries vary more considerably in their levels of participation. The share of low participating students is over 30% in Denmark and Spain and under 10% in Japan and Korea (Figure 1.2).

Figure 1.2. Student engagement across OECD countries, PISA 2000

Share of 15 year old students who have a low sense of belonging and a low participation in school

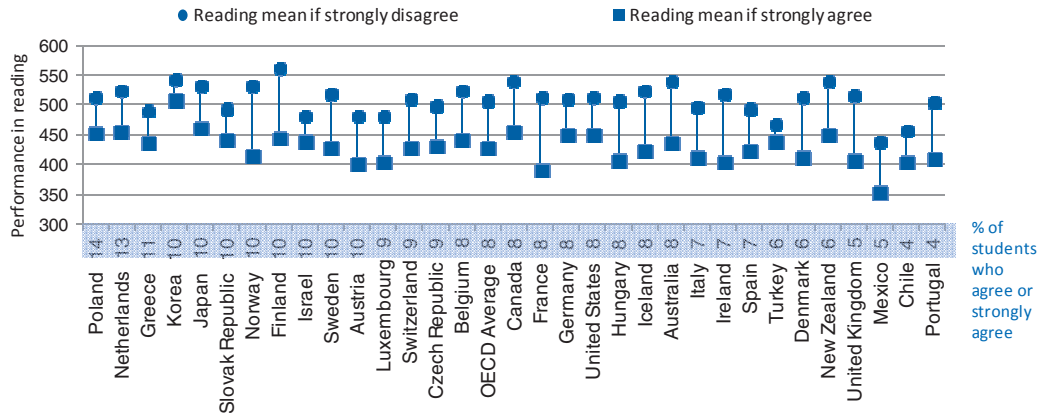


Source: OECD (2003), *Student Engagement at School: a Sense of Belonging and Participation: Results from PISA 2000*, OECD, Paris.

PISA 2009 completes the information from PISA 2000 on student engagement. For this PISA cycle, 15-year-old students were asked whether they agreed or disagreed that their school had been a waste of time for them. Some high performing countries show relatively important percentages of students that consider that school is a waste of time, but the percentage of students who agree or strongly agree with this statement varies significantly among all countries. While it is about 4% in Portugal, about 10% or more of students agreed or strongly agreed with this statement in seven countries – Poland, the Netherlands, Greece, Korea, Japan, Slovak Republic, Norway, Finland, Israel, Sweden and Austria. Furthermore, Figure 1.3 also shows that the mean performance in reading of students who strongly disagree that school is a waste of time is systematically higher than that of students who strongly agree. Indeed, the highest difference can be found in France, Finland and Norway, but several other countries have a difference of more than 100 points as well, which is equivalent to more than two school years difference.

Figure 1.3. Student performance and attitudes towards school, PISA 2009

Share of students who strongly agree or strongly disagree that school has been a waste of time and percentage of students who agree or strongly agree



Note: Countries are ranked in descending order of the percentage of students who agree or strongly agree that school is a waste of time.

Source: OECD, PISA 2009 Database, OECD, Paris.

These indicators are consistent with the findings of a large body of empirical literature that shows that as students move from primary to secondary schools, they become less engaged with school (Audas and Willms, 2001; McGee *et al.*, 2003). There are several possible causes for this decline. The most common is the onset of adolescence and its psychological consequences. Eccles, Lord and Midgley (1991), for example, attribute it to a change in students' concept of themselves as learners as they grow older. International studies reviewed by McGee *et al.* (2003) identify a pattern of drop in motivation in the first year of secondary school. Another study of the psychological literature on adolescent motivation (Gurtner *et al.*, 2006) relates this sharp decline in motivation for school in the first years of early adolescence, to the change in school environment (teacher relationship, type of work asked, increased peer competition, more grades, curriculum delivery). Motivation then stabilises again around 16-17 years old. It appears that the shift from a supportive environment (in primary schools) to a more negative one seems to cause high stress to students and may leave them feeling incapable of a given task. The lack of motivation may also come from their belief that they do not have what it takes for high levels of learning, causing also a decline in self-esteem. Also, as students find that the volume of work increases, rather than its difficulty, they feel less in control of their own learning process (Kirkpatrick, 1992).

The fall in student motivation and that school is considered to be a waste of time by some students may also be due to the fact that the curriculum requires substantial reforms in order to engage today's adolescents. The curriculum has not changed much between 1985 and 2000 across countries whereas the world and its youth have undergone historical transformations in the same time period (Benavot, 2006), although there appear to be curricular reforms across a number of OECD countries more recently. As a result, studies report widespread student disillusionment at the lack of academic challenge in

their early secondary experiences. McGee *et al.* (2003), reviewing international evidence, identify a knowledge gap between what is taught and the content that would engage early adolescents and match their cognitive skills. Research from the United States suggests that class work during the first year of lower secondary school requires lower-level cognitive skills than class work at the primary level (Eccles *et al.*, 1991), at a time when the ability to pursue more complex thinking is increasing:

“Too many educators see middle schools as an environment where little is expected of students either academically or behaviourally, on the assumption that self-discipline and high academic achievement expectations must be placed on hold until the storms of early adolescence have passed (Cuadra and Moreno, 2005)”.

Kirkpatrick (1992) identified the same phenomenon in Australia, where the majority of the students he observed found easier the academic work in their first year of secondary education, or no harder than their final primary year. This lack of challenging opportunities, which affects students in many lower secondary settings, tends to result in a lack of engagement and a poor sense of belonging to school.

This lack of engagement is of serious concern, as it inhibits the learning of academic and social skills needed for knowledge economies and for the environmental challenges of the future. Haarhr *et al.* (2005), using PISA data to examine student performance in Denmark, identified significant associations between academic performance, motivation (both intrinsic and extrinsic) and anxiety. Addressing these issues will be important to transform lower secondary schools into welcoming environments where the full range of diverse learners can flourish.

Different strategies for schools to motivate students

Weak curricula can lead to an overall lack of commitment by students to secondary school (OECD, 2003). Development opportunities offered by a school to students need to take into account the need to maintain the students' interest. A challenging and flexible curriculum can help to this end. It is fundamental that the curriculum is relevant to the challenges awaiting early adolescents. Teachers also have to reaffirm often the importance and relevance for adult life of what is being taught, in order to engage students in the learning process. Additionally, bringing the primary and lower secondary curriculum together, ensuring better continuity and articulation in curriculum with fewer gaps and overlaps, allows students to stay on track and not get disengaged. In England, for example, the National Curriculum is designed to facilitate transition through curricular continuity. A common curriculum throughout the two phases was also introduced in New Zealand and Australia (Greenaway, 1999).

Cuadra and Moreno (2005) suggest that more emphasis should be placed on the role of the individual student and on his/her autonomy in steering the learning process. Motivation toward an activity is linked not only to the feeling of mastering the content but also based on the feeling of having been able to choose this activity and its tasks. Teaching should integrate this feeling of self-determination, to engage students better, and engage students through the promotion of common learning goals to reach through cooperative learning rather than competition. Some evidence from Australia (Johnson and

Johnson, 2007) shows that cooperative learning teaching methods, for example, foster student engagement, which boosts achievement, and also reduces student alienation and isolation. Individualised instruction can help to meet the highly variable needs and ability levels of this age group, and create a more important sense of community. The psychological literature on adolescent motivation for schooling (Gurtner *et al.*, 2006) suggests the value of the “whole child” perspective of the primary schools- smaller groups of students working with a consistent set of teachers, more team teaching, applied to lower secondary education.

Eccles (2008) suggests that when students experience a supportive environment in school and receive some type of personalised attention, they are more likely to experience positive outcomes. Many times, what differs between a successful and a non-successful experience in lower secondary school is the support reported by the student from his friends and adults. Newman *et al.* (2000) interviewed urban adolescents in the United States entering secondary education and concluded that high achieving students reported having friends who supported them in their academic goals.

Box 1.4. Practices to engage students in lower secondary schools

Eccles argues that it is possible to design lower secondary school environments engage students. Such contexts include opportunities for the following types of experiences:

- Strong personal relationships with non-familial adults.
- Strong safety nets to identify disengagement early and to provide adequate supports for renewed mastery.
- Mastery of, and strong sense of efficacy for acquiring the skills and competencies necessary for a successful transition to adulthood.
- High quality instruction in a psychologically and physically safe environment.
- Visioning a productive adulthood, along with the means of obtaining the associated goals.

Source: Eccles J. (2008), “Can Middle School Reform Increase High School Graduation Rates?” California Dropout Research Project N°12.

When the school environment facilitates student participation in a caring community, students’ needs for belonging (as well as for autonomy and competence) are met (Battistich *et al.*, 1997 in Anderman, 2002), and a sense of community is related to improved social skills, motivation, and achievement. Practices such as positive classroom management, participation in extracurricular activities, personal relationships with teachers and the availability of counselling and guidance services are associated with adolescents feeling cared for by adults in their schools and feeling like a part of their school (McNeely, Nonnemaker and Blum 2002; Watts and Fretwell, 2004). Wigfield, Lutz and Wagner (2005) highlight that given the effects of adolescence on behaviour, it is important that counsellors are aware of the effect of puberty on school-linked behaviour and on the relationship with peers, especially when it comes to early-maturing girls and

late-maturing boys, as the counsellors' sensitivity may help them deal better with these changes.

Teachers need to cater adequately to early adolescents' needs

Teachers are identified as one of the main levers for improving student performance. A central step for better student achievement is supporting their capacity to deliver. This can be done mainly through appropriate initial education, training and support at the school level from good quality instructional leaders (OECD, 2005; Darling Hammond and Rothman, 2011). Teachers that cater to lower secondary students face particular challenges, such as: having to help students to adapt into this new level, making schools and studies motivating, and challenging students by strong content and subject knowledge. Yet, often, lower secondary teachers may not have received previously suitable training or support from schools to respond to these specific challenges.

The quantity and quality of teachers' initial education is important in shaping their work once they begin teaching in schools. It also appears to influence their further education and training requirements, as well as other aspects of their development (OECD, 2009). Initial teacher education differs across OECD countries, but there are two basic models:

- The *concurrent model*, in which students pursue their teacher education studies alongside their academic discipline preparation, sometimes with the possibility of being awarded separate qualifications, although in most cases only a single qualification is allocated. This is the case for many programmes preparing primary school teachers.
- The *consecutive model*, in which prospective teachers study academic disciplines or subjects (and sometimes education studies) first, usually in a university-based programme. This is then followed by a programme of practical professional training in pedagogy that is based in schools.

Lower secondary education teachers follow the concurrent model in almost all countries, except for France and Germany but, in some countries, they can follow either concurrent or consecutive models.

Teachers' level of education in a country may reflect qualification requirements established for becoming a teacher or requirements for progressing through their career path; but they can also show the extent to which formal education is encouraged for teachers. According to TALIS, the teaching and learning international survey which focused on lower secondary teachers, the level of qualifications in most countries was tertiary education (ISCED 5B), with one-third of teachers having completed a Master's degree.

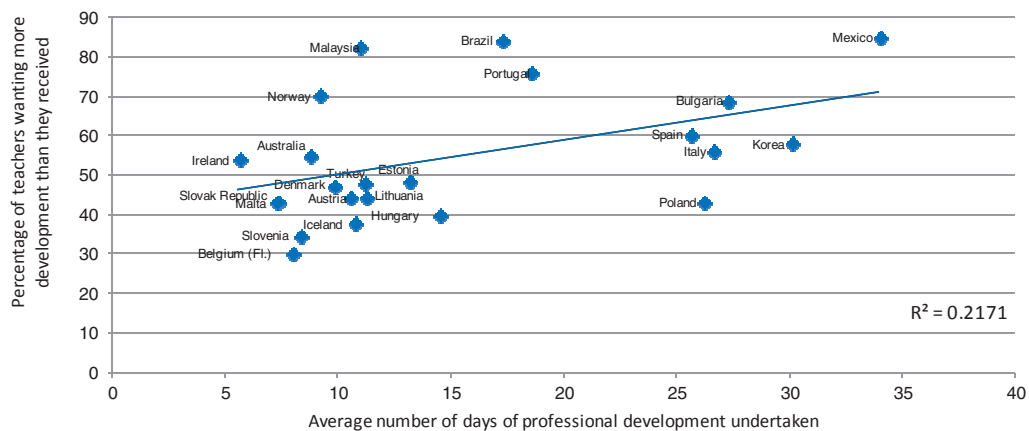
Initial teacher education provides the initial basis for good practice, but evidence has pointed towards the complementarities of induction and continuing training for teachers. Again, according to TALIS, while most teachers have had initial teacher preparation, many still feel that they want more professional development. On average across TALIS

countries, more than 50% of teachers wanted more professional development than they had actually received. In Norway, Portugal and Mexico, this was over 70%.

Figure 1.4 shows the percentage of teachers wanting more professional development activities and the average number of days of professional development undertaken. While more than half of the teachers that participated in TALIS across countries reported having an overall high level of need of professional development, the specific focus is of particular interest. Teachers are looking for professional development in student discipline and behaviour problems, ICT teaching skills and teaching special learning needs students, among the areas noted of most demand in TALIS. There was a second set of needs focusing on instructional practices, subject area of specialisation, student counselling, content and performance standards and student assessment practices, which were considered important for more than 15% of the teachers. Much of these combine the need for specific approaches to respond to students while having a high level of content knowledge.

Figure 1.4. Teachers and professional development, TALIS 2007-08

Teachers demand for professional development and amount undertaken



Source: OECD (2009), *Creating Effective Teaching and Learning Environments: first results from TALIS*, OECD, Paris.

Different approaches for teachers to better cater to students' needs

Teachers are at the core of learning, and in lower secondary education, teachers need to have a combination of strong subject knowledge with suitable teaching strategies. Initial professional development provides a solid base, and it is important that across countries, initial teacher education includes specific programmes or courses targeted to delivering education for early adolescents. In addition, continuing professional development can be provided to enhance teacher skills specific to this area.

If a challenge is linked to a school context, this is more of a reason for solutions to be envisaged within this same environment. Nevertheless, according to evidence, there are other key elements that can help a teacher positively affect student performance.

These seem to be more related with having a strong subject base, and good teaching strategies in order to best help their students (which involves being able to provide adequate individualised attention when pertinent). According to Musset (2010), evidence shows that this is more important than the form or structure of a professional development programme.

Box 1.5. Strategies to improve teacher quality in Ontario (Canada)

In Ontario, the Ministry of Education provides professional development opportunities for teachers and school leaders from a multi-dimensional perspective. It provides 6 days of professional activities for the schools, as well as multiple forums (e.g. studies, webcasts, and videos) to share best practices and collaboration. There is also an “Annual Learning Plan” completed by teachers, where the yearly goals are established. Professional development activities are job embedded (as part of the Teacher Learning and Leadership Programme), and also managed as part of a wider network to exchange ideas and best practices at the Province level.

Source : Darling Hammond, L. and R. Rothman, (2011), “Lessons Learned from Finland, Ontario, and Singapore” in Darling-Hammond, L. and R. Rothman (eds.), *Teacher and Leader Effectiveness in High-Performing Education Systems*, Alliance for Excellent Education and Stanford Center for Opportunity Policy in Education, Washington, D.C. and Stanford, California.

Therefore, teacher quality needs to be seen as a holistic process. Based on an analysis of different research on the topic, Musset points out two key elements that draw from research on what works in professional development for teachers:

- The first has to do with ensuring that teacher education programmes have a *strong subject-matter base*, with emphasis as well on *how it is taught to students*. Teachers should be able to design lessons that adequately teach students the desired contents. This will help facilitate a more active process of school-based professional learning.
- The second element involves a good level of school support that fosters the best learning opportunities for teachers. It can be done by providing adequate feedback or ensuring enough time and resources to design programmes. The objective of school support would be to provide teachers with problem solving capacities.

Student transitions into lower secondary can lead to school failure

At the point in their lives already challenged by profound development transformations, many youngsters leave the self-contained classrooms of their primary schools, where they spent most of their day with one teacher and a small group of peers, for larger, often impersonal lower secondary schools. There they are taught daily by many different teachers, and surrounded by larger groups of students. This change has several important implications:

1. Lower secondary students are more likely to be instructed by teachers who are “experts” in the sense of academic mastery in specific subjects.
2. The monitoring of each individual student becomes more difficult given the larger student body and the fact that each teacher instructs several different groups of students each day (Bedard and Do, 2005).
3. Students switch from being the oldest to being the youngest in the school when they move to a new school, with ambiguous effects on them.

On the one hand, exposure to older students may benefit younger peers if they are exposed to more mature behaviour. On the other hand, they may find being the youngest students in the school traumatic, especially after being the oldest pupils in the last grade of primary school. Additionally, lower secondary schools in principle would expect more independence, greater intellectual effort, and the establishment of deeper expertise by the students. Young people must then learn to cope with the complex and demanding situations in schools as well as in other areas of life, in order to develop the psychological conditions necessary to adapt constructively to other challenges and tasks (Longaretti, 2006).

Transitions are both growth inducing and tipping points. Tilleczek and Ferguson (2007) highlight an “emotional paradox” that exists for students. They are both excited and anxious, as they look forward to the fresh start of moving into secondary school in terms of relationships and academic experiences. At the same time, students express dissatisfaction and disappointment (“false start”) as the initial adjustment phase passes. The issue of transitions is particularly important because both the school structure and transitions can lead to student disengagement (Lyche, 2010), which may crystallise the pathways to dropping out. Bedard and Do⁴ (2005) using longitudinal data from across the United States, identified an increase in dropout rates when the transition occurs at earlier ages.

There are many different studies that have analysed the impact of school transitions on students’ performance and well being across countries and this is the area within lower secondary that does have some research evidence. Scotland⁵ found that most children making the transition experience considerable anxiety about the changes, but also often have positive anticipations about the new opportunities (Graham and Hill, 2003). Yet, even if most children cope well with moving from primary to lower secondary schools, the transition is more difficult for some groups of students. For example, children of minority ethnic backgrounds are the ones who report more difficulties and disappointment than students of European descent. Consistent results were also found for the United States, England and New Zealand (Galton and Morrison, 2000; Galton, Gray and Ruddock, 2003; McGee *et al.*, 2003) and it is likely that this is due to the difference between their home culture and the school culture. As support from home in this transition period is particularly important, students with less engaged parents are more at risk of falling behind.

In the United States, studies show that students in institutions that combine primary and lower secondary education have better academic achievement than those in lower secondary schools (Simmons and Blyth⁶, 1987; Byrnes and Ruby⁷, 2007). More recently,

Rockoff and Lockwood⁸ (2010) found negative significant effects on student achievement in reading and mathematics. Among their different arguments are that entry into lower secondary schools, compared to staying in a primary school-like setting may lead to gradual decline in various indicators of academic motivation. These include self-perceptions and school-related behaviours, which suggest that the type of school the children are in during this period is critical. They argued that the intimacy of the combined primary-lower secondary school environment may have caused the improvement. They consequently advocate for delaying the transition to a new educational context until students are more mature.

Some evidence has also shown the impact of transitions on student behaviour in the United States.⁹ Already in 1991, Eccles, Lord and Midgley (1991)¹⁰ found that the kinds of changes in school environment characteristics that many early adolescents experience during the transition to lower secondary are likely to produce negative outcomes. This would be more evident for those who are already having difficulties either with school or in terms of their social development. A more recent study found that there was a “jump” in behaviour problems for all students when they entered middle school, but that those who entered earlier (sixth grade) also had more infractions and more behavioural problems than those entering in the seventh grade, and the gap between the two populations persisted through ninth grade. This may be possibly due to a negative peer effect from being with older students at a younger stage. High school completion rates for students who entered middle school in the sixth grade were about 1 to 3% lower than for their peers who entered later (in seventh grade) (MacCoun *et al.*, 2008).

There appears to be substantial agreement that there is often a decline in academic achievement following transitions regardless of the age at which they take place (McGee *et al.*, 2003; Crockett *et al.*, 1989). In fact, students that undergo two transitions appear to have larger risks of falling behind than those who undergo only one. Alspaugh’s econometric study (1998), which compares three groups of 16 school districts in Missouri (United States) found that students in ninth grade who had passed through two transitions from a primary school to a lower secondary school, and to an upper secondary school experienced greater loss in achievement gains than those who moved from schools combining primary and lower secondary levels to upper secondary schools. He defined this statistically significant additional loss for students experiencing two school transitions as a “double jeopardy”.

Table 1.4. Number of student transitions in OECD countries

Characteristics	Number of transitions	Countries
Countries with a single structure for primary and lower secondary, and distinct structure for upper secondary	One	Norway, Denmark, Finland, Iceland, Estonia, Slovenia and Turkey.
Countries with distinct structures for primary, lower secondary and upper secondary education	Two	Austria, Canada, Chile, France, Germany, Greece, Ireland, Italy, Israel, Korea, Luxembourg, New Zealand, Poland, Portugal, Spain, Switzerland, United States,
Countries with distinct structure for primary education, and a single structure for secondary education	One	Some states in Australia, some districts in the United States, some LEA in the United Kingdom

Different approaches to ease student transitions

Ensuring a better transition between lower and upper secondary can foster higher achievement gains, and also prevent students from falling behind and potentially dropping out. It can significantly increase student engagement with learning and enhance their sense of well-being and belonging in the educational community (Longaretti, 2006).

Some education authorities have introduced a range of measures to smooth this transition, especially to help improve communication among children, teachers and parents (Tilleczek and Ferguson, 2007). The objective of such programmes is to ensure that the student is well integrated in a setting where he has to deal with a variety of different individuals (teachers, counsellors, etc) and to help them cope with the changes. For example, Scottish education authorities and schools have introduced tours to the secondary school, secondary teacher visits to primary schools, as well as induction days, social gatherings and meetings with other primary school students going to the same secondary school. A survey of students previously cited (Graham and Hill, 2003) showed that more than 80% of the children regarded all the main elements of transition programmes as helpful, reporting the induction day as the most useful activity.

In the same way, Ontario implemented in 2003 a transition plan at the school level, involving the preparation of individual student profiles, the appointment of a teacher to oversee the transition of individual at-risk students and the monitoring of student progress in its entry in secondary school (Levin, 2008).

In New Zealand there has also been an effort to ensure smoother transitions. McGee *et al.* (2003) argue that transitions nowadays are better organised and more student-friendly, and that few students experience anxiety for long.

Delaying the transition, or eliminating it, can have positive outcomes in terms of behaviour and student achievement (Cook *et al.*, 2006; MacCoun *et al.*, 2008). In 2008, the Toronto District School Board¹¹ started to “phase out” middle schools, consolidating elementary schools up to grade eight and towards a size of 450 students. There were two reasons for this: to lower costs – as it merged costly half-empty schools in a context of enrolment fall (of 4 000 students per year) and also, taking into account the existing research, to reduce the number of times students move from one school to another (Brown and Rushoway, 2008). In the same way, in the United States, the school districts

of New York City, Philadelphia, Cincinnati and Cleveland are considering a return to combined primary-lower secondary schools (Devos and Saleh, 2007).

There is selected evidence that combining levels together can be effective to improve engagement, as they eliminate one transition from students' lives. Cook *et al.* (2008) tried to answer the question on whether there is a 'best' grade configuration for schools serving middle adolescents. Their research conducted in North Carolina public schools compared the outcomes for sixth graders (age 12) in lower secondary schools with sixth graders attending primary schools (combined with lower secondary school level). According to their study, students in both of these schools, compared to students in schools where there is only lower secondary, are less likely to have behaviour issues and perform better, with gains in standardised test scores in reading and mathematics¹². The researchers attribute this phenomenon to the lower secondary school emphasis on academics and discipline, rather than on building a supportive community. The increase of discipline referrals could be related to students' lack of familiarity with the new school environment and higher expectations.

In addition, certain configurations may be more conducive to the development of a sense of belonging than others. Anderman (2002), through a study on individual and school-level predictors of perceived school belonging in the United States, in which more than 90 000 students participated¹³, found that attending a school which combines primary, lower and upper secondary education is related to school belonging. In addition, combined primary and lower secondary schools may also lead to sustained parent involvement in their children's schooling, according to Weiss and Kipnes (2006)¹⁴.

Other options may focus on making lower secondary schools look less like large, impersonal secondary schools, and more like caring, nurturing primary schools, while still offering students a challenging, subject-specific curriculum. Cuadra and Moreno (2005) claim that lower secondary schools should not operate like upper secondary schools, but should rather create a teaching and learning environment that moves away from the "factory model of producing education" to a more student-centred one. This may be linked not only to how teachers follow their students, but also on the average cohort size. Rockoff and Lockwood (2010) found that cohort size (within a school) has a pronounced influence on student achievement during early adolescence¹⁵.

This idea that students placed in relatively small cohort groups for long time periods tend to experience more desirable educational outcomes had already been suggested by Lee and Smith (1995) and Alspaugh (1998). They found that students who attended small-sized schools and students who attended schools that used "small school" practices such as keeping the same set of students throughout several years and interdisciplinary teaching learned more and were more academically engaged than students who attended other schools. Practices such as placing students in relatively small groups for long spans of time with the same teacher or group of teachers ("looping") also tend to have positive outcomes in terms of student achievement, as it can improve teacher-student relationships, and the teacher's ability to recognise their students' academic challenges (Juvonen *et al.*, 2004¹⁶). These practices may help fostering a sense of community and belonging.

In conclusion, the research evidence shows that transitions from one education level to the next can be challenging, and especially so when moving from primary to lower secondary education. Countries need to take this factor into consideration when designing their education pathways for students, and ensure that the type of setting is suitable to the needs of early adolescents enrolled in lower secondary education. Countries have found different options to respond to this challenge, such as designing strategies to make transitions smoother, by delaying the transition or eliminating it and combining primary and lower secondary or by reducing total cohort sizes to provide more personalised support.

Conclusion

Lower secondary is a critical level of education. Countries have managed to implement educational structures for early adolescents that seem to be efficient in both meeting the specific needs of this particular student population and in allowing them to reach high achievement levels. There is some evidence on the comparative efficacy of the different structures of lower secondary education, but there is a noticeable absence of solid research evidence in comparison with the primary and upper secondary stages of education. This chapter highlights the importance of addressing the unique set of needs of early adolescent students in suitable learning environments.

Lower secondary education marks the end of compulsory schooling. This level therefore does much more than serve the immediate needs of students from ages ten through 15; it provides them with the foundation skills which will allow them to make their way to upper secondary education and to tertiary studies, while also increasing the job-readiness of those who choose to enter the labour market directly. As lower secondary education falls within the boundaries of compulsory education, it has to be flexible and diversified to prepare a very heterogeneous student body for the future. At the same time, lower secondary education is also the key articulation point, where student engagement for education can either be consolidated or broken. Children entering lower secondary have considerable anxieties about the changes, but also often positive expectations that school systems have to meet.

While there is still a gap in terms of research on this level of education, which is crucial to the success of education systems across OECD countries, there are some common challenges and conclusions can help design suitable policies.

- *School practices often fail to engage all students.* As students move from primary to secondary education, they tend to become less engaged with school. On average in OECD countries, one in four students is disengaged with school at age 15. There seems to be a gap between what is taught and the practices that would engage students, and could also be a cause of not having consolidated a set of basic skills in primary education. Beyond ensuring the acquisition of basic skills in primary, schools need to be more responsive to the needs of young adolescents by providing student centered teaching and learning strategies, challenging, flexible and relevant curriculum and support to foster a sense of belonging. This can have positive effects on engagement and potentially contribute to higher performance and lower dropout rates.

- *Teaching and learning strategies may not cater adequately to adolescent needs.* Evidence shows that entry to lower secondary schools may lead to gradual decline in academic motivation, self-perception, and school-related behaviours over the early adolescent years. Lower secondary classrooms are characterised by greater emphasis on discipline and less personal teacher-student relationships in a time when students' desire for control over their own life is growing. Teachers need to be prepared to deliver the curriculum effectively, and are required to have solid content knowledge and teaching strategies that specifically cater to this age group.
- *Transitions can have a negative impact on student outcomes.* Evidence points to a decline in academic achievement and engagement in the transition from primary to lower secondary when this level of schooling is provided separately. Also, students that undergo two transitions (from primary and from lower secondary into upper secondary) seem to have larger risks of falling behind than those who undergo only one. Easing the negative impact of transitions is therefore key to facilitate higher achievement gains and to prevent students from falling behind and dropping out. Different options include designing strategies to smooth the transitions, delaying the transition or eliminating it and combining primary and lower secondary or by reducing total cohort sizes to provide more personalised support.

Schools need to be well prepared to develop the appropriate environments for effective learning to take place. They also need to ensure that students are ready to move into further stages of their education or into the labour market. The following chapters discuss these challenges specifically for Norway. They also provide evidence and international experiences that countries can use as a guide to improve the quality of lower secondary education.

NOTES

- ¹ The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.
- ² This age group is of particular interest for this report, as at age 15, students, are in some countries, on the verge of finishing lower secondary education, and in some others, in their first year of upper secondary education. In Spain, Norway, Finland, Poland, Denmark, Sweden, Iceland, Germany, Australia and Switzerland, more than 90% of the 15-year-olds are in lower secondary school, whereas in Belgium, Greece, Austria, New Zealand, Chile, Korea, Turkey, Italy, United Kingdom and Japan, more than 90 % of this age group are in upper secondary settings.
- ³ These indicators were developed in the first PISA study 2000. *Sense of belonging* was based on students' responses to six items describing their personal feelings about being accepted by their peers and whether or not they felt lonely. Students were considered to have a low sense of belonging if they scored below 3.0 on the sense of belonging scale. *Sense*

of participation combined school and classroom attendance. Students with low participation had to have missed school at least three or four times, or had a combination of missing school, skipping classes and arriving late for school that resulted in missing about three or more days of schooling in the previous two weeks.

- ⁴ Bedard and Do (2005) used data on school configurations and on-time high school graduation rates from the national center for educational statistics, covering all American schools. With fixed effects estimation, they isolated the impact of lower secondary school transition from other factors influencing completion rates. They found that moving 12-year-old students to lower secondary schools, compared to have students move to lower secondary school at age 14 was associated with a 1 to 3% fall in the on-time high school completion rate.
- ⁵ Graham and Hill (2003) did a longitudinal school-based study which surveyed 343 students in their transition three times (before, after one month, and after one year). This information was supplemented by a small number of focus group discussions with children, and data obtained from teachers and school reports.
- ⁶ Symmons and Blyth (1987) conducted a longitudinal analysis using 924 students in Milwaukee who either attended schools which combined primary and lower secondary or offered only primary. They found that students in combined schools had higher academic achievement in standardised tests than those in lower secondary, after controlling for ethnicity, teacher-student ratio and levels of teacher education. They also found that girls who attended schools which combined primary and lower secondary education made a healthier transition into upper secondary schools than did girls who attended more typical lower secondary schools.
- ⁷ With a sample of 41 000 eighth graders from 95 schools in the Philadelphia City School District.
- ⁸ Rockoff and Lockwood (2010) followed students from grade three to eighth and compared the results of those attending either combined or lower secondary in New York found that entering lower secondary schools instead of staying in primary schools has negative significant effects on student achievement in both reading and mathematics.
- ⁹ Using 2000-2001 data on student behaviour with a sample of 344 schools in North Carolina enrolling 46 942 students, Cook *et al.* (2006) estimated the long-term impact of 6th grade enrolment in middle schools. The researchers looked at the behaviour of students in grades fourth to ninth, divided into two groups: students who had or were likely to attend 6th grade in an elementary school, and students who had or were likely to attend 6th grade in a middle school. Although the researchers were able to identify a link between middle school entry point and increased behaviour reports, the reason for that link cannot be determined. As the researchers point out, it could be simply that grade six to eight middle schools are more likely to report behaviour infractions than are grade six elementary schools.
- ¹⁰ Eccles, Lord and Midgley (1991) studied the impact of educational context on early adolescents using data from the National Educational Longitudinal Study. They compared student outcomes in different types of educational school settings (elementary school, middle school, junior high school).

- ¹¹ The Toronto District School Board has an array of models inherited from its six former boards, from junior kindergarten to grade eight schools to junior high schools where grade seven and eight students "rotate" between classes for half the day, or all day, and "middle schools" where grade six, seven and eight students spend half a day with each of two teachers. The decision to reduce the number of "middle schools" was based on the working paper prepared by the General Asset and Program Planning Working Group.
- ¹² Look *et al.* (2008) focused on behavior statistics in 344 schools with 46 942 students using 2000-01 data. Further to academic gains, initially higher performing students placed in a middle school 6th grade tended to lose their academic advantage over their counterparts who attended 6th grade in an elementary school.
- ¹³ 90 000 students from 132 schools, completed an in-school questionnaire, and a sub-sample of 20 745 students was interviewed the year after. School administrators also completed a survey describing various school characteristics.
- ¹⁴ Weiss and Kipnes (2006) conducted multilevel analysis of the effects of different grade configurations on student outcomes in the Philadelphia School District.
- ¹⁵ Rockoff and Lockwood (2010) estimated that an 8th grader who attends school with 200 other 8th grade students will score 0.04 standard deviations lower in both math and English than he would if he attended a school with 75 other 8th graders, the average cohort size for a K–8 school.
- ¹⁶ Juvonen *et al.* (2004) reviewed the limited research evidence base and attest to the benefits. Comparing the social relations and academic achievement of lower secondary school students in looped and non-looped classes in the United States, Lincoln (1998) found that looped classes had advantages with respect to test scores, self-efficacy, and attitudes toward schools. How well this practice would be implemented across many schools on a larger scale is not known.

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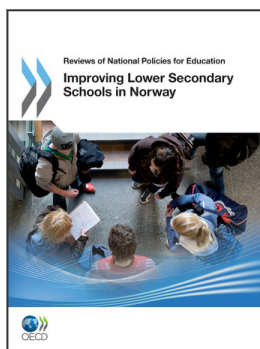
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