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Taking on the Completion Challenge: A Literature Review on Policies to Prevent Dropout and Early School Leaving

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TAKING ON THE COMPLETION CHALLENGE

A LITERATURE REVIEW ON POLICIES TO PREVENT DROPOUT AND EARLY SCHOOL LEAVING

OECD Education Working Paper No. 53

by Cecilia S. Lyche

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This paper was prepared as part of the OECD project *Overcoming School Failure: Policies that Work*, www.oecd.org/edu/equity.

The project provides evidence on the policies that are effective to reduce school failure by improving low attainment and reducing dropout, and proactively supports countries in promoting reform. The project builds on the conceptual framework developed in the OECD's No More Failures: Ten Steps to Equity in Education (2007).

School failure can be seen as twofold. Firstly, overcoming school failure implies ensuring a basic minimum standard education for each and every student (inclusion). Secondly, since not all individuals are equal, reducing school failure in a targeted way allows strengthening equality of opportunities (fairness).

This working paper is part of a series of working papers planned for the project *Overcoming School Failure: Policies that Work* covering the topics of school choice, in-school measures to reduce failure, and funding strategies to support low performing schools or students.

ABSTRACT

This paper reviews international research in the field of dropout from upper secondary education and training in OECD countries in order to present possible solutions to policymakers faced with the completion challenge. The paper begins by presenting existing definitions of dropout and upper secondary completion and states that dropout must be understood as the final step in a process of disengagement that begins early. Causes that lead to dropout in OECD countries are then studied, and the paper illustrates that causes of dropout are highly complex and intertwined. Finally, to address these causes or risk factors, the paper reviews research that had been carried out on piloted or implemented measures across OECD countries. It finds that successful measures address several risk factors and involve action both within school, outside school and at systemic level simultaneously.

The paper concludes by presenting a set of solutions according to educational level and emphasizes that preventive measures to reduce dropout should start early. Early identification enables broader, less costly measures to be set up earlier and leaves the more costly one-on-one measures for later stages of education to the remaining at risk students that have not yet been picked up. Overcoming the completion challenge requires a close cooperation between educational authorities and many other parts of government such as social and labour services, health services and justice system in some countries.

RÉSUMÉ

Ce rapport étudie la recherche internationale dans le domaine du décrochage scolaire dans l'enseignement secondaire au sein des pays de l'OCDE afin de suggérer aux décideurs confrontés à ce défit des solutions possibles. Dans un premier temps, le document présente les définitions existantes et affirme que le décrochage scolaire doit être compris comme la dernière étape d'un processus de désengagement commençant tôt dans la vie éducative de l'élève. Les causes conduisant au décrochage scolaire dans les pays de l'OCDE sont ensuite étudiées, et le rapport montre qu'elles sont non-seulement complexes, mais qu'elles sont étroitement liées. Enfin, pour remédier à ces causes ou facteurs de risque, le rapport étudie la recherche qui porte sur les mesures préventives mises en œuvre ou mises à l'essai dans les pays de l'OCDE. Il constate que les mesures fructueuses aborde plusieurs facteurs de risque et impliquent une action simultanée au sein de l'école, en dehors de l'école et au niveau systémique.

Le rapport conclut en présentant un ensemble de solutions selon le niveau d'éducation et souligne que les mesures préventives pour réduire le décrochage scolaire doivent être prises de bonne heure. L'identification précoce permet la mise en place de mesures globales, moins coûteuses aux premiers stades de l'éducation et relègue la mise en place de mesures individuelles plus coûteuses aux étapes ultérieures. Ces dernières concernent les élèves à risque n'ayant pas encore été identifiés. Surmonter le défi du décrochage scolaire exige une coopération étroite entre les autorités éducatives et de nombreux autres secteurs du gouvernement tels que les services sociaux et de l'emploi, les services de santé et, dans certains pays, le système judiciaire.

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EXECUTIVE SUMMARY

Non-completion of upper secondary education and training has immense consequences not only for the individuals concerned but for the societies they live in. Completing upper secondary is a necessity to ensure full participation in civic life and to ensure better chances in the labour market. Early school leavers across OECD countries on average earn less and have higher unemployment rates than those who complete. Preventing early school leaving is costly as it involves the entire education system as well as policy areas outside of the education system, such as the health system or social services. However, the struggle for completion is one that can be won. High investments in dropout prevention strategies is money well spent. The public and private benefits in terms of higher tax revenues, less public spending on health, public assistance and criminal justice largely outweigh the costs.

Defining early school leaving

Dropout from upper secondary is widely used to refer to the phenomenon of youth not completing upper secondary education and training. Though this may seem self evident, in practice comparing dropout rates across OECD countries is hard. In fact, countries operate with very different definitions. For the purposes of this paper, 'dropout' and 'early school leaving' are used interchangeably in reference to non-completion of upper secondary education and training (ISCED 3).

Defining dropout through its measurement only paints part of the picture, namely dropout as a status or educational outcome. In order to understand why dropout occurs, it is important to see dropout as a cumulative process of disengagement or withdrawal that occurs over time. Dropout can be prevented by picking up on a certain number of signals that form an early warning system. It is therefore important to understand the reasons behind the gradual disengagement that leads to dropout. This understanding of dropout as a dynamic process has a great impact on the way solutions may be viewed. In fact, correctly identifying students at risk of dropping out enables the elaboration of targeted and effective preventive measures.

Why students drop out

Causes for early school leaving are highly complex and very much interrelated. There has been extensive research on the factors that lead to dropout. These are classified into three categories: individual or social factors, school factors, and systemic factors.

From an individual or social point of view, educational performance, such as low grades, and certain types of student behaviours, such as absenteeism, lack of motivation, or delinquent behaviour are solid predictors of dropout. These factors are also very connected to the student's background, be it past experiences in education (*e.g.* whether participation in pre-primary education), or family background (*e.g.* living with one or two parents, family SES, and parental engagement). School structure and size as well as certain school practices (*e.g.* a highly bureaucratic and impersonal environment) influence the process of disengagement. In combination with a set of systemic factors, such as the use of year repetition or the lack of apprenticeship places in vocational education and training, all the above mentioned factors have an impact on the dropout rate as well as an impact on each other. Preventive measures therefore must address

not only the direct visible cause of dropout but the underlying causes that influence the cumulative process of student disengagement that ultimately leads to the decision to leave education or training.

Preventive measures

To best address these causes or risk factors, this paper reviews research that had been carried out on piloted or implemented measures across OECD countries and finds that successful measures address several risk factors and involve action both within and outside of school simultaneously.

Measures at a purely structural level involving solely systemic change at a macro level may have an indirect impact on the dropout rate such as was the case for the removal of early tracking or means-tested conditional cash transfers. However, on the whole, the measures that do not target more specifically the students themselves and the underlying causes for dropout through action both within and outside of school seem to have a very low success rate.

Preventive measures to reduce early school leaving should start early. The earlier the prevention begins, the broader the target will be. The later the intervention, the more targeted it needs to be. Early identification enables broader, less costly measures to be set up earlier and leaves the more costly one-on-one measures for later stages of education to the remaining at risk students that have not yet been picked up.

At pre-primary and primary, solutions include:

- Broad measures to develop cognitive and non-cognitive skills
- Identifying risk behaviour and providing adequate social support for both child and family
- The early involvement of parents their children's education
- Encouraging the development of pro-social bonds for instance to school staff or to positive peers as they may lead to a commitment and attachment to school

At lower secondary, solutions include:

- Introducing substance-abuse curricula
- Challenging low-performing unmotivated students rather than simplifying their tasks.
- Tutoring initiatives, either through peers or external tutors
- Providing extra-curricular activities and sports involving families
- Connecting schools and their local communities, either through the world of work or community service action

At upper secondary level, solutions include:

- Providing recuperative courses before school start upon entry into upper secondary level
- Mentoring and tutoring the remaining few that haven't been picked up by earlier intervention
- Teaching substance abuse curricula and providing sports activities
- Providing high quality VET-tracks as a real alternative to non-engaging academic tracks

At all levels of the education system:

- Risk behaviour must be identified and should be followed by intervention for instance through the connection to an adult within or outside school.
- Transitions between school levels should be supported
- Reliable data should be collected, first on the extent of the challenge itself, second on the risk-factors highly correlated with non-completion. This data should be transferred between school levels to guarantee early preventive measures and selective interventions.

Overcoming the completion challenge requires a close cooperation between educational authorities and many other parts of government such as social and labour services, health services and justice system in some countries.

> Education is the currency of the Information Age, no longer just a pathway to opportunity and success but a prerequisite. There simply aren't as many jobs today that can support a family where only a high school degree is required. And if you don't have that degree, there are even fewer jobs available that can keep you out of poverty (Obama, 2008).

1. Introduction

1. On average, one out of five citizens of OECD countries has not completed upper secondary education and training by the age of 34 (OECD, 2009). Early school leaving may lead individuals to "a weaker position in society and in the labour market" (European Commission, 2009). This has immense consequences not only for these individuals but for the societies they live in.

2. From the point of view of the individual, workers today need at least an upper secondary diploma to be able to compete in the workforce. "[Y]outh who drop out of school have a difficult time securing and maintaining stable employment and, on average, earn far less than high school graduates" (Bradshaw *et al.*, 1999). Furthermore, "[f]rom a developmental perspective, children who leave school early may not be emotionally, socially, or cognitively mature enough to take on adult roles and responsibilities, such as working full time, establishing financial independence, and developing autonomy from the family" (Arnett, 2000 in Bradshaw *et al.*, 2008). As noted by Nield *et al.* (2007) for the case of the United States, "[w]hat makes current graduation rates alarming is a reality of the new US economy: it is practically impossible for individuals lacking a high school diploma to earn a living or participate meaningfully in civic life". Compulsory schooling is in most countries limited to lower secondary, however today this is no longer a viable option. The European Commission's recent report on progress towards the achievement of the Lisbon objectives states that reducing the number of early school leavers from upper secondary education and training is one of the EU's main targets in the field of education as it is "considered a crucial achievement in order to enhance economic growth and social cohesion" (European Commission, 2009).

3. In fact, young people who do not complete upper secondary education and training have been proven to be much more likely than those who graduate "to be unemployed, living in poverty, receiving public assistance, in prison, on death row, unhealthy, divorced and ultimately single parents with children who drop out of high school themselves" (Bridgeland *et al.*, 2006). Early school leaving has severe consequences for society as well, following a simple economic argument, as society experiences a loss of productive workers, the earnings and tax revenues they would have generated, and "the higher costs associated with increased incarceration, health care and social services" (Bridgeland *et al*, 2006).

4. Preventing early school leaving is costly as it involves the entire education system as well as policy areas outside of the education system. However, the struggle for completion is one that can be won and the benefits largely outweigh the costs. Levin (2009) shows that for each additional upper secondary graduate, total lifetime public savings connected to this graduate amount to USD 209 000 based on estimated extra tax revenues, health-, crime-, and welfare savings. In comparison the cost of delivering successful preventive programmes (which aim to raise graduation rates) he finds to vary between USD 59 000 and USD 143 600. Implementing the median intervention would entail benefits that are 2.55 greater than the costs showing that there are clear economic benefits connected to raising the educational attainment level (Levin, 2009).

5. In order to provide support to policymakers in finding solutions to the dropout challenge, this paper attempts to find what characterises the preventive measures that have been successful in overcoming early school leaving. Firstly, the review examines definitions and scale of early school leaving. Secondly, the literature covering the causes of dropout is reviewed in a comparative perspective by going through individual or social factors, school factors and finally structural factors. Thirdly, the paper studies the research covering the analysis of preventive measures to avoid early school leaving and details solutions by the educational level at which the intervention occurs. In conclusion, it becomes apparent that what characterises the successful measures as opposed to the unsuccessful ones is that they involve multi-faceted interventions within school, outside school as well as at a systemic level. Thus overcoming the

dropout challenge requires ensuring a close connection between educational, social, and employment services at both national and local level. Implementing broader and less costly measures in pre-primary and primary and the early identification of at risk behaviour ensures that the more costly measures are reserved for fewer students at later stages of the education system.

2. Defining early school leaving

6. Dropout from upper secondary is widely used to refer to the phenomenon of youth not completing upper secondary education and training. Though this may seem self evident, in practice comparing dropout rates across OECD countries is hard, as countries operate with very different definitions. In a new report commissioned by the Nordic Council of Ministers, Markussen (2010) describes how different the definitions of dropout can be even amongst seemingly similar Nordic neighbouring countries.

7. Iceland defines dropout as the proportion of an age cohort that at a certain age is not in education, has not completed upper secondary, or has completed but failed to obtain a certificate. The Swedish definition presented in the report is somewhat similar to the Icelandic as the researchers focus on those who have not obtained their final upper secondary certificate. These definitions contrast with the Norwegian one which does not consider completion without the successful attainment of a certificate as dropout. In Norway, dropout includes those persons who a certain number of years after completing lower secondary, have completed less than three years of upper secondary and who are not enrolled in an upper secondary programme. The official Danish definition of dropout is twofold, the first one being somewhat similar to the Norwegian one. They consider persons that have not completed upper secondary 25 years after having left lower secondary as dropouts. On the other hand they also count as dropout all persons interrupting a programme of education and training regardless of whether the person has started another programme. Finnish research stands apart from the other Nordic research in that it doesn't define dropout at all but chooses to study those neither in education, employment nor training: NEET, which is also the term preferred by the UK (see for example Department for Children, Schools and Families: www.dcsf.gov.uk).

8. What about completion? In the Nordic report, Markussen (2010) sustains that what the five Nordic countries seem to agree on is the graduation rate. However this rate calculating is also challenging. Even within a single country, it can be difficult to find comparable data. Within the United States for instance, different school districts operate with different ways of calculating. In January 2009, an initiative was launched by the Norwegian government to gather data on upper secondary completion rates among OECD countries. The results are summarised in a background paper to the OECD Informal Ministerial on Equity in Education in 2009 (Norwegian Ministry of Education and Research, 2009). This work showed that dropout data from OECD countries was difficult to compare. For instance, countries differed in their choices on whether or not to include upper secondary programmes of different length (certain countries liken the completion of a two-year VET-programme to upper secondary completion). Another challenge is that enrolment is measured at different points in time.

9. The *OECD Education at a Glance 2009* and the *OECD Handbook of comparable statistics* utilise the following definition for completion rates: "Completion rates are defined as the proportion of new entrants to the specified level of education who successfully complete a first qualification. It is calculated as the ratio of the number of students who are awarded an initial degree to the number of entrants to the level 'n' years before, where 'n' is the number of years of full-time study required to complete the degree" (OECD, 2010c). This definition however does not include students who complete upper secondary later on, the inclusion of which provides a completely different picture of the situation for countries with extensive recuperative measures. Thus, the OECD INES Working Party has agreed to include the following new indicator on upper secondary completion to the next *Education at a Glance*. The new indicator will

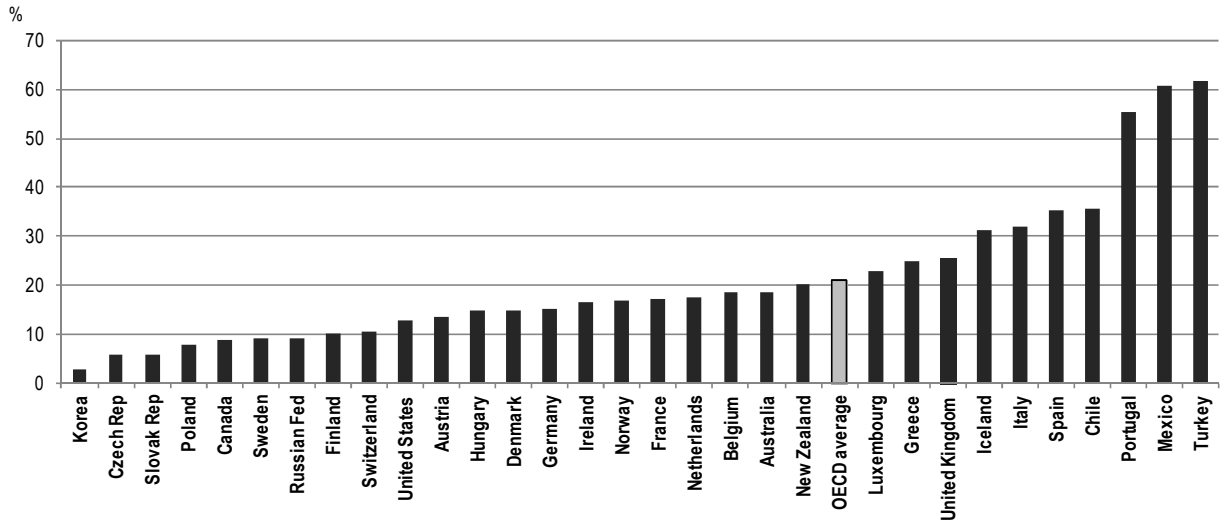
consider ISCED 3 programmes of a duration of 3 years and over, a time spell of 'n+2' to measure efficiency and 'n+10' to measure output (OECD, 2010c). This work will help to supply real comparable data in the future.

10. For the purposes of this paper, 'dropout' and 'early school leaving' will be used interchangeably in reference to non-completion of upper secondary education and training (ISCED 3), regardless of whether the education is compulsory or non-compulsory in the country studied. As this paper deals solely with preventive measures and not recuperative measures, the group referred to as 'dropouts' or 'early school leavers' will include young people who in the course of what each country defines as standard educational progression do not complete their upper secondary education and training, ISCED 3.

11. Figure 1 shows dropout rates across OECD countries using a similar definition to that of Sweden and Iceland described above and provides a picture of the extent of the challenge. Even though rates of non-completion vary greatly between 3% in Korea to 62% in Turkey, most OECD countries are far from achieving the EU Lisbon objective of less than 10% early school leavers.

Figure 1. How many students did not complete upper secondary? (2007)

Proportion of 25-34-year-olds who do not have at least upper secondary education and training

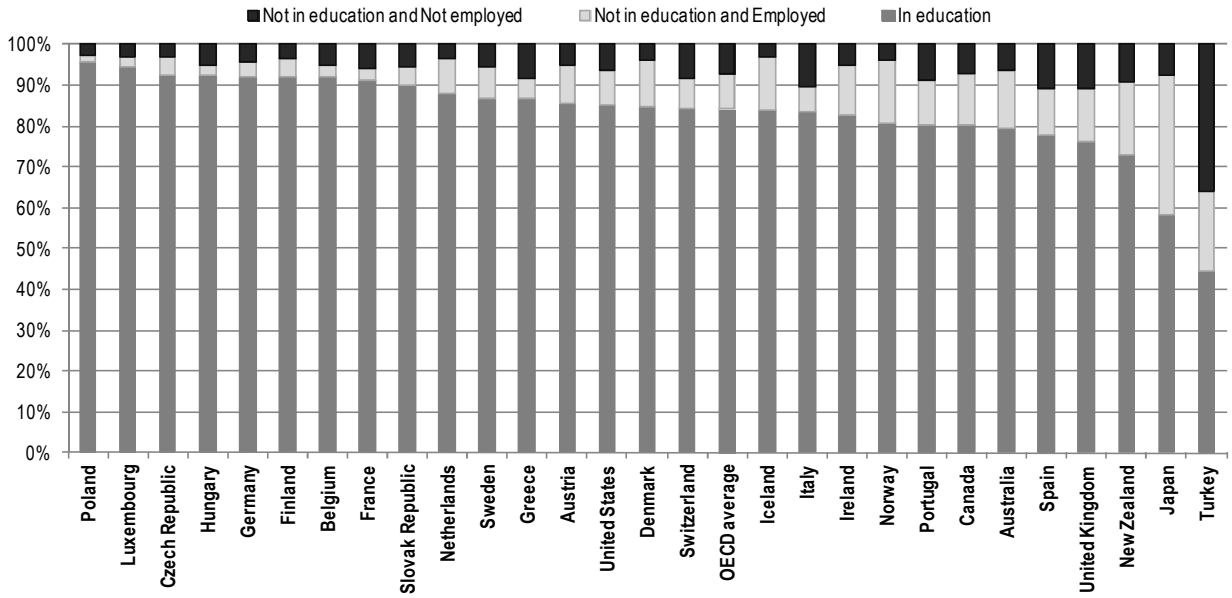


Source: OECD (2009), *Education at a Glance 2009: OECD Indicators*, OECD, Paris

12. The Not in Education not in Employment (NEET) definition is much wider than dropout definitions as it does not consider the non-completion aspect. Those who have completed an upper secondary education but are unemployed would be included in this definition. Conversely, someone who has interrupted upper secondary but is employed would not be counted. Figure 2 illustrates all of these aspects for 15-19-year-olds and shows that the picture is rather different among OECD countries. In some countries, such as Belgium, the United Kingdom or Spain, the NEET youth represent half or more of the youth not in education whereas in most of the Nordic countries most of the youth not in education are in employment with a comparatively smaller proportion of NEET.

Figure 2. What are 15-19-year-olds doing? (2007)

Percentage of 15-19-year-olds that are in education, employed, or not in employment, education or training (NEET)

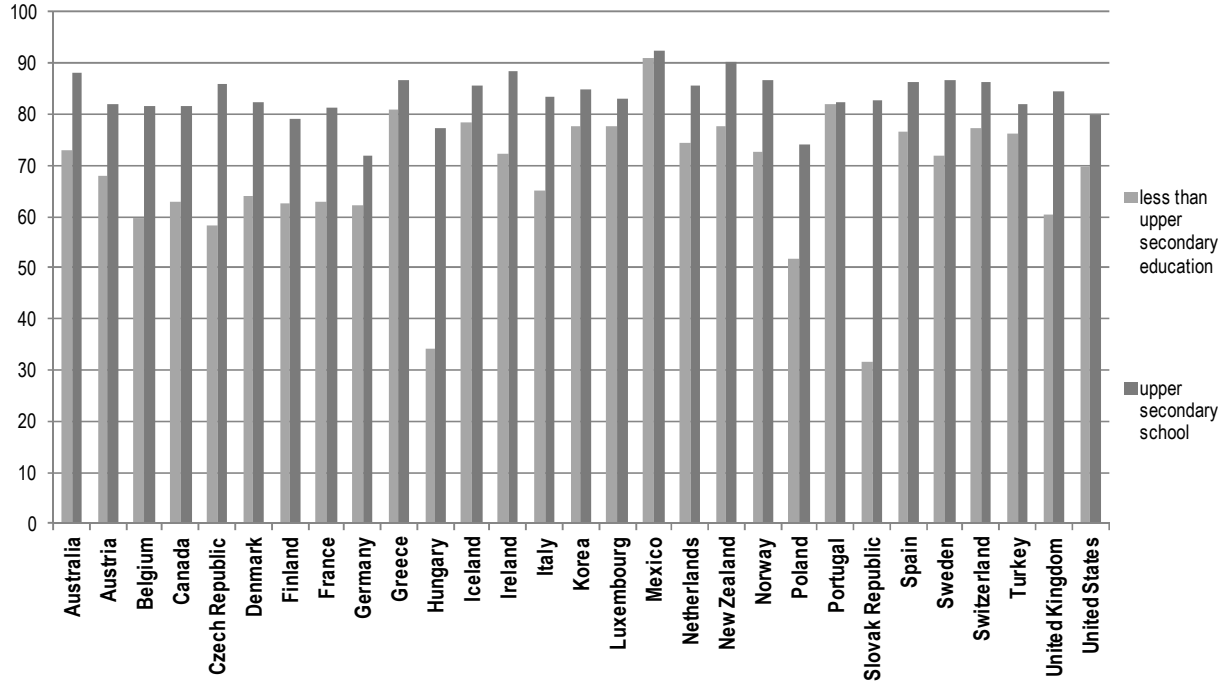


Source: OECD (2009), *Education at a Glance 2009: OECD Indicators*, OECD, Paris

13. For policymakers judging economic costs for society an employed person is perhaps not perceived as a problem. However the picture may alter over time. Figure 3 illustrates the differences in employment rates according to the highest level of education achieved. The figure shows that there is a clear link between early school leaving and unemployment and that there is a great deal of variation between countries. In Belgium, for instance, 40.2% of persons without a completed upper secondary education and training degree are unemployed whereas possessing an upper secondary degree halves the unemployment rate (18.3%). In other countries, such as Portugal and Mexico, the difference in employment rates are much less marked, suggesting that unqualified labour is to a much greater extent employed. Thus, in these countries, completing upper secondary could be less motivated by labour market outcomes as is perhaps shown by the very high level of dropout in both countries.

Figure 3. Employment rates by educational attainment (2007)

Proportion of 25-64-year-olds in employment by level of educational attainment

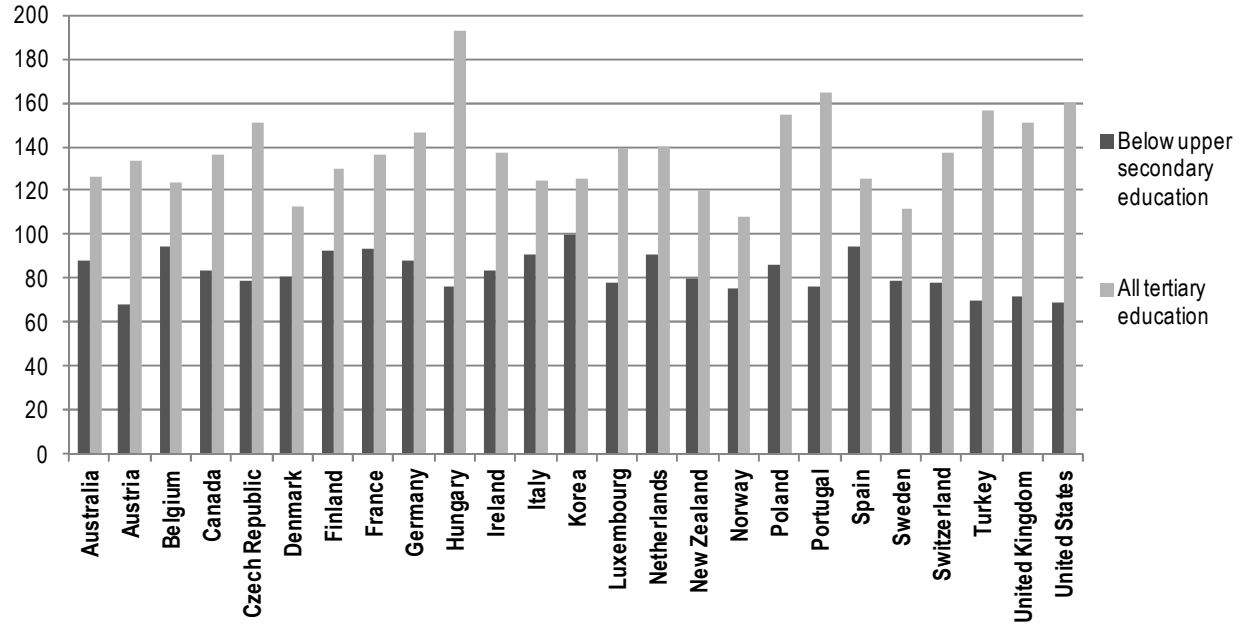


Source: OECD (2009), *Education at a Glance 2009: OECD Indicators*, OECD, Paris

14. Nevertheless, looking at earning differences between those without upper secondary and those with tertiary, there are broad wage-level disparities (Figure 4). Looking again at Portugal shows that even though chances of employment may be similar for those with or without upper secondary education and training, the differences in wages between early school leavers and those with tertiary education are double. Early school leaving thus has great consequences in loss of tax revenues for countries, even those with relatively flat wage structures such as Norway.

Figure 4. What are young people earning?

Relative earnings of 25-34 year-olds according to educational level



Source: OECD (2009), *Education at a Glance 2009: OECD Indicators*, OECD, Paris

15. Defining dropout through its measurement only paints part of the picture, namely dropout as a status or educational outcome. In order to understand why dropout occurs, it is important to see dropout as a cumulative process of disengagement or withdrawal that occurs over time. Balfanz *et al.* (2007) define disengagement as a "higher order factor composed of correlated subfactors measuring different aspects of the process of detaching from school, disconnecting from its norms and expectations, reducing effort and involvement at school and withdrawing from a commitment to school and to school completion". Leaving school represents the final stage of this disengagement (Finn 1989; Newman 1992; Rumberger and Lim, 2008; Lamb *et al.,* 2004; Bradshaw *et al.,* 2008) and warning signs may occurs as early as primary school, thus granting ample time for intervention (Rumberger, 2000 in Beatty *et al*., 2001).

16. Rumberger and Lim (2008) also make the distinction between student mobility, "the act of students making non-promotional school changes" such as changing from one type of program or school to another and dropout. Student mobility, they explain, has been also viewed by much research as a form of disengagement although less severe than dropout. The authors further argue that both dropout and student mobility can be viewed as aspects of persistence which in turn affect educational attainment. The second part of the Danish definition of dropout discussed above, which refers to the interruption of a programme, could in this context be understood as student mobility. Counting student mobility as dropout indeed fits into this logic as it links change to disengagement.

17. According to Neild *et al*. (2007) policymakers and educators view the process of dropping out in two contradictory ways: dropout is predictable through demographic categories and locations, however they claim that the process leading to the student's dropping out is seen as mysterious and difficult to foresee. Neild *et al.* (2007) suggest that contrary to these beliefs, dropout can be prevented by picking up on a certain number of signals that form an early warning system. It is therefore important to understand the reasons behind the gradual disengagement that leads to dropout. This understanding of dropout as a

dynamic process has a great impact on the way solutions may be viewed. In fact, correctly identifying students at risk of dropping out enables the elaboration of targeted and effective preventive measures.

3. Why students drop out

18. There has been extensive research on the factors that lead to dropout and most research indicates that it is never a single factor but a combination of factors (Dowrick and Crespo, 2005). In order to understand these factors, a great number of complex surveys or in depth interviews among students or school staff have been carried out (such as Bridgeland *et al*., 2008; Lamb *et al.,* 2004). The purpose of these has been to determine predictors for dropout or graduation. Worth mentioning is the extensive literature review carried out by Rumberger and Lim (2008) with 389 quantitative studies on causes for dropout carried out in the US. In addition a number of longitudinal studies have been carried other countries such as Norway, the Netherlands and Australia which also help determine the causes of dropout.

19. Although the research tends to choose different categories for classifying dropout causes, researchers largely agree on two broad categories: institutional and individual (see for example Markussen, 2010). In this paper, institutional factors are divided into two separate categories leaving us with the following three factors leading to dropout: individual or social factors, school factors and systemic factors. These three sets of factors, illustrated in Figure 5, will be developed separately.

3.1 Individual or social factors

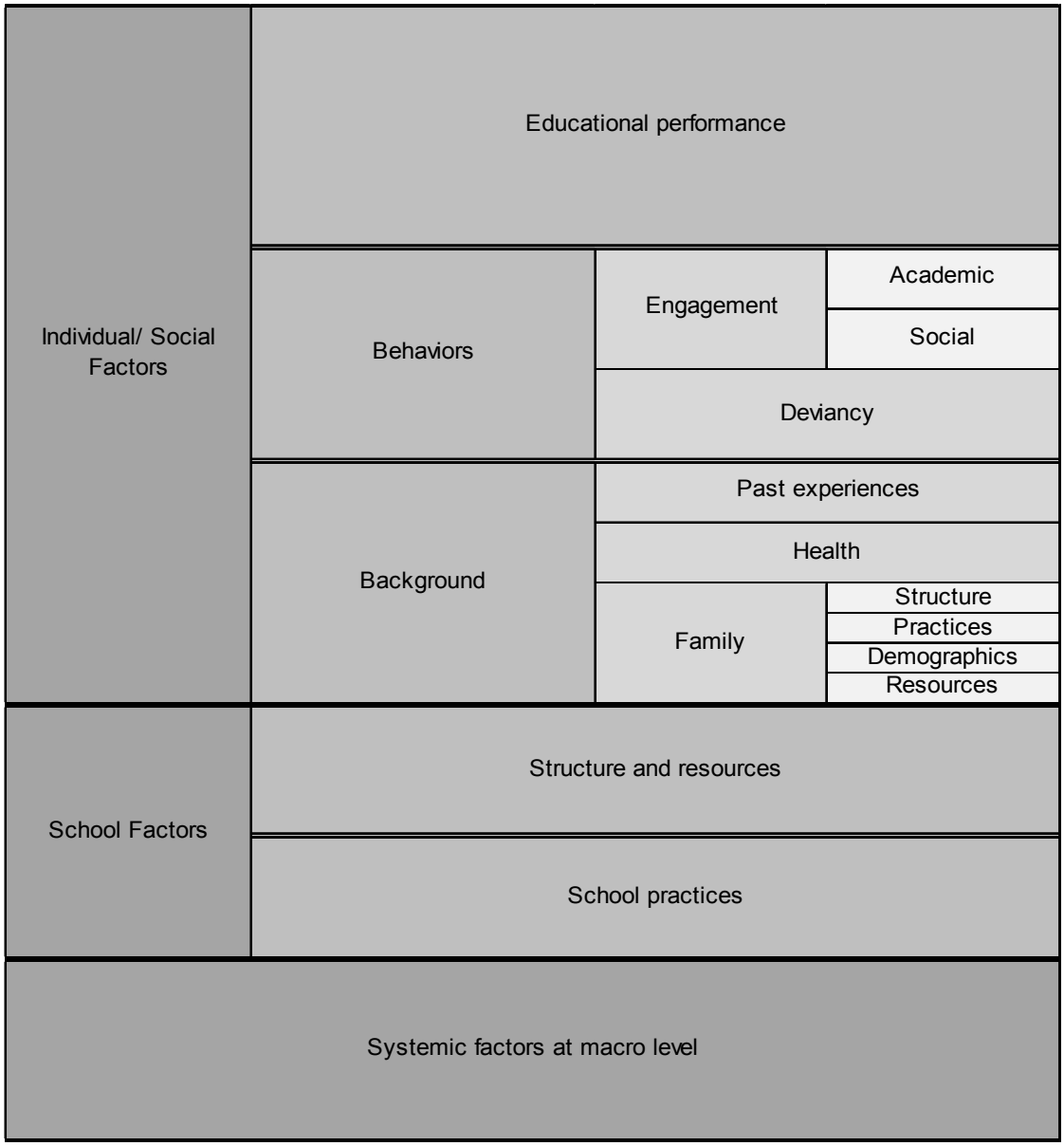
20. Much of the literature concerned with dropout deals with individual or social factors. Rumberger and Lim (2008) use Tinto's (1987) model of institutional departure to order these factors into four domains: educational performance, behaviours, attitudes and social background. The framework suggests a causal ordering of the factors while much of the other literature suggests a less linear relationship, especially as attitudes and behaviours are seen as more reciprocal. As attitudes (measured for instance through educational expectation) appear to have little effect on early school leaving, this factor has been removed from the overview in figure 5. The following paragraphs treat individual and social factors in three parts: educational performance, behaviours and attitudes, and background.

Educational performance

21. Educational performance is seen as the highest predictor for dropout or completion by most of the research (Rumberger and Lim, 2008; Traag and van der Velden, 2008; Markussen, 2010). Rumberger and Lim (2008) identify academic achievement as having an effect on the odds of early school leaving or upper secondary completion, and grades are found to be a more certain predictor than test scores. This is supported by studies conducted in the Nordic countries and the Netherlands. Grades at the end of lower secondary are a solid predictor of dropout but grades from primary school have the absolute highest significance for completion (Byrhagen *et al.*, 2006; Markussen *et al.*, 2008; Markussen, 2010).

22. The correlation between educational performance and dropout from upper secondary shows two processes at work. Firstly, good grades are a measure of solid competencies and students with good grades are better prepared for upper secondary education. Secondly, grades are strongly influenced by social background, gender, minority language, parents' education and connection to labour market and cultural capital. Thus the student's social background has an indirect effect on school completion through educational performance (Markussen, 2010).

Figure 5. Factor types that may lead to dropout



23. Rumberger and Lim (2008) order educational performance into academic achievement, persistence and attainment. Persistence is considered as part of a continuum, *i.e.* students may quit temporarily or permanently, transfer schools voluntarily or involuntarily. Student mobility (the act of transferring schools) during middle and high school increases the chances of dropout and decreases the chances of graduation. Attainment is measured through educational promotion from one grade to another. The literature reviewed by Rumberger and Lim (2008) finds that retention has a negative impact on dropout, which supports the view exposed by the 2007 OECD report on equity in education (Field *et al.*, 2007). Related to retention is the concept of over-age. Most of the studies in Rumberger and Lim's meta-analysis find that older students are more likely to dropout than younger students.

24. Educational performance measured through grades, as was seen above, is a predictor of dropout. However, although the correlation between failure in school and dropout is clear, not all dropouts are poor educational performers. As shown in the next section, student behaviour may be as much a predictor of dropout as of educational performance.

Behaviours and attitudes

25. Behavioural factors leading to dropout can be divided into two main categories: engagement and deviancy. These two factors will be studied in turn before reviewing what the literature says concerning attitudes.

26. Bridgeland *et al.* (2006) conducted a series of studies in 25 different locations in the Unites States on focus groups who identified themselves as dropouts. Only 35% of the respondents identified failing in school as a reason for dropout. However, 69% of the respondents identified lack of motivation as a reason for dropping out.

27. Lack of motivation and not perceiving school in a positive light corresponds to a lack of **engagement**. Naturally, lack of motivation may be due to poor academic performance, but as we can see form the figures described above this argument does not paint a complete picture. A great deal of literature deals with engagement as a precursor to both dropout as well as student achievement and different models of engagement are presented in the psychological literature. Engagement is not easily measured as it represents an inner quality of concentration. It can however be measured from a set of indirect indicators such as the amount of participation in academic work, interest and enthusiasm (Newman *et al.*, 1992). These factors are also connected to the general motivation, belief in competences and sense of social belonging (Osterman, 2000).

28. Typically there are two dimensions of engagement that can be found in the literature: academic and social (Nield *et al.*, 2008). Academic engagement can be seen through the way students follow rules and participate superficially. Efforts to acquire knowledge and master skills show deeper academic engagement. Social engagement is explained by the extent to which students are involved in a positive relationship with teachers and peers.

29. As seen above, more than two thirds of the respondents to the survey signalled that they had no motivation to work hard. Interestingly, they said they would have worked harder if more had been demanded of them and half of the students found classes to be uninteresting. Lack of motivation can easily be measured by absenteeism, and research shows that a high level of absenteeism in lower secondary is very often followed by dropout in upper secondary (Hernes, 2010; Balfanz *et al.*, 2007; MacIver and MacIver, 2009). Lack of motivation is indeed cited in most research as a reason for dropout (Markussen, 2010; Rumberger and Lim, 2008; Traag and van der Velden, 2008) and studies from the many countries among which the UK and Australia (Lamb *et al.*, 2004) show that the decision to leave school is made early.

30. Another type of behaviour which leads to dropout is **deviancy**. Research focuses on factors outside of the educational system such as drug use, alcohol abuse, juvenile delinquency, teenage parenting (Battin-Pearson, 2000; Renna, 2008; Pfeiffer and Cornelissen, 2010). Delinquent youth are more likely to drop out than non-delinquent youth. Rumberger and Lim (2008) find that deviant behaviour at age 14 has an effect on early school leaving by age 16 and upper secondary failure in grade 12. Drug and alcohol use in upper secondary is also correlated to higher dropout rates, but the results are less significant for alcohol use in lower secondary (Rumberger and Lim, 2008). Teenage pregnancy is also related to dropout. About a third of the respondents to Bridgeland *et al.*'s (2006) survey reported becoming a parent as a reason for

dropout. Of course, teenage childbearing in itself causes young teenage women to drop out, but other factors may contribute to both the pregnancy and the dropout.

31. MacIver and MacIver (2009) sum up some of what has been classified as behavioural factors above as "the ABCs of Disengagement": high absenteeism, behavioural problems and course failure. The peer effect is also present, as it is shown that having deviant friends or friends who drop out increases the chances of dropping out (Rumberger and Lim, 2008).

32. Rumberger and Lim (2008) also investigated whether a student's **attitudes** has a correlation to dropout by looking at goals and self-perception. Goals are measured by educational expectations, or more simply put, how far the student expects to get in school. 33 out of the 41 analyses they study found that higher educational expectations were associated with lower dropout rates at upper secondary level. However at lower secondary level, the correlation was less obvious as only half of the studies covering this level found a similar relationship. Self-perception was measured through a different set of constructs such as self-concept (a person's conception of his or herself for instance linked to reading) or locus of control (the feeling of control over ones destiny). However, few studies have found a direct link between these constructs and dropout.

33. In sum, a low level of academic and social engagement, as well as deviant behaviour is highly linked to dropout. In addition to these factors having an impact on each other, the student's social background may have a strong influence on the emergence these behavioural factors as will be seen in the next section.

Individual and social background

34. The final domain within individual or social factors is related to a student's background. Student background factors can be divided into three categories: past experiences, health and family.

35. Starting with **past experiences**, Rumberger and Lim (2008) find that participation in preschool improves readiness and early school success. It also has an impact on upper secondary completion and leads to less reliance on welfare and less criminal activity, which are related to dropout, as seen above. Longitudinal analyses since 1986 have found that students who participated in preschool had graduation rates of 10% or higher than non participants, even after controlling for an index of family risk factors, race, ethnicity and gender.

36. Several studies have also found that bad **health** is also correlated to higher dropout rates (Rumberger and Lim, 2008). Having a learning disability also highly affects the dropout rate (Markussen, 2010; Rumberger and Lim, 2008). However the largest evidence is found for factors relating to the family. Family socialisation theory posits that student academic achievement in the classroom is affected by their home environment (Battin-Pearson *et al.*, 2000). Following a somewhat altered version of Rumberger and Lim's (2008) structuring of factors, these have been ordered into four categories: family structure, family practices, family demographics and family resources.

37. Regarding **family structure**, the empirical evidence displays a number of interesting facts about correlations between family size and dropout. First of all, students living with both parents have lower dropout rates and higher rates of graduation than those living under other family arrangements (Rumberger and Lim, 2008). This of course is also related to the lower income, and lower parental supervision that can be awarded in a single parent household. There is also a higher likelihood of mobility in single parent homes, and as we have seen above, mobility is also often correlated to dropout. These US findings are also corroborated by studies carried out in the Netherlands and Australia, where children from single parent families with four or more children have a higher risk of dropping out. However, chances of dropout in

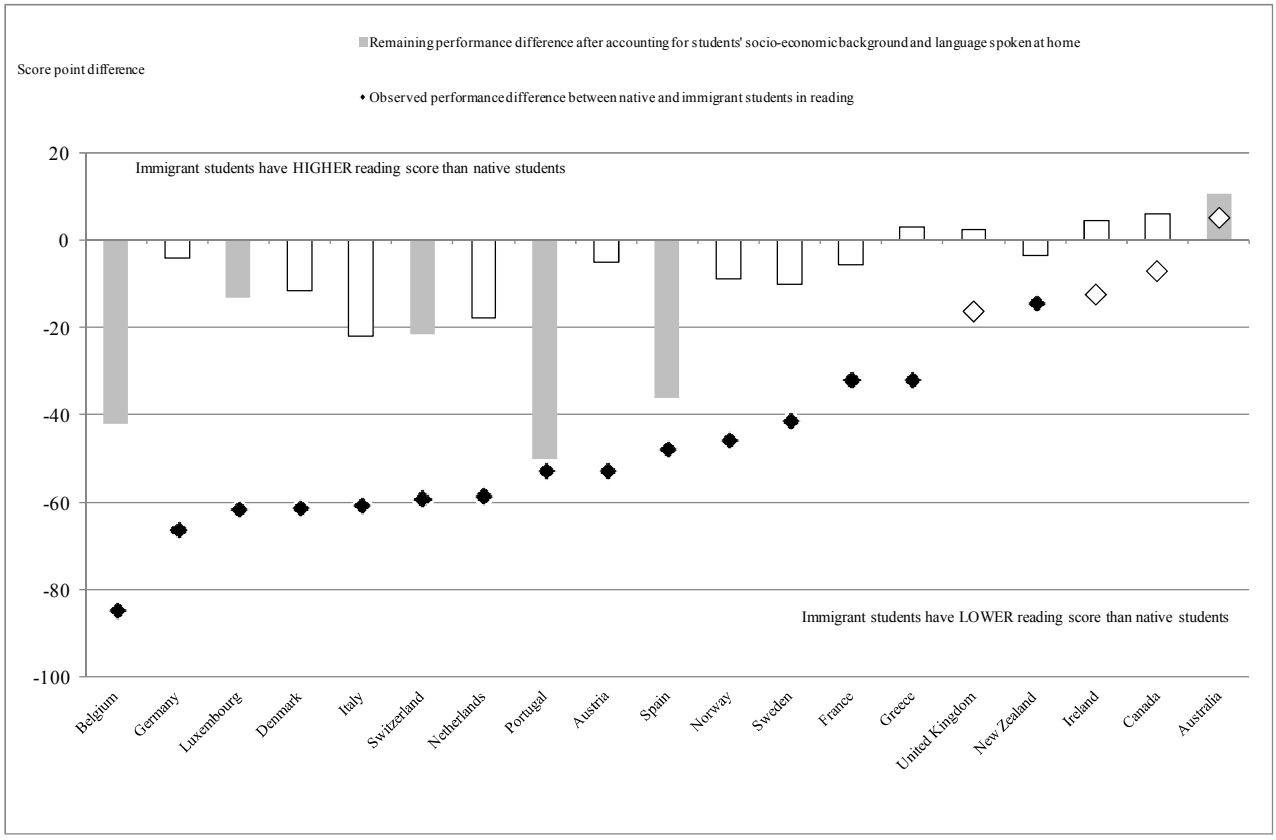
lower secondary also increase in families with an only child, while the same factor does not affect upper secondary completion however (Traag and van der Velden, 2008).

38. A number of studies have examined **family practices**. By this we mean for instance low proactive parental activity. 59% of the early school leavers in Bridgeland *et al.*'s (2006) survey reported that their parents were involved mostly for disciplinary reasons and 68% reported that their parents became involved in their education only when their children were about to drop out from upper secondary, hence with little effect. Thus parents' expectations are important as posited by human capital theory (Haveman and Wolfe, 1994 in Lamb *et al.*, 2004). Parents who are more involved in school activities, as reported by the teacher in grades 1-6 increased the odds of completion for their children (Rumberger and Lim, 2008). Also the dropout of a sibling increases the odds of dropout for the other children in the family through the peer effect. Conversely, parent's increased monitoring of their children through for instance enforcing a curfew, limitations on television viewing or other, has been proven to have no effect on the dropout rate (Rumberger and Lim, 2008).

39. The third category related to family and background can be labelled as **family demographics**. Indeed much research has studied the impact of demographic factors such as gender, ethnicity, being a member of a minority on dropout. In most countries being a boy has an effect on the dropout odds. In the Netherlands, being a boy makes it seven times more likely to drop out before having completed lower secondary than being a girl, however in upper secondary there is no difference (Traag and van der Velden, 2008). Studying this issue in a bit more detail, one finds that in Denmark, boys tend to dropout of typical female gendered fields and girls tend to dropout of typically male gendered fields (Markussen, 2010). When controlled for background characteristics female dropout remains lower than men's but when controlling for attitudes behaviour and performance, male dropout rates become lower than females (Rumberger and Lim, 2008). Nevertheless, if certain behavioural patterns are typically assumed by boys, it becomes interesting to target this particular type of behaviour in certain policy initiatives.

40. Being a member of a minority also has a significant effect on the dropout rate as shown by the study carried out by the Nordic Council of Ministers (Markussen, 2010). In Australia, the indigenous population has a markedly lower completion rate than non-indigenous population (Lamb *et al*., 2004). In the US the dropout rate is higher for African Americans, Hispanics and Native Americans, but the results depend on what factors the multivariate studies include. Difference regarding ethnicity and race can often be explained by other factors such as family background or educational performance (Rumberger and Lim, 2008). In Denmark, children of migrant families with similar family situation to Danes have a significantly lower dropout rate (Colding *et al.*, 2009). In the Netherlands, ethnic minorities are not more likely to dropout when controlling for individual-, family- and schools characteristics. In fact students from ethnic minorities are 18% less at risk of leaving school after graduating from lower secondary (Traag and van der Velden, 2008). Indeed performance gaps between immigrant and native students are largely explained by language barriers and socio-economic differences as shown by Figure 6 below (OECD, 2010c).

Figure 6. Effects of socio-economic status and language on student performance



Source: OECD (2010), *Closing the Gap for Immigrant Students*, OECD, Paris.

41. The final category related to family is **family resources**. It is here we find the most research and also the most interesting results. Looking back at the high correlation between absenteeism and dropout, when controlled for grades and parent's education the correlation becomes less evident (Markussen *et al.*, 2008). In fact, broken attendance and early school leaving is common where there is poverty, instability and ill health (Lamb *et al.*, 2004). Thus the socio-economic background is important for the odds of graduation.

42. In Norway and Iceland, studies show that parents with low education and a negative attitude towards education adversely affect the dropout odds for their children (Markussen, 2010). Research in Finland and in the United States has shown that there is a link between the socio-economic background and the graduation rate. Socio-economic status (SES) is the most widely used composite index "based on several measures of financial and human resources such as both parents' occupational status, and family income" (Rumberger and Lim, 2008). Swedish research shows that students with parents that have higher education level are more prone to complete upper secondary (Swedish National Agency for Education, 2008). In the Netherlands each additional year of parental education decreases the risk of dropping out by 7% (Traag and van der Velden, 2008). Teese and Polesel (in Lamb *et al.*, 2004) explain that "working class children are often vulnerable to early leaving because they find it difficult to establish a positive relationship with the academic curriculum" as it is assumed in school that reading skills will be rehearsed. Thus SES has an impact on academic engagement. In this case, the cause calls for a structural answer.

43. These findings clearly appear in PISA data. Although PISA shows that poor performance in school does not automatically follow from a disadvantaged socio-economic background, socio-economic

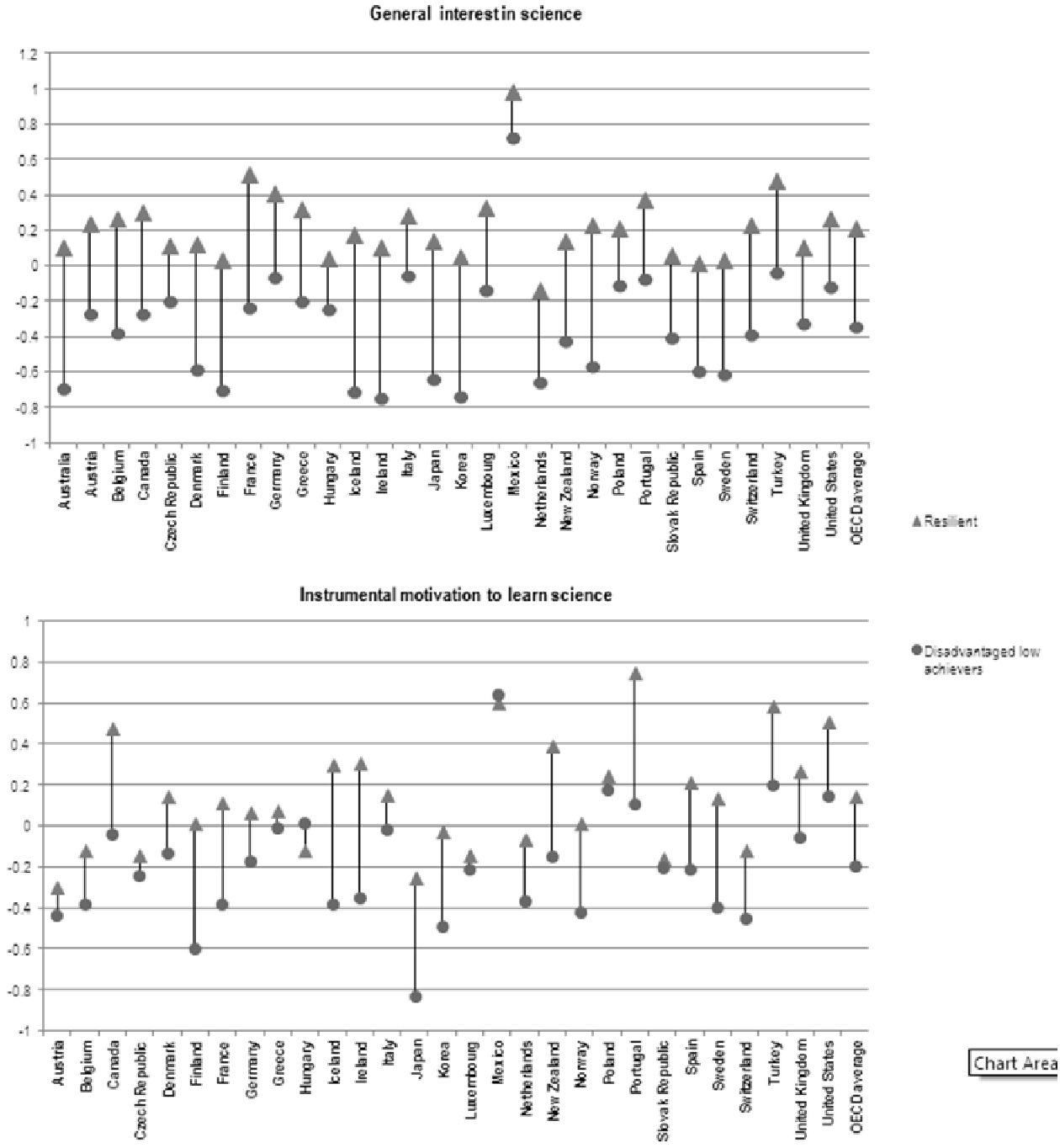
background does appear to be a powerful influence on performance. Students from more advantaged socio-economic backgrounds generally perform better. Across OECD countries, an increase in level of socio-economic background (by one standard deviation) is linked to better scores in science by 40 points. In fact, on average across OECD countries 14.4% of the variations in student performance in science is linked to the PISA index of economic, social and cultural status, and the figure is considerably higher in Luxembourg, Hungary, France, Belgium, the Slovak Republic, the United States and New Zealand (OECD 2007).

44. Perhaps not surprisingly, having parents that are homeless (UK, US, Australia) or unemployed (Finland) enhances the risk of dropout (Lamb *et al.*, 2004, Markussen, 2010). Dutch research shows that children of self-employed parents have the lesser risk of dropping out (Traag and van der Velden, 2008). Parents of higher means also tend to participate more in cultural activities, again this is linked to lower dropout rates (Traag and van der Velden, 2008). Studies in the UK, US and Australia demonstrate that poor families where there is violence and sexual abuse produce more early school leavers (Lamb *et al*., 2004).

45. 22% of the identified early school leavers from Bridgeland *et al.*'s (2006) study in the US said they dropped out because they had to care for a family member and approximately one third said they left because they had to get a job. Lamb *et al.* (2004) find that in the UK, US, and Australia, the wish to get a job and to earn money is indeed a major reason for leaving school early. However the wish for a job comes first and the wish to leave school comes second. In the US, studies illustrate that employment in itself may not necessarily have a negative impact on completion as it varies according to race, gender and type of job held (Rumberger and Lim, 2008). Employment alongside school is also not necessarily a measure of social need.

46. However, many students from disadvantaged backgrounds succeed despite their adversity. PISA shows that what characterises these resilient students is that they exhibit positive attitudes towards school, and are motivated and more self-confident (OECD, *forthcoming*). In fact, around 60% of resilient students in OECD countries report being interested in chemistry, astronomy and physics, while less than 40% of disadvantaged low achievers show similar levels of interest (OECD, *forthcoming*). Figure 7 shows the differences in motivation to learn science based on two PISA indicators: the index of general interest in science (an indicator of students' internal motivation) and the index of instrumental motivation which captures students' views of the importance of science for future academic and professional pursuits and constitutes external motivation. As illustrated by the figure, differences across resilient and disadvantaged low achievers regarding motivation are especially pronounced in Australia, Denmark, Iceland, Ireland, Japan, Korea, Norway, Sweden and Spain.

Figure 7. Internal and external motivation to learn science



Source: OECD (forthcoming), *Against the Odds*, OECD, Paris.

47. Thus schools have an important role in promoting resilience by developing activities, classroom practices and modes of instruction that foster disadvantaged student motivation and confidence in their abilities (OECD, *forthcoming*).

48. In sum, family structure, practices, demographics and resources may all have an impact on the decision to leave school early. Coming from a broken home, having many siblings is related not only to

higher rates of mobility, but could also influence family practices, as single parents or parents dividing their attention among many children may not have the opportunity to direct high levels of proactive parental activity towards their children. Family resources measured through SES also have an important impact on dropout, as less educated families may also have lower educational expectations for their children. Being a member of a minority in many countries also heightens the risk of early school leaving, but often the underlying causes for this correlation lie with the low socio-economic status rather than any other cultural factor that could be implied.

Summing up

49. A great number of individual or social factors can be seen as linked to dropout from upper secondary education and training. Educational performance measured through low grades is highly correlated, but is not necessarily due to low academic ability. Some students lack engagement in school both in academic matters, which could be due to boredom as well as lack of social connection to school which can be measured through absenteeism. This lack of engagement may be the cause or the result of deviant behaviour, also correlated to dropout, but may also stem from the student's individual or social background. Not having participated in early childhood education and care, having bad health has a large impact on a student's academic progression. A student's family background is furthermore very important. Coming from a broken home, having many siblings can limit parental attention. Low SES is also linked to dropout. SES also has an impact on family practices, which in themselves influence the decision to leave school early.

3.2 School factors

50. "Although student and family characteristics can explain most of the variability in student achievement, about 20 percent of the variability in student outcomes can be attributed to the characteristics of the schools that students attend" (Rumberger and Lim, 2008). Factors related to schools can be ordered into two main categories: school structure and resources, and school practices.

School structure and resources

51. Some research has studied how the ways in which schools are structured affect the rate of early school leaving. One aspect that was studied is whether the schools are public or private. Findings suggest that dropout is generally higher in public than in private schools (MacIver and MacIver, 2009). There are three main explanations for this. Firstly, there is usually a higher socio-economic status or SES in private schools, and PISA data shows that there is a clear advantage in attending schools where students come from more advantaged socio-economic backgrounds. Students attending these schools tend to perform better regardless of their own socio-economic background. In fact, in most OECD countries the effect of the average socio-economic status of students in a particular school largely outweighs the effects of the individual student's SES (OECD 2007).

52. Secondly, students that leave private schools typically move to public schools rather than dropping out of the education system, thus affecting the dropout rate (Rumberger and Lim, 2008). In addition, private schools often have more extensive extra-curricular activities, more clearly articulated and controlled policies on discipline and order (Teese, 1989 in Lamb *et al.*, 2004) and what Lamb *et al*. (2006) call a more formal system of pastoral care. In fact schools that provide support to students in issues such as relations to other students or teachers have a lower dropout rate than those who do not (Markussen, 2008). Rumberger and Lim (2008) found that mean SES, the proportion of at risk students, the proportion of ethnic or linguistic minorities, and the proportion of students who changed schools or residences as well as the proportion of students from non-traditional families was correlated to dropout rates. Traag and van der Velden (2008) support this claim, as student composition in the Netherlands seems to have an effect on

early school leaving. In the Netherlands, decreasing the share of minority students in a school by 10% leads to a 13% lesser risk of dropout. However, after controlling for resources and school practices, Rumberger and Lim (2008) found that the composition variables became insignificant showing that school practices can have a positive effect on countering the negative effects of student composition.

53. Researchers have also studied whether the size of a school has an impact on early school leaving, with mixed results. The location of the school, whether in an urban or suburban area does not seem to have a significant effect (Rumberger and Lim, 2008).

54. It is often assumed that providing more resources to schools will enable them to achieve a higher success rate. Intuitively, it seems natural to assume that lowering the student-teacher ratio will have a positive effect on completion. However, studies show that there is no correlation between class size and early school leaving in upper secondary, although reducing the size of primary school classes does seem to have a positive effect on the outcome (Rumberger and Lim, 2008). Only a few studies have found a correlation between increased resources alone and dropout rates. This aspect is studied more in detail further down in this paper as are examined different measures that have been set-up at school level to reduce dropout.

School practices

55. School practices on the other hand have an effect on raising the completion rates among at risk students. As was discussed earlier, dropout can be seen as the ultimate consequence of a longer process of disengagement. Engagement is not easily measured as it represents an inner quality of concentration. It can however be measured from a set of indirect indicators such as the amount of participation in academic work, interest and enthusiasm (Newman *et al.*, 1992). These factors are also connected to the general motivation, belief in competences and sense of social belonging (Osterman 2000). Nield *et al.* (2008) claim that the extent of student disengagement can partly be explained by organisational or structural characteristics of the school. A highly bureaucratic and hierarchical environment where roles are highly differentiated can create a depersonalised environment where students falling behind may not be recognised.

56. The student's relationship with teachers is important and a school that opens for a positive student-teacher relationship reduces the dropout rate (Rumberger and Lim, 2008). This positive relationship disappears after controlling for the student's participation in classroom and in school activities (Rumberger and Lim, 2008), though one explanation might be that positive relationship and student participation are correlated. In fact a positive climate in general has a positive effect on completion. Schools where students report feeling unsafe, generally have higher dropout rates (Rumberger and Lim, 2008). Rumberger and Lim (2008) note further that school effects are more important for students attending low-SES schools than schools in general.

57. Summing up, school structures as opposed to school resources do have an impact on dropout. Whether a school is large or small, the student composition, or being public or private is linked to the dropout rate. The fact that private schools have lower dropout rates may however better be explained by the school practices these institutions espouse rather than the structural nature of the establishment. A strong positive relationship with one or several teachers seems to lower the rates of early school leaving.

3.3 Systemic factors

58. The final part of the section dealing with causes looks at systemic factors that influence the rates of early school leaving. A number of structural factors related to the education system as a whole have also been shown to have an effect on upper secondary completion rates. A consistent finding is that repeating a

year is correlated with higher dropout rates (Field *et al.*, 2007, Rumberger and Lim, 2008). In fact, 32% within a group of identified dropouts mentioned having to repeat a year as a reason for choosing to leave school (Bridgeland *et al.,* 2006). A related finding is that older students are also more likely to dropout out than younger students (Rumberger and Lim, 2008). The age difference may in fact be related to retention.

59. Although lack of engagement is linked to dropout, Rumberger and Lim (2008) find that schools with more course requirements have lower dropout rates, suggesting that systems that demand more of the students will have a higher completion rate. However students often complain of too much theoretical subjects and too much complicated vocational theory within vocational education and training. Thus it seems that it is important to stimulate students and demand more of them while being weary of the types of requirements that are set. Requiring an upper secondary exit exam for instance has mixed results in terms of completion (Rumberger and Lim, 2008).

60. Another major reason for dropout reported among countries espousing an apprenticeship system, within upper secondary education and training such as Denmark and Norway is simply lack of apprenticeship places (Markussen, 2010). In Norway, where the two final years of VET are to be spent in apprenticeship placement, lack of available apprenticeship places leaves the student with the option of spending a third year in school. This option is not particularly popular especially with many of these students who may have chosen this particular path because of its link to the labour market and they lack motivation for what is perceived as typical school work (Kuczera *et al.*, 2008).

3.4 Conclusion

61. As we have seen from the research reviewed above, causes for early school leaving are highly complex and very much interrelated. From an individual or social point of view, educational performance, such as low grades, and certain types of student behaviours, such as absenteeism, lack of motivation, or delinquent behaviour are solid predictors of dropout. These factors are also very connected to the student's background, be it past experiences in education (*e.g.* whether participation in pre-primary education), or family background (*e.g.* living with one or two parents, family SES, and parental engagement). School structure and size as well as certain school practices (*e.g.* a highly bureaucratic and impersonal environment) influence the process of disengagement. In combination with a set of systemic factors, such as the use of year repetition or the lack of apprenticeship places in apprenticeship systems, all the above mentioned factors have an impact on the dropout rate as well as an impact on each other. In light of this, the following section argues that preventive measures must address not only the direct visible cause of dropout but the underlying causes that influence the cumulative process of student disengagement that ultimately leads to the decision to leave education or training.

4. Preventive measures

> Improving the nation's high schools, particularly those that are low-performing, is a task whose challenges are much easier to catalogue than to surmount (Fleischmann and Heppen, 2009).

4.1 Introduction

62. As we have seen above dropout should be viewed as the culmination of a gradual process of disengagement that may begin as early on as in pre-primary. The underlying causes of this disengagement are many and it is impossible to distinguish one cause as the major one to address. Dropout is in fact mainly caused by several factors working together simultaneously. These can be individual/social, related to the school itself at a micro level or to the structure of the educational system at a macro level. Thus addressing these causes becomes rather delicate as they are also very much inter-related.

63. The next part of this paper attempts to identify the measures that have been proven to work and to classify them in order to understand how early school leaving best can be overcome. First, the methodology of the paper is set out, secondly the general findings are presented, and thirdly the measures are detailed according to the school level to which they relate from pre-primary through upper secondary education and training.

4.2 Methodology

64. The results of this paper stem from a numerous literature searches performed on diverse search engines within educational politics and educational economics journals and published books with different combinations of the terms 'dropout', 'early school leaver', 'completion', 'policy' and 'measure'. The publication within international journals ensures the rigour and quality of the research done. In addition some broader meta-analyses have been included when these proved to be rigorous in their selection of research and data. Due to language constraints the searches were performed in English, French and Scandinavian languages.

65. Most of the international research carried out on early school leaving looks at the causes and the process of disengagement that leads to dropout. Very often researchers within educational politics set out examples of measures that have been carried out or suggest useful policy implementation guidelines, However it is seldom that these measures then have been tested rigorously. Several government papers as well as European Union reports very usefully list policies that have been implemented (see for instance European Commission, 2009), however no distinction is made between the different programmes that have been implemented and their direct consequence on the completion rates. It is necessary to use econometric analyses and research that identify the measures that make a difference and the ones that do not.

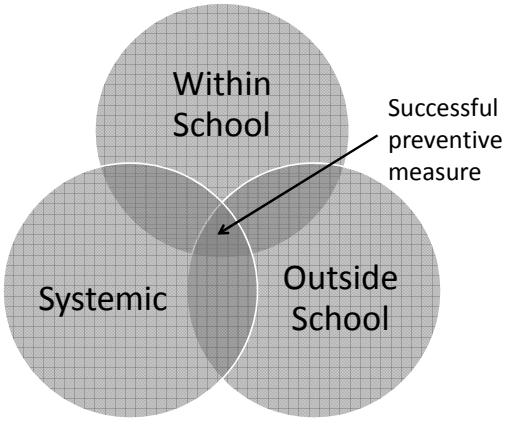
66. Thus, a total of 68 tested policy measures were chosen from the literature. Although most of these measures were found in the United States, it was possible to find some measures from a non-exhaustive set of OECD (and non-OCED) countries, notably Australia, Canada, Denmark, France, Finland, Germany, Iceland, Italy, the Netherlands, Norway, Sweden, Switzerland and the UK. Most of the literature on dropout found from other countries than the United States mainly covered causes of dropout within the country or set of countries and suggested solutions, but these were rarely tested. Nevertheless, as most of the causes for dropout seem to be rather similar across countries, it seems reasonable to infer that solutions akin to those found in the American research could be implemented elsewhere, when adapted to context.

67. The 68 measures were then classified in order to see which of the dropout causes or risk factors (Hammond *et al.*, 2007) identified earlier in this paper they intended to overcome. Most of the measures found targeted individual or social risk factors, but several targeted systemic risk factors either at micro (related to school) or at macro level (related to the structure of the educational system).

68. A clear difference was found according to which group of risk factors the measures targeted. Measures that targeted systemic risk factors were easily classified on a one-to-one risk-measure relationship. However the sorting the measures aiming at the prevention of individual or social risk factors proved less obvious as several of the measures were intended at defeating not one but several factors simultaneously.

69. Measures were then classified according to where their approaches were implemented: within a particular school (both curricular and other activities set in the environment of the regular school day), outside of school (extra-curricular activities carried out on schools grounds or elsewhere as well as activities external to the educational system), and purely systemic changes at a macro level. Naturally most of the inside- or outside-school activities will at some level be systemic depending on the governance of a country, however the distinction remains important as some measures are purely systemic or structural and do not involve a specific activity either within or outside of school. Figure 8 illustrates the different types of preventive interventions found.

Figure 8. Preventive measures



4.3 Main findings

Success rests on addressing several implementation levels simultaneously

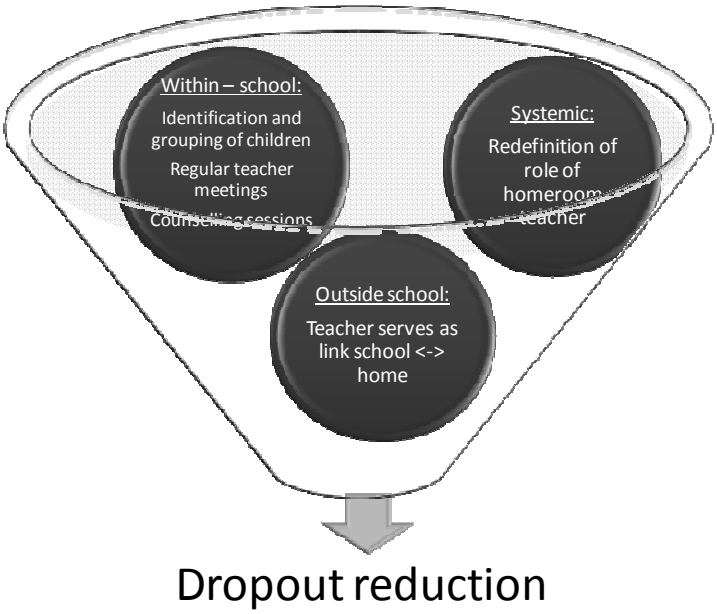
70. Interestingly, the great majority of successful measures fitted all three categories simultaneously. In other words the most successful measures combined components within school, outside school at a systemic macro level. An example of such a measure is the US School Transitional Environment Program (STEP) which targets children who are transitioning from primary to large lower secondary schools. As was seen above mobility may lead to dropout. Changing schools creates a set of adaptational demands in coping with the flux and complexity of a new school setting and the failure to cope with these changes can lead to the development of problem behaviour and academic struggles (Felner *et al.*, 1994). This measure therefore seeks to make the transition less painful for the students by creating subgroups of learning environments (65-100 students) within the larger school and locating the STEP classrooms in proximity to each other. Students also remain together for a set of core classes such as Mathematics and English, thus avoiding the need to constantly adapt to a new set of peers. In addition emotional counselling and

academic guidance is provided and the students' homeroom teacher serves as the primary link between the school and home and vice-versa in order to increase the students' sense of connectedness and belonging to school (Felner and Adan, 1989). As a result of the implementation of the measure, the dropout rate was halved compared to the control group. In addition the programme was associated with high levels of job satisfaction and lower levels of burn-out for the participating teachers (Felner *et al.*, 1994).

71. Figure 9, below, illustrates how the measure can be divided into the three components described above.

Figure 9. Components of a successful dropout prevention measure

Example: School Transitional Environment Program (STEP)



Source: Felner *et al.* (1994)

72. The second largest group of successful measures were the ones that were implemented completely outside the education system. These were also all successful but many of them only in an indirect way, *i.e.* they had an impact on removing some of the causes of early school leaving. Only a few of the successful measures involved implementation only in schools and even fewer still were purely systemic at a macro level.

73. An example of a measure outside of school is the Canadian Preventive Treatment Program, also known as the Montreal Longitudinal Experimental Study, a social development and crime prevention programme that provides family consultant assistance and coaching for 7 to 9 year old boys who had displayed early problem behaviour in pre-primary education (Tremblay *et al.*, 1992). It was successfully implemented among Canadian males from low SES and after three years, they were less likely to conduct criminal behaviour, were less violent and were less likely to be held back compared to the control group (Hammond *et al.*, 2007). The intervention reduced some of the risk factors that lead to dropout.

74. The measures that were unsuccessful involved either purely systemic change at macro level or implementation only in schools. This serves to underscore the finding presented above: in order to overcome early school leaving, policies must involve action both outside and inside school simultaneously. Considering how the causes of dropout stem from issues both within and outside of the educational system and the extent to which the causes feed into each other, it appears necessary to address the dropout challenge from both angles at the same time. Indeed a majority of the measures were seen to address many risk factors concurrently.

Additional components

75. Research on successful policies in dropout reduction has also found a certain number of key programme components that can be incorporated into effective programmes addressing individual or social causes of dropout. It was not possible to test out these claims on all programmes selected in this paper, but the information may nevertheless prove useful to policymakers in the set-up of new measures: the time-frame of implementation should be long enough to allow for an impact; the programmes should be rigorously evaluated and the implementation of multiple measures simultaneously has a positive impact on the outcome (Hammond *et al*., 2007; Catalano *et al.*, 2004; Gottfredson, 1998).

76. Other more practical, managerial factors have also been found. Particularly useful to our purpose is a large scale meta-analysis carried out by Hammond *et al*. (2007): using a specific matrix for selection of programmes they narrowed down a selection of 360 U.S. dropout prevention programmes to a final 50 successful programmes that met a strict set of criteria in the rigour of their testing and that met a top ranking of success in at least two sources. They find that all successful programmes involved some component of staff training and/or technical assistance and monitoring, and that all programmes had developed resources or material such as implementation guides, student/ or parent workbooks or handouts, videos, self-help materials or other.

77. Unfortunately due to the difference in type of research found and incomparability of the data it was impossible to rank the different policies by success rate in order to select a "winning" policy. Nevertheless, the paragraphs below attempt to detail the different successful approaches to early school leaving according to educational level.

Policies and measures according to educational level

78. After being structured according to where they should be implemented (within/outside school, systemic), the policies were structured according to educational level (see Annex). This proved difficult as around half of them were targeting students over several levels and a few of them were completely outside of the educational system and targeted adults or the general population. Only half of the measures were targeted directly towards an educational level or age corresponding to a particular educational level.

79. This structuring enabled a set of simple observations. Measures involving action solely within schools each fit a particular educational level. Since many of these measures involve curricular changes, it seems evident that they should be targeting a specific educational level or even a specific year or set of years. Measures involving action solely outside the schools mainly cross over several levels, as do measures involving systemic change at a macro level. Measures involving action in all three domains equally target a specific educational level or cross over several levels.

80. The next few sections detail measures according to the education level they target in order to find patterns for implementation. The earlier the intervention, the broader the target should be, preventing the rise of problem behaviour in itself. As students get older and start exhibiting signs of identified risk-factors, interventions should become more targeted, towards groups and then towards individuals.

Therefore the next sections first study preventive solutions at pre-primary level, followed secondly by pre-emptive solutions at primary level, thirdly measures at lower secondary are reviewed (these have been denoted as selective interventions) and finally preventive policies at upper secondary are analysed and designated as intensive interventions.

Preventive solutions: policies at pre-primary level

81. Only a few of the measures found in this search targeted pupils in pre-primary education directly. However several target both pre-primary and primary, some up to lower secondary, and some targeted the entire education span of the pupil. Starting with the measures that target pre-primary directly, these are either combining interventions within school with interventions outside of school, or completely external.

82. Providing early childhood education and care affects the educational outcomes. Early childhood education and care (ECEC) has a positive effect on long-term cognitive, social and emotional development of the child (Field *et al.*, 2007) and these skills interconnect and have been shown to reduce chances of early school leaving later on (Heckman *et al.*, 2006). Indeed, as we have seen, dropout may be caused by a lack of engagement and motivation towards school which in turn may be due to a student lacking core competencies. Bradshaw *et al.* (2008) number five core competencies that are associated with school success: positive sense of self, self-control, decision-making skills, a moral system of belief, and pro-social connectedness.

83. The Perry Preschool Program is one of these measures and involves the provision of ECEC to US children from disadvantaged backgrounds: focusing on both cognitive and non-cognitive skills. Understanding that the lack of engagement of students also may stem from lack of involvement in education on the family's part, the programme also intervenes within the children's families through weekly home visits during the school year. These visits aimed to involve the parents in the educational process and help them provide education support within the home (Promising Practices Network, www.promisingpractices.net). Several other programmes involve parents in early childhood education, such as the Parent-Child Home Programme which also was shown to reduce dropout rates, most likely through the improvement of decision-making skills and the connectedness to parents (Bradshaw *et al.*, 2008).

84. Other programmes target children identified as having high risk social behaviour, regardless of social background, such as the Incredible Years which is also based on cognitive developmental psychology and involves skills building for teachers, parents and children from pre-primary to early primary school (Hammond *et al.*, 2007). It may be applied by pulling the at-risk children out of regular classes (Hammond *et al.*, 2007). Others may be applied through lower secondary such as Families and Schools Together which involves play therapy and family therapy. It was shown to improve academic performance and behaviour in the classroom and increased parent involvement in school (Hammond *et al.*, 2007).

85. Some measures are also completely external to school and involve cognitive behavioural therapy often directed towards support following traumatic events such as parental divorce, violence in the family, sexual abuse. These measures such as Trauma Focused Cognitive Behavioural Therapy, or Helping the Non-Compliant Child involving a series of therapy sessions for child and parent, may be applied throughout the entire education at every level and have been shown to have an important effect on behavioural disorder, engagement and academic progress (Hammond *et al.*, 2007).

86. Several policies were carried out in pre-primary but involved the identification of problem behaviour early on so as to be able to pinpoint the students in need of special attention. These policies such as the Montreal Longitudinal Study described above or Fast Track described below underscore the

necessity of transparency of information between pre-primary and primary level, making certain that risks are identified early on so that they can be adequately dealt with at the next education level.

Pre-emptive solutions: policies in primary education

87. Ensuring that the entrance into school is as smooth as possible is essential, therefore, a number of programmes target the transition itself. Some target the transition into the first year of school specifically, such as Schools & Families Educating Children (SAFE Children). This US measure involves both the school and family and targets children living in high risk neighbourhoods. It involves family-group meetings in order to develop parenting skills and children receive tutoring sessions for basic reading skills (Hammond *et al.*, 2007).

88. Parents are also involved in programmes aiming to avoid conduct problems and strengthen pro-social bonds and attachment to school such as Fast Track or Skills, Opportunities and Recognition (SOAR) (Greenberg and Kusché, 1999). This programme has two levels of intervention. At a primary intervention level, a specific curriculum intends to develop children's emotional awareness skills, self-control, and problem-solving skills. A positive peer climate is also fostered as well as an improvement of teachers' classroom management skills. A thorough screening process at several levels identifies high-risk behaviour either in pre-primary or in early primary and leads to a selective secondary intervention. This latter part involves parent-training, child social-skills training and academic tutoring (Hammond *et al.*, 2007).

89. Certain programmes offer an anti-violence curriculum, such as Second Step (Promising Practices Network, www.promisingpractices.net). Such social emotional programmes for primary school children have been shown to have a positive effect on core competencies such as self-control, moral belief system, decision-making skills, and co-occurring behavioural problems (Bradshaw *et al.*, 2008).

90. Pro-social bonds may also be developed through mentoring which is a more selective intervention. The creation of a connection with an adult mentor can reduce problem behaviour among at risk primary and lower-secondary students (Bradshaw *et al.*, 2008). One example is Across Ages which involves older (age 55 and over) role models for youth between ages 9 and 13 that live in communities with little possibilities in terms of positive extra-curricular activities and few positive adult role models. In addition to mentoring, the programme involves classroom-based life-skills, problem solving, and substance abuse curricula and the involvement of the youth in community service (Hammond *et al.*, 2007). Interestingly, the success of the programme seemed to rely on all components being implemented and not just the mentoring itself (Hammond *et al.*, 2007).

91. At primary level a number of measures may be carried out entirely outside of the education system. Therapeutic programmes aim to help families or children with problem behaviour. Examples includes the Canadian Preventive Treatment Program described above or the Strengthening Families Program set up in the US which involves weekly therapy sessions for children and their families (Hammond *et al.*, 2007). Other programmes help children deal with traumatic life events such as divorce through different types of behavioural therapy and have been shown to better school adjustment and the relationship to peers (Hammond *et al.*, 2007).

92. In sum, preventive solutions in pre-primary and primary education should follow what MacIver and MacIver (2009) note as a solid school-wide instructional foundation equipping teachers to provide high quality instruction in a personalized and orderly learning environment while building strong connections to a student's family. This they argue can be achieved through a comprehensive school reform model combined with the incorporation of an early warning system into the school-wide foundation (MacIver and MacIver, 2009). Their model is discussed in more detail further on in this paper.

Selective intervention: policies at lower secondary

93. At lower secondary level it is crucial to identify the at risk children that have not earlier been identified. Different types of measures targeting lower secondary students were identified involving a more selective intervention. First and foremost however, it is important to ensure that the transition between primary and lower secondary is as smooth as possible. This can be done for instance by grouping students together to create communities within school such as was described above in the School Transitional Environment Program (STEP).

94. More general measures include the introduction of substance abuse curricula in school such as in the LifeSkills Training, Project Towards No Tobacco Use or Keepin'it Real, involving strategies for the entire school and that can be used at all levels of the education system. Although none of these measures seem to have a direct impact on dropout, they do significantly reduce use of narcotics and create more positive attitudes towards school.

95. Another curricular measure that seems to have a great impact is placing low-achievers in advanced programmes rather than lowering the expectations. University preparatory programmes such as Advancement via Individual Determination (AVID) use acceleration instead of remediation as a tactic to improve students' performance. In addition to being enrolled in advanced classes the students receive an hour a day coaching lesson from student peers or teachers helping them with study skills and critical thinking (www.avid.org). Programmes such as AVID reduce dropout rates and increase in college enrolment (Fashola and Slavin, 1998; Hammond *et al.*, 2007). In California for instance, AVID schools witnessed a 34% decline in their dropout rates compared to a 14% drop in non-AVID schools (American Youth Policy Forum, www.aypf.org). However, AVID also involves a set of extra-curricular activities and engages the family at a variety of levels. Here also, evaluation of the measure showed that all programme components were necessary to obtain a successful outcome (James and Partee, 2003).

96. Thus the connection between school and the outside world remains important also at this level, and most successful measures involve action both within and outside school. In addition to connecting schools with families this can also suggest a connection between school and the world of work such as the job clubs offered within the Adolescent Sexuality and Pregnancy Program which in addition to academic enhancement through tutoring, homework assistance, counselling, and sex education offers stipends and employment experiences to youth (Hammond *et al.*, 2007). Another way of creating this connection is through volunteering programmes such as the Teen Outreach Program where community service is connected to a classroom curriculum (Hammond *et al.*, 2007). Community service can also be combined with tutoring as within the Coca-Cola Valued Youth Program where at risk secondary students work with at risk primary students. Here the secondary students receive help with basic skills and then improve self-esteem through the tutoring of primary students. The programme achieved lower dropout rates and significantly higher reading grades as well as a general better attitude towards school. It will be important to notice once more that this programme also involves the students' families in a certain number of activities (Hammond *et al.*, 2007).

97. As was seen in some of the measures targeted towards primary education, creating a connection with an adult through outside school mentoring is important. One such programme is the Big Brother Big Sister Program. Levin (2008) claims that as little as twenty to thirty minutes of supportive conversation with an adult can make a difference to the decision of dropping out. It may also be helpful to create a connection with the justice system, such as in the CASASTART initiative, which in addition to communication with parents promotes collaboration between key stakeholders in a community such as the police, the criminal justice system and family services (Hammond *et al.*, 2007).

98. A number of policies are also completely outside of the education system, such as a number of therapeutic behavioural interventions outside school for the child and the family such as Multidimensional Family Therapy, Brief Strategic family Therapy, Functional Family Therapy or Children of Divorce Intervention Program mentioned above. Although these programmes may not lead directly to a reduction of the dropout rate, they do increase good behaviour, lower instances of problem behaviour and better attitudes towards school (Hammond *et al.*, 2007).

Intensive intervention: policies at upper secondary level

99. At upper secondary level, ensuring completion becomes more tricky especially as in most countries the education level is past the compulsory schooling age. Intervention at this level often will become more costly: if students for instance with low educational performance have not been detected before, they will be in need of one-on-one tutoring. A number of financial initiatives directed directly to students have been successful to a certain extent such as within Project GRAD (Graduation Really Achieves Dreams) students graduating on time receive a 1 000 USD university scholarship, but the programme's success cannot be said to solely be due to this. Project GRAD involves a rather large scale reform process that ensures higher Maths and reading skills and prevention starts already at primary level with ongoing data tracking and evaluation. It combines classroom management, student performance enhancement and parent and social worker involvement (www.projectgrad.org).

100. Financial incentives may also be provided to staff, such as in Quantum Opportunities where staff bonuses are tied to youth participation, but as we shall see below, the financial incentive alone did not ensure a positive outcome in France within the ZEP-project. Indeed success of Quantum Opportunities may rather be due to the composite nature of the measure involving mentoring, year round support service regardless of enrolment status and the provision of transportation for students (Hammond *et al.*, 2007). Indeed mentoring is just as important in upper secondary as in lower secondary. An example of a successful mentoring measure is Talent Search.

101. Substance abuse prevention programmes at upper secondary level also have an impact on deviant behaviour such as Project No Drug Abuse, but the provision of extra-curricular sports activities may be just as important. Pfeiffer and Cornelissen (2010) show that in Germany, participation in sports greatly heightens rates of completion. Based on a simple allocation of time model, participating in sports reduces the time spent on what they call "bad leisure activities" (Pfeiffer and Cornelissen, 2010). These include watching television, smoking, drinking, drug taking, and going to parties. Furthermore, the participation in sports activities leads to better health and thus better productivity, but also teaches pro-social skills and performing in a regulated social system. We noted earlier the impact of non-cognitive skills on early school leaving (Heckman *et al*., 2006) and showed a number of initiatives dealing with the prevention of this risk factor in the early years of schooling. Interestingly, Pfeiffer and Cornelissen (2010) point out that non-cognitive skills may be developed until the age of 20, unlike cognitive skills which are developed in early childhood.

102. As was seen for measures targeting lower secondary, low performing students may benefit from being more stimulated rather than by being given easier tasks. Fleischmann and Heppen (2009) note the success of measures such as Talent Development High School that includes a recuperative course "Freshman seminar" which enables students transitioning from lower secondary to be on par with the upper secondary level. In addition the measure involves components aiming to prepare the upper secondary student for the world beyond school. Research evidence on programmes involving dual enrolment in both upper secondary and university does not show statistically significant effects. Children who sign up for dual enrolment usually have university educated parents and are well motivated to complete their education before they start (Fleischmann and Heppen, 2009). This suggests that the structural combination of tertiary and lower secondary on its own may not be the key to success without the involvement of

additional components such as systematic parent involvement, professional development for teachers and tutoring as provided by the AVID programme described above.

103. What also seems crucial at upper secondary level is the provision of attractive alternatives involving a connection to the world of work. Lamb (2008) shows that countries with separate alternative vocational education and training (VET) pathways seem to have higher overall rates of graduation. Austria and Germany for example have diversified offers and obtain graduation rates close to 90%, with VET students making up the majority of the upper secondary graduates. These findings are supported by a study of the 1990's Swedish educational reform (Hall, 2009). Hall (2009) studies the results of a six year pilot scheme that preceded the reform implementation and finds that the prolongation of the VET tracks and the increase of academic content led to an increase in the probability of dropout among the low performing students, although the overall achievement level increased among the VET students (Hall, 2009).

104. The above findings may be further support for a current Norwegian policy being piloted in which low motivated VET students are offered an alternative shorter and less comprehensive upper secondary degree. The certificate of practice initiative has been piloted since 2007 and provides at-risk students with the possibility of choosing a two year upper-secondary programme leading to a lower level degree recognised by industry, rather than the full four year VET upper secondary. The students enrolled are offered a mix of schools days and work placement within the week and the academic studies are vocationally oriented. Upon completion, they may complete their full upper-secondary degree by adding on the remaining two years (Norwegian Directorate of Education and Training, 2008). The measure has been observed with some caution as the creation of a lower level degree may lead to endangering equity within the country (Kuczera *et al.*, 2008), but the research-based evaluation of the pilot has so far yielded positive results (Markussen *et al.*, 2009). The report states that students, teachers and trainers are mostly favourable to the measure and that dropout rates seem to be very low. Furthermore 65% of the students gained the motivation to continue their education and training in order to obtain the full upper secondary certificate (Markussen *et al*., 2009). Considering that VET students in Norway have dropout rates close to 45% (Markussen *et al.*, 2008), the implementation of such a policy measure could lead to some substantial improvement.

105. The question arises of whether there is a trade-off between graduation rates and general skills as these are the foundation of lifelong learning and the ability to adapt to the labour market's changing requirements (OECD, 2010b). Some countries attempt to get around the challenge by implementing contextualised learning, integrating VET and general skills (OECD, 2010b). The example from Norway described above, may in fact prove to be in support of this pedagogical practice since should the students chose to complete the entire degree after having completed the first lower level, they will in fact end up with the same amount of mix of general and vocational skills as their peers that followed the standard VET track, but they will have done so following a different type of path resembling much more contextualised learning approaches.

Systemic change at a macro level: what works?

106. As mentioned earlier, a number of the measures found were of a purely structural nature and involved systemic change at a macro level. One such systemic change is resource channelling which on its own does not seem to yield positive results, as indicate the three following examples.

107. In 2006, the Dutch government set up a financial incentive scheme involving approximately one third of the country's regions. The government offered the municipalities a 2000€ reward for each early school leaver less in the 2006-2007 school year compared to 2004-2005. The goal was to reduce the dropout rate by at least 10% (van der Steeg *et al.*, 2008). Although a decline of 3% was perceived, this rate coincided with the overall decline in rates of early school leavers in the Netherlands. Van der Steeg *et al.*

(2008) find this overall decline to be statistically insignificant and that it could be assigned to changes in the characteristics within the student population.

108. Another financial incentive measure is the French ZEP (*Zone d'Education Prioritaire,* or priority education zone). This initiative channels additional resources, such as funds and additional teaching hours, to schools in disadvantaged areas. The distribution of the funds is left to the different schools' discretion. The evaluation of the first phase of the policy (1982-1992) (Benabou *et al.,* 2009) found that the policy had no perceptible impact on completion rates or academic achievement. Furthermore, the bonuses awarded teachers were not a sufficient initiative to increase the share of experienced or highly qualified teachers. They suggest that the lack of steering in the way the incentives were targeted were a cause for the lack of impact of the measure. Findings from the United States can to a certain extent corroborate these conclusions. The No Child Left Behind Act holds schools accountable for increasing academic achievement and this seems to have had no impact on the dropout rates (Bradshaw *et al*., 2008).

109. Consistently with the findings above, our final example also shows that the impact of resource channelling on its own has no direct discernible impact on the completion rates. Browning and Heinesen (2007) study the effect of a reduction in 8th grade class size in Denmark on the subsequent educational attainment of the pupils and find a positive but marginal effect. Indeed an increase in expenditure of 5% measured through a decrease of class size, implies only an increased chance of completion by 0.4% (Browning and Heinesen, 2007).

110. On the other hand means-tested resource support directed towards students of low income families has been seen to have a substantial impact on participation rates. In the UK, a pilot measure, the Education Maintenance Allowance (EMA) has been set up involving a conditional cash transfer to students 16 to 18 years of age for staying in full time education. Dearden *et al.* (2009) find that the overall participation rates of youth over 16 increased by 4.5%. They also found that students receiving the full amount of the cash transfer also saw the largest increase in participation rates, suggesting that lack of family resources was a major reason for their decision to leave school. As we have seen, absenteeism is closely linked to dropout, thus the means tested support to low income families may have an indirect effect on the dropout rate, particularly for students that were hindered in completion solely by monetary constraints. However, as with Project GRAD described above, the EMA also involves more components than a simple monetary subsidy. A "Learning Agreement" is set up between the school, the young person and their parents (Croxford *et al*., 2002).

111. Removing early tracking seems to have a positive effect on equity in that early tracking generally reinforces effects of parental background on education achievement (Brunello and Cecchi, 2007; Field *et al.*, 2007). Thus removing early tracking may also indirectly affect the dropout rate since dropout often is linked to low academic achievement. Such a conclusion would be supported by studies conducted in Sweden where Meghir and Palme (2005) study the impact of the 1950's reform which instated a comprehensive system rather than tracking at age 12 and show that the removal of early tracking had an impact on the overall educational attainment. However the reform included a number of other features, such as raising the compulsory school age, which may also have been influential in raising the attainment rates and as the authors do not differentiate between the different factors it is impossible to conclude satisfactorily on this point.

112. In fact, the raising of the age of compulsory schooling has engendered a debate among researchers upon whether or not this has an impact on the overall completion rate. So far the results have been inconclusive. Rumberger and Lim (2008) claim that it does have an impact whereas Bradshaw *et al.* (2008) point to the fact that several states in the US have raised the age of compulsory schooling to 16, 17, or some even 18 years of age, but that as of yet, there is little conclusive evidence of the impact of such a policy on the overall dropout rate. They argue that the raising of the age on its own is not a sufficient

policy change to avoid early school leaving and that it should be accompanied by measures to develop core competencies. Raising the age of compulsory schooling has however been shown to have a significant impact on lifetime wealth and health (Oreopoulos, 2007).

113. In sum, measures at a purely structural level involving solely systemic change at a macro level may have an indirect impact on the dropout rate such as was the case for the removal of early tracking or means-tested conditional cash transfers. However, on the whole, the measures that do not target more specifically the students themselves and the underlying causes for dropout through action both within and outside of school seem to have a very low success rate.

5. What solutions?

114. Reviewing the literature on measures aiming to reduce early school leaving in upper secondary education and training does not yield a simple answer. As causes of dropout are interrelated, achieving higher rates of completion involves complex solutions to a complex problem. As was seen in the sections above, addressing several risk factors simultaneously is part of the answer and success is more likely if interventions involve action both within and outside of school simultaneously. The purely systemic solutions at macro level that have been studied have had little impact on the dropout rate and in many instances have not worked except for the reduction of early tracking.

115. Preventive measures to reduce early school leaving should start early. The earlier the prevention begins, the broader the target will be. The later the intervention, the more targeted it needs to be to address individual/social risk factors. Thus transferable databases between school levels and early warning systems are essential. Early identification enables broader, less costly measures to be set up earlier and leaves the more costly one-on-one measures for later stages of education to the remaining at risk students that have not been picked up earlier.

116. In pre-primary, broad measures should be implemented to develop cognitive and non-cognitive skills. Risk-behaviour should be identified and adequate social support should be provided to both child and family. Involving parents in their child's education is essential even at an early age. When the child enters primary, the transition should be supported and the family should again be involved. Pro-social bonds should be developed as well as attachment to school, while risk-behaviour should be identified and acted upon within school but also outside school involving the home.

117. In lower secondary, ensuring a smooth transition is important, and schools can introduce substance-abuse curricula. Challenging rather than expecting less of low-performing students seems essential. As was seen in several of the studies covering the causes of early school leaving, students reported that they would have worked harder if more had been demanded of them (Hernes, 2010; Balfanz *et al*., 2007; MacIver and MacIver, 2009) and Rumberger and Lim (2008) found that schools with more course requirements have lower dropout rates. Students should also be supported by tutoring initiatives either through peers or external tutors and perhaps provide more opportunities for disadvantaged students to spend more time learning science at school which could have an effect on resiliency (OECD, *forthcoming*). Extra-curricular activities and sports should be provided and families should be involved. Connecting the school with the community around it becomes important at this level and measures connecting to the world of work or to community service action seem to have a beneficial effect. Once more, risk-behaviour needs to be identified and dealt with for instance through the connection to an adult within or outside school.

118. In upper secondary, the transition should be supported by recuperative courses before school starts and mentoring and tutoring should be provided to the remaining few students in need of additional support. As was seen earlier, a strong positive relationship with one or several teachers seems to lower the

rates of early school leaving (Rumberger and Lim, 2008). Substance abuse curricula and sports activities are beneficial also at this level as is providing high quality VET-tracks as a real alternative to non-engaging academic tracks.

119. As mentioned earlier, much of the literature on overcoming early school leaving suggests different types of reforms and measures. One model that seems to fit well with the findings of this paper is developed by MacIver and MacIver (2009). They suggest a strategy for dropout prevention that can be applied at all levels of the education system and which serves as a good example of a strategy that can be implemented even in a time of financial crisis. The report presents a strategy that combines targeting easily measurable ABCs of Disengagement (high absenteeism, behavioural problems and course failure) with comprehensive school reform and targeted interventions. They set up an intervention model in three stages.

120. Primary intervention involves district and school wide reforms aimed at providing high quality instruction in a school climate that encourages regular attendance and other positive behaviour. This they suggest can be done through equipping teachers to provide high quality instruction and ensuring a relevant curriculum that keeps students engaged. They also suggest a culture of personalized and orderly learning environment and a strong connection with the family. This corresponds to several of the preventive and pre-emptive measures we have seen targeting pre-primary and primary school level. Secondary intervention involves targeted interventions for small groups who have been identified as in need of additional support. This type of intervention corresponds to measures discussed above targeting mainly lower secondary students but to some extent also primary school students. The tertiary stage of intervention is intensive and delivered one on one by specialists to the remaining few students who have yet not been picked up by the other preventive measures. This corresponds to the intensive intervention measures described above targeting upper secondary students.

6. Conclusion

121. In order to meet the completion challenge it is important to understand that dropout, more than an outcome, is a cumulative process of disengagement or withdrawal that occurs over time. Upper secondary completion can be ensured by picking up on a certain number of signals that form an early warning system. It is therefore important to understand the reasons that lie behind the gradual disengagement that leads to dropout.

122. In reviewing the literature on causes of early school leaving, it becomes clear that not one but several interlinked factors are behind gradual disengagement eventually leading to the decision to leave school. From an individual or social point of view, educational performance, such as low grades, and certain types of student behaviours, such as absenteeism, lack of motivation, or delinquency are solid predictors of dropout. These factors are also highly connected to the student's background, be it past experiences in education (*e.g.* participation in pre-primary education) or family related factors (*e.g.* living with one or two parents, SES, parental engagement). In addition school structure and size as well as certain types of school practices (*e.g.* a highly bureaucratic and impersonal environment) influence the process of disengagement. In combination with a set of systemic factors (*e.g.* the use of year repetition or the lack of apprenticeship places), all the above mentioned factors have an impact on the dropout rate as well as an impact on each other.

123. To best address these causes or risk factors, this paper reviewed research that had been carried out on piloted or implemented measures across OECD countries and found that successful measures address not one but several risk factors and involve action both within and outside of school simultaneously. This requires a close cooperation between educational authorities and many other parts of government such as social and labour services, health services and justice system in some countries.

124. When studying the measures according to educational level, an implementation pattern arises: preventive measures to reduce early school leaving should start early. The earlier the prevention begins, the broader the target will be. The later the intervention, the more targeted it needs to be. Early identification enables broader, less costly measures to be set up earlier and leaves the more costly one-on-one measures for later stages of education to the remaining at risk students that have not yet been picked up.

At pre-primary and primary, solutions include:

- Broad measures to develop cognitive and non-cognitive skills
- Identifying risk behaviour and providing adequate social support for both child and family
- The early involvement of parents their children's education
- Encouraging the development of pro-social bonds for instance to school staff or to positive peers as they may lead to a commitment and attachment to school

At lower secondary, solutions include:

- Introducing substance-abuse curricula
- Challenging low-performing unmotivated students rather than simplifying their tasks.
- Tutoring initiatives, either through peers or external tutors
- Providing extra-curricular activities and sports involving families
- Connecting schools and their local communities, either through the world of work or community service action

At upper secondary level, solutions include:

- Providing recuperative courses before school start upon entry into upper secondary level
- Mentoring and tutoring the remaining few that haven't been picked up by earlier intervention
- Teaching substance abuse curricula and providing sports activities
- Providing high quality VET-tracks as a real alternative to non-engaging academic tracks

At all levels of the education system:

- Risk behaviour must be identified and should be followed by intervention for instance through the connection to an adult within or outside school.
- Transitions between school levels should be supported
- Reliable data should be collected, first on the extent of the challenge itself, second on the risk-factors highly correlated with non-completion. This data should be transferred between school levels to guarantee early preventive measures and selective interventions.

125. As we have seen, completing upper secondary is a necessity to ensure full participation in civic life and to ensure better chances in the labour market. Completing upper secondary education makes for a greater number of citizens that cost society less and produce more. High investments in dropout prevention strategies is money well spent. The benefits in terms of higher tax revenues, less public spending on health, public assistance and criminal justice largely outweigh the costs. Taking on the completion challenge is a moral imperative ensuring an equitable society with equal life chances regardless of social background.

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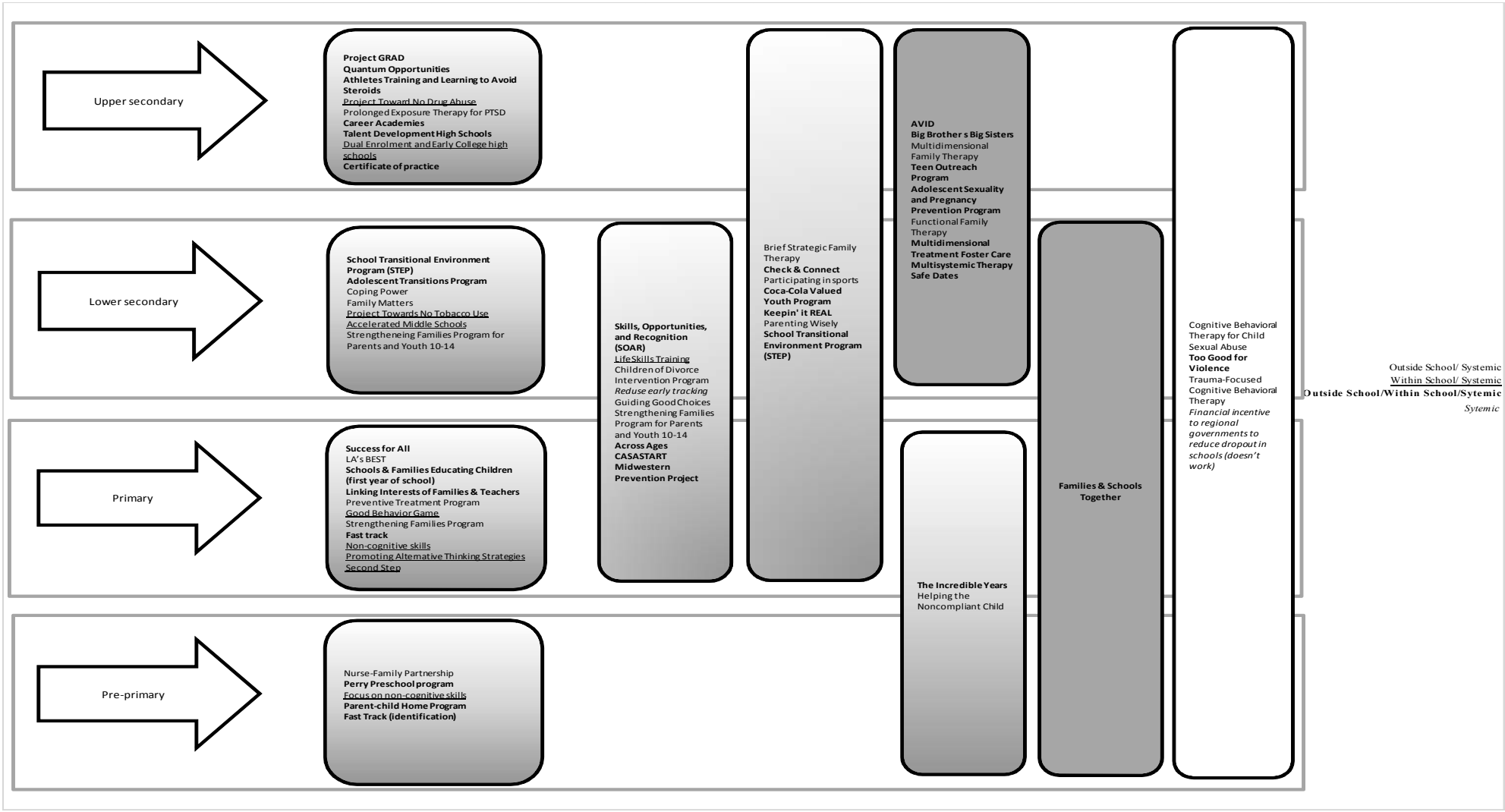
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ANNEX

Measures sorted according to educational level and implementation category



Preventive measures to reduce early school leaving

Title of measure	Country studied	Risk-factor addressed	Implementation category	School level targeted	Description	Impact	Sources
Accelerated middle schools	US	Educational performance	Within School/ Systemic	Lower secondary	Additional instruction and support to students who are working below grade level	Positive effect on staying in school; positive effect on progressing in school; data on completion not available	MacIver and MacIver (2009); What Works Clearinghouse (2008)
Across Ages	US	Behaviour - deviancy (substance abuse) - engagement (low attendance); background – family resources; attitudes – self-perception	Within school/ Outside school/ Systemic	Primary and lower secondary	Uses older adults (55 +) as mentors for at risk youth (9-13); community service activities to residents in nursing homes; classroom-based life skills, problem solving, and substance abuse curricula; family, cultural, and recreational activities	Decreased alcohol and tobacco use; increased school attendance; Increased positive attitudes toward school and the future	Hammond *et al.* (2007)
Adolescent Sexuality and Pregnancy Prevention Program	US	Behaviour - deviancy (early parenthood); educational performance	Within school/ Outside school/ Systemic	Lower and upper secondary	job clubs; academic enhancement through tutoring; homework assistance, college exam and entrance help; family life and sex education; arts; sports	Significantly lower pregnancy rates, significantly higher academic achievement; were more likely to feel their schoolwork had improved	Hammond *et al.* (2007)
Adolescent Transitions Program	US	Behaviour - deviancy (substance abuse)	Outside School/ Systemic	Lower secondary	Multilevel, family-centred intervention targeting children who are at risk for problem behaviour or substance use delivered in the middle school setting to parents and their children	Decreased total problem behaviour; reduced youth smoking behaviour; decreased antisocial behaviour at school	Hammond *et al.* (2007)
Athletes Training and Learning to Avoid Steroids	US	Behaviour - deviancy (substance abuse)	Within school/ Outside school/ Systemic	Upper secondary:	Multicomponent school-based drug and alcohol prevention programme for male high school athletes, 13 to 19 years old, delivered in a classroom to an entire sports team.	Decreased new substance use; decreased new use of anabolic steroids; reduced instances of drinking and driving; lowered index of alcohol and drug use; reduced use of performance-enhancing supplements	Hammond *et al.* (2007)

Title of measure	Country studied	Risk-factor addressed	Implementation category	School level targeted	Description	Impact	Sources
AVID - Advancement Via Individual Determination	US	Educational performance; background - family resources (parental engagement with school)	Within school/Outside school/Systemic	Lower and upper secondary	In-school academic support programme that places underachievers in college-preparatory programmes; parental involvement and professional development for teachers; tutoring	Significant improvement in academic performance; increases in advanced placement course enrolment and completion; decreases in dropout rates; increases in college enrolment	Hammond *et al.* (2007); Fashola and Slavin (1998); James and Partee (2003)
Big Brothers Big Sisters	US	Educational performance; behaviour - deviancy (substance abuse); behaviour - engagement; background - family structure	Outside School/ Systemic	Lower and upper secondary	Mentoring provided to youth 10-19 in low SES families with no more than one parent/guardian	Lower drug use; lower initiation to alcohol; less violent; stronger feeling of competence; better grades; less absenteeism	Hammond *et al.* (2007)
Brief Strategic Family Therapy	US	Behaviour - deviancy (peer effect, substance abuse); background - health	Outside School/ Systemic	Primary, lower and upper secondary	short-term, problem-focused, family-based intervention with an emphasis on modifying maladaptive patterns of interactions targeting 8-17 year-olds at risk for developing conduct problems (inner city minority families); training for counsellors; administrative support for families; a therapy/treatment	Reduced association with antisocial peers; reduced substance use, particularly marijuana; reduced acting-out behavioural problems	Hammond *et al.* (2007)
Career Academies	US	Behaviour-engagement	Within school/ Outside school/ Systemic	Upper secondary	Career focused prevention targeting at risk high school students combining academics with on-the-job technical training; establishes partnership with local employers	Reduce dropout rates among high risk youth; increase in pro-social connectedness	Bradshaw *et al.* (2008); Kemple and Snipes (2000); MacIVer and MacIver (2009)

Title of measure	Country studied	Risk-factor addressed	Implementation category	School level targeted	Description	Impact	Sources
CASASTART	US	Behaviour - deviancy (peer effect, substance abuse)	Outside School/ Systemic	primary and lower secondary	a community-based, school-centred programme designed to keep high-risk 8- to 13-year-old youth free of substance abuse and criminal involvement; community-enhanced policing; case management; criminal/juvenile justice intervention; family services; after-school and summer activities; education services for targeted students; mentoring	Were less likely to associate with delinquent peers, to report past month use of stronger drugs, to report past month, past year, and lifetime use of gateway or any drugs; reported fewer violent crimes in the past year; increased likelihood of promotion to the next grade in school	Hammond *et al.* (2007)
Certificate of practice	Norway	Behaviour - engagement	Within school/ Outside school/ Systemic	Upper secondary	2 year practice-based programme upper secondary; enables students to leave upper secondary education early but with possibility of re-entry.	Rise in motivation among students participating to continue – *i.e.* reduction of dropout rate	Markussen *et al.* (2009)
Check & Connect	US	Educational performance; background - health; behaviour - engagement	Within school/ Outside school/ Systemic	Primary, lower and upper secondary	Monitoring of student disengagement and individualised intervention through a mentor; connection with the family	Dropout reduction	Hammond *et al.* (2007); MacIver and MacIver (2009)
Children of Divorce Intervention Program	US	Background - family structure	Outside School/ Systemic	Primary and lower secondary	Supportive, small-group, preventive intervention designed to reduce the stress of family transitions and foster children's resilience and healthy adjustment to changes in family structure	Better overall school adjustment; greater improvements in ability to follow rules; greater improvements in ability to get along well with peers	Hammond *et al.* (2007)
Coca-Cola Valued Youth Program	US	Educational performance; behaviour – engagement (lack of effort)	Within school/ Outside school/ Systemic	Primary, lower and upper secondary	Tutoring: At risk secondary students from low SES work with at-risk primary students from low SES; Provision of stipend and training for tutors and school staff; family involvement activities	Significantly higher reading grades; significantly better attitudes toward school (including liking school and commitment to schoolwork); lower dropout rates	Hammond *et al.* (2007)

Title of measure	Country studied	Risk-factor addressed	Implementation category	School level targeted	Description	Impact	Sources
Cognitive Behavioural Therapy for Child Sexual Abuse	US	Behaviour - deviancy (substance abuse); background - health	Outside School/ Systemic	pre-primary, primary, lower and upper secondary	Treatment approach designed to help children and adolescents who have suffered sexual abuse overcome posttraumatic stress disorder (PTSD), depression, and other behavioural and emotional difficulties.	Reduction in children's acting-out behaviours	Hammond *et al.* (2007)
Comprehensive VET	Sweden	Behaviour - engagement	Within school/ Systemic	Upper secondary	Comprehensive VET reform in 1990's; reduction of differences between vocational and academic tracks; prolonging and substantially increasing the academic content of VET track	A 6 year pilot scheme that preceded reform showed that the probability for dropping out increased among low performing students	Hall (2009)
Coping Power	US	Behaviour - deviancy (substance abuse); background - health	Outside School/ Systemic	Lower secondary	Multicomponent preventive intervention for aggressive boys that uses the contextual socio-cognitive model as its conceptual framework	Lower rates of self-reported covert delinquent behaviour (theft, fraud, property damage); significant and continuing improvement in school behavioural problems	Hammond *et al.* (2007)
Dropout covenants	Netherlands	Structural - financing	Systemic	Outside school system	Financial incentive to regions to reduce number of dropouts; Ministry of Education offered contact municipalities 2000 € for each early school leaver less in 2006/2007 than in 2005/2006	No effect	Van der Steeg e*t al*. (2008)
Early tracking	Scandinavia, Germany, UK, Switzerland, the Netherlands, Italy, US	Structural	Systemic	Primary + lower secondary	Placing students in well-defined separate segments in the education process, typically specializing in general and vocational education before upper secondary	Early tracking reinforces the negative effects of a "good" parental background on the probability of dropping out	Brunello and Checchi (2007); Meghir and Palme (2005)
EMA - Educational Maintenance Allowance	UK	Background - family resources	Systemic	Upper secondary	Means tested conditional cash transfer paid to 16-18 year olds for staying in full-time education	substantial	Dearden *et al.* (2009); Croxford *et al.* (2002)

Title of measure	Country studied	Risk-factor addressed	Implementation category	School level targeted	Description	Impact	Sources
Families & Schools Together	US (Also implemented in Australia, Austria, Canada, Germany, Russia, the Netherlands, UK)	Educational performance; background - family resources (parental engagement with school)	Within school/ Outside school/ Systemic	Pre-primary, primary and lower secondary	Family strengthening and parent involvement programme to help children succeed in school; parent identification and recruitment through home visits; multifamily group sessions; FAST curriculum; monitoring by FAST Center staff; youth groups	Improvement in conduct disorder, anxiety, and attention span in classrooms; reductions after two years in aggression; improvements in academic performance; increased parent involvement in school; increased pursuit of adult education by parents	Hammond *et al.* (2007)
Family Matters	US	Behaviour - deviancy (substance abuse)	Outside School/ Systemic	Lower secondary	Home-based programme designed to prevent tobacco and alcohol use in adolescents; reading material and activities; participation incentives; trained and supervised volunteer or paid health educators, such as college students or school nurses, to call families; involvement of all adult family members	Less likely to have smoked; less likely to have used alcohol	Hammond *et al.* (2007)
Fast Track	US	Background - family resources (parental engagement with school); background - health; school practices	Within school/ Outside school/ Systemic	primary	Long-term prevention programme that aims to prevent chronic and severe conduct problems for high-risk children, with intensive interventions at school; modified PATHS curriculum for all students in grades one to five; multistage screening to identify high-risk children; parent training groups, home visits, peer-pairing activities; tutoring	Positive effect on core competencies such as self-control, moral belief system, decision-making skills and co-occurring behavioural problems; parents participating in the programme, showed: more maternal involvement in school activities	Bradshaw *et al.* (2008); Hammond *et al.* (2007); Bierman *et al.* (1999)
Functional Family Therapy	US	Behaviour - deviancy; background - health	Outside School/ Systemic	Lower and upper secondary	Family-based intervention programme for acting out youth in four phases by family therapists working with each individual family in a clinical or home setting (11-18yrs at risk or presenting with delinquency)	Effectively treated and prevented further incidence of the presenting problem; reduced adolescent re-arrests;	Hammond *et al.* (2007)

Title of measure	Country studied	Risk-factor addressed	Implementation category	School level targeted	Description	Impact	Sources
Good Behaviour Game	US	Behaviour	Within school/ Systemic	Primary school	Classroom, team-based, behaviour modification programme designed to improve children's adaptation to classroom rules/authority, improve aggressive/disruptive classroom behaviour, and prevent later criminality.	Significantly fewer meeting the diagnostic criteria for conduct disorder; fewer receiving or having been judged to need mental health services; fewer suspensions from school in the last year	Hammond *et al.* (2007)
Guiding Good Choices	US	Behaviour - deviancy (substance abuse)	Outside School/ Systemic	Primary and lower secondary	Multimedia drug prevention programme (part of the Families That Care series) that gives parents of children in grades four through eight the knowledge and skills needed to guide their children through early adolescence	Significantly lower rates of increase in initiation of drinking to drunkenness; significantly lower rates of increase in initiation of marijuana use	Hammond *et al.* (2007)
Helping the Noncompliant Child	US	Educational performance; behaviour-deviancy (substance abuse); background - health	Outside School/ Systemic	Primary	Parent training programme to prevent serious conduct problems in primary school children; sessions for parents and children; single trainer for each family; training material	Reduced level of delinquency, drug use; better academic progress; decrease in overt conduct problems such as aggression	Hammond *et al.* (2007)
Incredible Years, The	US	Behaviour – engagement (lack of effort); background - family resources (parental engagement with school)	Within school/ Outside school/ Systemic	Pre-primary and primary	Comprehensive, multifaceted, developmentally-based curricula for parents, teachers, and children at risk or presenting conduct problems	Increases in engagement in school activities; reductions in aggression in the classroom; increases in positive interactions with peers; reductions in conduct problems at school	Hammond *et al.* (2007)

Title of measure	Country studied	Risk-factor addressed	Implementation category	School level targeted	Description	Impact	Sources
Keepin' it REAL (Refuse, Explain, Avoid, Leave)	US	Behaviour - deviancy (peer effect, substance abuse)	Within school/ Outside school/ Systemic	Primary, lower and upper secondary	Video-enhanced intervention that uses a culturally-grounded resiliency model that incorporates traditional ethnic values and practices that protect against drug use; classroom curriculum accompanied by a collection of youth-produced videos that demonstrate	Significantly reduced marijuana, tobacco, and alcohol use, especially alcohol; improved their resistance skills to using alcohol, cigarettes, and marijuana; less likely to affiliate with misbehaving peers; less likely to be arrested by the age of 14	Hammond *et al.* (2007)
LA's BEST - Los Angeles' Better Educated Students for Tomorrow	US	Educational performance; behaviour - deviancy (substance abuse); attitudes	Outside School/ Systemic	Primary school	Tutoring and after school activities; requires students to maintain minimum attendance; staffed by a full-time programme director, playground workers, small-group leaders, high school student workers, and volunteers	Fewer absences; higher achievement on standardized tests; more positive attitudes towards school; heightened academic expectations	Hammond *et al.* (2007)
LifeSkills Training	US	Behaviour - deviancy (substance abuse)	Within school/ Systemic	Late primary, lower secondary	Three-year classroom-based tobacco, alcohol, and drug abuse prevention programme for upper primary and lower secondary school students; self-contained, structured curriculum	Significantly lower tobacco, alcohol, and marijuana use	Hammond *et al.* (2007)
Linking Interests of Families & Teachers	US	Behaviour - deviancy (peer effect, substance abuse); background - health	Within school/ Outside school/ Systemic	Primary	school-based intervention for the prevention of conduct problems such as aggressive and antisocial behaviour, involvement with delinquent peers, and drug/alcohol use; in-class social skills training curriculum; small-group parent discipline and child monitoring training	Less likely to affiliate with misbehaving peers; less likely to be involved in patterned alcohol use; less likely to have tried marijuana; less likely to be arrested by the age of 14	Hammond *et al.* (2007)

Title of measure	Country studied	Risk-factor addressed	Implementation category	School level targeted	Description	Impact	Sources
Midwestern Prevention Project (Project STAR)	US	Behaviour - deviancy (substance abuse)	Within school/ Outside school/ Systemic	Primary and lower secondary	Comprehensive, community based, multifaceted programme for adolescent drug abuse prevention that targets the entire population of middle school students. community-wide activities; school programme; parent education and organisation programme	Reductions in smoking and alcohol and marijuana use in lower secondary and in upper secondary	Hammond *et al.* (2007)
Multidimensional Family Therapy	US	Educational performance; behaviour - deviancy (peer effect, substance abuse); behaviour - engagement	Outside School/ Systemic	Lower and upper secondary	Behavioural intervention directed towards youth substance abusers; court advocacy; family strengthening and therapy; mental health services; structured extracurricular activities; substance abuse prevention	Decreased substance abuse, with gains maintained up to one year post-treatment; decreased delinquent behaviour, arrests, and placement on probation; reduced affiliation with delinquent and drug-using peers; decreased disruptive school behaviour over comparison youth; increased rate of passing grades over comparison youth	Hammond *et al.* (2007)
Multidimensional Treatment Foster Care	US	Behaviour - deviancy; background - health	Within school/ Outside school/ Systemic	Lower and upper secondary	Alternative to regular foster-care for youth exhibiting behavioural problems; community families recruited, trained, and closely supervised to provide adolescents with treatment and intensive supervision at home, in school, and in the community; clear and consistent limits with follow-through on consequences; positive reinforcement for appropriate behaviour; mentoring adult; separation from delinquent peers	Spent fewer days incarcerated at 12-month follow-up; significantly fewer subsequent arrests; significantly less hard drug use in the follow-up period	Hammond *et al.* (2007)

Title of measure	Country studied	Risk-factor addressed	Implementation category	School level targeted	Description	Impact	Sources
Multisystemic Therapy	US	Behaviour - deviancy; background - health	Within school/ Outside school/ Systemic	lower and upper secondary	Residence-based programme that focuses on chronically violent, substance-abusing juvenile offenders at high risk for out-of-home placement; therapist teams provide services in the home and school	Were significantly less likely to use substances; fewer arrests or re-arrests for all types of offenses; less engagement in aggression with peers; less likely to be involved in criminal activity	Hammond *et al.* (2007)
Nurse-Family Partnership	US	Behaviour - deviancy (early parenthood, substance abuse); background (family structure)	Outside School/ Systemic	Outside school system	Provides first-time, low-income mothers of any age with comprehensive home visitation services from public health nurses during pregnancy and the first two years after the birth of the child	Improved mother's prenatal health and decreased preterm births; increased mother's participation in the workforce; reduced rates of subsequent pregnancy and greater intervals between births; reduced maternal behavioural problems attributable to substance use; reduced arrests among the mothers; fewer arrests and convictions among the 15-year-old adolescents; reduced cigarette smoking by the 15-year-olds	Hammond *et al.* (2007)
Parent-Child Home Program	US	Background - family resources	Outside School/ Systemic	pre-primary	Prevention model that provides education and family support services to at risk, low-income families	Reduce dropout rates by improving decision making skills and connectedness to parents	Levenstein *et al.* (1998); Bradshaw *et al. (2008)*
Parent-Child Home Program, The	US	Behaviour – engagement (lack of effort); background - family resources (parental engagement with school); educational performance	Within school/ Outside school/ Systemic	Pre-primary	Provision of education and family support services to at-risk, low-income families	Shown to reduce dropout rates, most likely by improving decision-making skills and connectedness to parents	Levenstein *et al*. (1998) in Bradshaw *et al*. (2006)

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Parenting Wisely	US	Behaviour - deviancy; background - family resources (parental engagement with school) - family structure	Outside School/ Systemic	primary, lower and upper secondary	Self-administered, computer-based programme that teaches parents and their children from low income families with children with mild to serious behaviour problems important skills to enhance relationships and decrease conflict through behaviour management and support	Significantly reduce problem conduct/behaviour in children; improvement in parental involvement with children and their schoolwork	Hammond *et al.* (2007)
Participation in sports	Germany, US	Behaviour - deviancy	Outside School/ Systemic	Primary, lower and upper secondary	Participation in sports activities	Statistically significant impact on obtaining secondary school degrees. Effect larger for females than for males.	Pfeifer and Cornelissen (2010); Barron *et al.* (2000); Eide and Ronan (2001); Lipscomb (2007)
Perry Preschool program	US	Educational performance; background - family resources; behaviour - engagement	Within school/ Outside school/ Systemic	Pre-primary	Provide early childhood education to disadvantaged children; home visits	Reduction of dropout rates and promotion of school commitment; higher earnings in adulthood than control group	Bradshaw *et al.* (2008); Schweinhart *et al.* (2005); www.promisingpractices.net
Preventive Treatment Program	Canada	Behaviour - deviancy (peer effect, substance abuse); background - health	Outside School/ Systemic	Primary	Multicomponent programme designed to prevent antisocial behaviour of boys who display early problem behaviour in pre-primary; training for both parents and youth to decrease delinquency, substance use, and gang involvement	Less likely to report trespassing or theft; rated by teachers as fighting less; less likely to be held back in school; less likely to be placed in special education classes; less likely to have highly aggressive best friends	Hammond *et al.* (2007); Temblay *et al.* (1992)

Title of measure	Country studied	Risk-factor addressed	Implementation category	School level targeted	Description	Impact	Sources
Project GRAD - Project Graduation Really Achieves Dreams	US	Educational performance; background - family resources (parental engagement with school)	Within school/ Outside school/ Systemic	Upper secondary	Interventions focus on classroom management, student performance, parent involvement, and graduation and college acceptance rates; annual college scholarships are provided to students who graduate on time, complete a set academic attainment criteria	Gains in math and reading test scores; decreases in discipline referrals; gains in college attendance	Hammond *et al.* (2007); James and Partee (2003); Fashola and Slavin (1998)
Project Toward No Drug Abuse	US	Behaviour - deviancy (substance abuse)	Within school/ Systemic	Upper secondary	Interactive school-based programme designed to help high school youth resist substance use; motivational activities, social skills training, and decision-making components delivered through group discussions, games, role-playing exercises, videos, and student worksheets	Significant reductions in hard drug use, marijuana use, alcohol use; significantly lower risk of victimization; less likely to carry weapons	Hammond *et al.* (2007)
Project Towards No Tobacco Use	US	Behaviour - deviancy (substance abuse)	Within school / Systemic	Lower secondary	Classroom-based curriculum designed to prevent or reduce tobacco use in youth	Reduced initiation of cigarette smoking; reduced initiation of smokeless tobacco use	Hammond *et al.* (2007)
Prolonged Exposure Therapy for PTSD	US	Behaviour - deviancy	Outside School/ Systemic	Upper secondary	Cognitive-behavioural treatment programme for individuals suffering from posttraumatic stress disorder (PTSD); individual therapy (girls starting age 15 sexual abuse)	Improvements in and/or elimination of PTSD symptoms; improved daily functioning, including substantial reduction in depression, anxiety, and anger	Hammond *et al.* (2007)
Promoting Alternative Thinking Strategies	US	School practices	Within school/ Systemic	Primary	Social emotional programme for primary school children	Positive effect on core competencies such as self-control, moral belief system, decision-making skills and co-occurring behavioural problems	Bradshaw *et al.* (2008); Greenberg and Kusché *et al.* (1998)

Title of measure	Country studied	Risk-factor addressed	Implementation category	School level targeted	Description	Impact	Sources
Quantum Opportunities	US	Educational performance; behaviour - deviancy (early parenthood); attitudes	Within school/ Outside school/ Systemic	Upper secondary	Multicomponent intervention programme for disadvantaged youth; life skills training; academic help; tutoring; mentoring; community service; financial incentives (staff bonuses tied to youth participation rates); supportive services, such as snacks and transportation	Became more likely to graduate; became teen parents less often; higher academic and functional skills; higher educational expectations and were more likely to attend postsecondary schools	Hammond *et al.* (2007); James (1997)
Raising minimum wages	US	Systemic – society	Systemic	Outside school system	Raising minimum wages	Higher minimum wages are associated with higher dropout rates for Hispanic students but not other ethnicities	Crofton *et al.* (2009)
Raising the age of compulsory schooling	US	Systemic	Systemic	Lower and upper secondary	Several US states have increased age of compulsory schooling	Inconclusive; little evidence of significant effect on dropout; other literature argues the contrary	Bradshaw *et al*. (2008); Rumberger and Lim (2008); Oreopoulos (2007)
Reducing class size, student/pupil ratio	Denmark	School resources	Systemic - financing	Lower secondary	Reducing the student/pupil ratio within a year 8 classroom	Some effect on completion rates but extremely low → reduction of size by 5% leads to increase in probability of completing by 0,4%	Browning and Heinesen (2007)
Safe Dates	US	Behaviour - deviancy	Within school/ Outside school/ Systemic	Lower and upper secondary	Programme designed to stop or prevent the initiation of psychological, physical, and sexual abuse on dates or between individuals involved in a dating relationship; fits within a health education, family, or general life-skills curriculum.	Less likely to perpetrate psychological, sexual, and physical violence against their current dating partners; less likely to experience sexual victimization	Hammond *et al.* (2007)
School accountability for increasing academic performance (No Child Left Behind Act)	US	School practices	Systemic	Primary, lower secondary and upper secondary	Holding schools accountable for increasing academic performance and creating safe and orderly learning environment	Gains in academic achievement, no impact on dropout	Bradshaw *et al.* (2008), Perie *et al*. (2005)

Title of measure	Country studied	Risk-factor addressed	Implementation category	School level targeted	Description	Impact	Sources
School Transitional Environment Program (STEP)	US	Educational performance; behaviour - deviancy (substance abuse) - engagement; attitudes	Within school/ Outside school/ Systemic	Transition from primary to lower secondary or from lower secondary to upper secondary	Redesigning the school environment to make school transitions less threatening for students and aims to increase peer and teacher support, decrease student anonymity, increase student accountability, and enhance students' abilities to learn school rules and exceptions; creates small groups of transitioning students who remain together for core classes and homeroom, creates; redefines the role of the homeroom teacher and counsellors to provide greater support to students	Lower dropout rates; more positive feelings about the school environment; higher grades; fewer absences; fewer increases in substance abuse and delinquent acts; less teacher-reported behaviour problems; higher academic expectations	Hammond *et al.* (2007); Felner *et al.* (1994); Felner and Adan (1989)
Schools & Families Educating Children	US	Educational performance; background - family resources (parental engagement with school)	Within school/ Outside school/ Systemic	1st year of school	The programme aims to help children make the transition into 1st grade, have a successful first year; weekly multiple-family group meetings; one-on-one tutoring sessions for children; programme manual and materials; staff training and ongoing contact with developers	Greater improvement in academic achievement; reading scores approximating the national average; improvements in aggression and social competence	Hammond *et al.* (2007)
Second Step	US	Behaviour - deviancy, engagement	Within school/ Systemic	Primary	Social emotional programmes for primary school children; violence prevention curriculum	Positive effect on core competencies such as self-control, moral belief system, decision-making skills and co-occurring behavioural problems	Bradshaw *et al.* (2008); Greenberg and Kusché (1998); Grossman *et al.* (1997); www.promisingpractices.net

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Skills, Opportunities, and Recognition (SOAR)	US	Educational performance; behaviour - deviancy (early parenthood, substance abuse) - engagement	Within school/ Outside school/ Systemic	Primary and lower secondary	Intervenes early in children's development to increase pro-social bonds, to strengthen attachment and commitment to schools, and to decrease delinquency; combination of teacher training and parent training.	Improvement in commitment and attachment to school; improvement in self-reported achievement; improvement in self-reported involvement in school misbehaviour; lower likelihood of committing violent delinquent acts; lower likelihood of heavy alcohol use in the past year; lower likelihood of having been or having gotten someone pregnant	Hammond *et al.* (2007); Greenberg and Kusché (1999)
Strengthening Families Program	US	Behaviour - deviancy (substance abuse); background - health	Outside School/ Systemic	Primary	Family therapy programme that involves weekly skill-building sessions for primary school children and their families; family systems and cognitive behavioural approaches to increase resilience and reduce risk factors	Clinically significant decreases in conduct disorders; significant decreases in aggression; significant decreases in delinquency; decreased substance use	Hammond *et al.* (2007)
Strengthening Families Program for Parents and Youth 10-14	US	Behaviour - deviancy; background - health	Outside School/ Systemic	Lower secondary 10-14 youth and their families	Adaptation of the Strengthening Families Program; seven-week intervention utilising a biopsychosocial model in which parents and children learn individual skills in separate sessions, then are brought together to improve family communication and practices	Reduction in first time use of substances; reduction in conduct problems; delayed onset of other problematic behaviours	Hammond *et al.* (2007)

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Success for All	US	Educational performance; background - family resources (parental engagement with school) - health	Within school/ Outside school/ Systemic	Primary school	Help all primary school students achieve and retain high reading levels; programme facilitator for all sites; summer training and on-site training throughout year for teachers; programme manual and reading lists; daily one-on-one tutoring sessions; family support team including parent liaison, school administrator, counsellor, programme facilitator, and other school staff	Gains in reading; reductions in special education placement; improvements in achievement	Hammond *et al.* (2007) Fashola and Slavin (1998b)
Talent development high schools	US	Educational performance, Behaviour - deviancy - engagement; background - family resources	Within school/ Outside school/ Systemic	Upper secondary	Model for high school transformation built around specific organisational and instructional reforms designed to create strong relationships between youth and adults; connect learning with students' interests; academic and social support; college-preparatory curriculum; parent/community involvement	Positive effect on staying in school; positive effect on progressing in school; data on completion not available (examples from individual schools of dropout reduction)	Fleischmann and Heppen (2009); MacIVer and MacIver (2009); www.every1graduates.org
Talent Search	US	Background-family resources	Within school/ Outside school/ Systemic	Upper secondary	Career focused prevention programme; provides low-income high school students academic mentoring, career development coaching, college campus visits, and financial aid application assistance; academic tutoring and training on test taking and study skills	Increase in high school completion	Bradshaw *et al.* (2008); MacIver and MacIver (2009)

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Teen Outreach Program	US	Educational performance, Behaviour - deviancy	Within school/ Outside school/ Systemic	Lower and upper secondary	School-based programme involving young people in volunteer service in their communities; volunteer work connected to classroom-based, curriculum-guided group discussions on various issues important to young people	Less likely to get pregnant; less likely to fail a course; less likely to be suspended	Hammond et al. (2007); James (1997)
Too Good for Violence	US	Behaviour - deviancy (substance abuse)	Within school/ Outside school/ Systemic	Pre-primary, primary, lower and upper secondary	School-based violence prevention/character education programme that improves student behaviour and minimizes aggression; student curricula; division into groups; teaching material; training for teachers; materials for families to use at home	Significantly more pro-social behaviours by students	Hammond *et al.* (2007)
Trauma-Focused Cognitive Behavioral Therapy	US	Behaviour - deviancy (substance abuse), Background - health, background-family structure	Outside School/ Systemic	Pre-primary, primary, lower and upper secondary	Psychotherapeutic intervention designed to help children, youth, and their parents overcome the negative effects of traumatic life events	Less acting-out behaviour; greater improvement in defiant and oppositional behaviours	Hammond *et al.* (2007)
Zones d'Éducation Prioritaire (ZEP)	France	School resources	Systemic	Lower secondary (set up in primary + lower + upper secondary, but effect only tested for lower secondary)	Resource channelling to schools in prioritised areas based on number of students from disadvantaged background	none	Bénabou *et al.* (2009)

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