RESL.eu
Reducing Early School Leaving in Europe

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Early School Leaving: Risk and Protective Factors

Findings from the RESL.eu international survey

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Contents

Executive Summary

This publication represents an exploratory effort to discuss the overall findings of the large-scale, quantitative survey undertaken in 7 European countries within the broader RESL.eu (Reducing Early School Leaving in Europe) research project. Particularly, it examines the role of some of the key factors associated with processes that lead to Early School Leaving (ESL) and, more generally, poor educational achievement. The analysis of the RESL.eu survey data presented here confirms that these processes are extremely complex. Even when looking just at the individual and institutional levels, ESL depends on the interaction of personal characteristics, family background, attitudes, and relationships. No individual variable is, on its own, enough of a risk or protective factor, but all contribute to determine the overall likelihood of an individual young person leaving secondary education without an upper secondary qualification. There are, furthermore, major variations across countries, partly related to distinct differences in national educational systems and socio-economic contexts. In addition, there are several important dimensions and characteristics (social class among those identified in the literature as most significant) that are not fully captured by the RESL.eu statistical models.

Nevertheless, it is possible to identify some dimensions that appear to play a major role irrespective of any contextual element:

- Among the most important predictors of ***Early School Leaving*** are students' levels of school engagement. Being a boy and having at least one foreign-born parent are also associated with a higher level of risk in most European countries. On the other hand, higher levels of parental expectations (which often represent a proxy of family background) represent one of the clearest protective factors.

- Early School Leavers are also more likely to report lower levels of educational aspiration and **educational expectations**. These, in turn, are highly correlated to the expectations of one's parents and teachers as perceived and reported in the midst of their school career.

- With ***School Engagement*** being one of the key dimensions involved in the processes leading to ESL, it is particularly important to look at the factors correlated with young people's level of engagement. These include the extent to which young people display a positive academic 'self-concept' and the level of support they perceive to receive from their teachers. School engagement can also be broken down into underpinning dimensions such as behavioural engagement (how well students behave at school), affective engagement (how much they feel they belong to the school) and cognitive engagement (how much effort and commitment they put into their studies); in particular:

    - Young men and those students reporting being bullied or victimized at school are also more likely to report lower levels of ***Behavioural Engagement***.

    - The importance of student-teacher interaction is confirmed by the fact that students' perceived level of support from teachers is by far the most significant predictor of their sense of school belonging, or ***Affective Engagement***.

- Key indicators predicting levels of students' ***Cognitive Engagement*** include their levels of truancy and the extent to which young people place value on their education towards achieving positive outcomes for the future.

Based on an unprecedented amount of empirical data collected on a large scale and using the same methodology across several different countries, the RESL.eu survey represents an important exercise in evidence-based theory testing. A significant proportion of the findings presented here support the body of knowledge built up over the years by local and national research and practice. However, the measurements and statistical models produced through the project make it possible to explore the role of individual components in a new and very detailed way, examining the differences and similarities between countries. In doing so, it is of course necessary to bear in mind the specificities of local contexts and take into consideration the various very important elements which cannot be captured by a quantitative research exercise of this kind. Some of these aspects will be further discussed in future publications arising from RESL.eu, focusing on specific aspects and national case studies and triangulating the survey results with the insights arising from the qualitative elements of the project.

With regard to policy and practice, the RESL.eu survey will contribute to the production of a set of toolkits for teachers and national practitioners, incorporating a revised version of the questionnaire to be used to identify young people at risk of becoming early school leavers as well as to monitor progress and the impact of specific measures and interventions. The toolkit will be piloted in a number of locations, working in partnership with schools and stakeholders, and will be part of 'knowledge-exchange' initiatives in the participating countries.

1 Introduction

Education furthers personal and professional development, facilitates adaptation to the labour market, and ultimately enables a certain level of quality of life in a world of constant change that is dominated by uncertainty about the future (European Commission, 2011). High rates of Early School Leaving (ESL), on the other hand, are widely recognised as having long-term effects on societal development and economic growth and have been identified as one of the major challenges faced in Europe (Dale, 2010). It is for this reason that the reduction of ESL to 10% by 2020 is one of the key targets of European Union education strategy.

The nature of the processes leading young people to become an early school leaver – i.e. leaving education without attaining at least upper-secondary education – are complex, influenced by the interaction of personal characteristics and behaviours, the family, social and institutional settings and other structural level factors at local and national level. This publication aims to contribute to the debates on the risk and protective factors linked to the processes leading to early school leaving by presenting an overview of the findings from an international, longitudinal survey undertaken within the EU-funded project RESL.eu (Reducing Early School Leaving in Europe).

Section 2 provides an overview of the RESL.eu project and is followed (section 3) by a discussion of the methodology and sample of our survey, which involved nearly 20,000 participants across 7 European countries. Section 4 is devoted to a discussion of the theoretical framework underpinning the study and how this was operationalised through questionnaire design and data collection. This is followed by a presentation of the main dependent and independent variables used in the survey and in the subsequent data analysis, explaining how these were informed by international literature on early school leaving and educational achievement. The limitations of the survey are then discussed, with particular regard to some key dimensions – such as class, migration background and institutional setting – which are known to play a major role but which could be explored only to a limited extent through a survey of this nature.

Section 5 presents the survey findings, starting with the overall levels of ESL and some key differences in the profiles of early school leavers and non-early school leavers across the various country samples (5.1). Sub-section 5.2 then goes on to present the key predictors of Early School Leaving and some key related outcome variables such as Educational Expectations, and School Engagement. The latter concept, as discussed in the theoretical framework, is particular important to understand processes of ESL and school achievement, so further analysis is presented of some of the dimensions underpinning the broader concept of School Engagement. Finally, section 6 presents a final, overall discussion of the survey findings, highlighting the strengths, as well as limitations, of the RESL.eu dataset, raising some important discussion points, identifying questions for further research but also presenting some implications for policy and practice.

2 Early School Leaving and the RESL.eu Project

RESL.eu – Reducing Early School Leaving in Europe – is an EU-funded project aiming to provide insights into the processes and mechanisms influencing students' decisions to leave education or training early. In addition, RESL.eu intends to identify and analyse prevention, intervention and compensation measures that can help to keep pupils in education or training until they attain at least an upper secondary educational qualification – equivalent to International Standard Classification of Education (ISCED) level 3. The project's aim lies in the development of insightful, evidence-based conceptual models to predict and tackle early school leaving (ESL) and, finally, to disclose these insights to various target audiences at local, national and EU levels, thus informing policy and practice.

ESL is a concept introduced by the European political agenda (primarily through the *Lisbon Strategy*, and subsequently, *Europe 2020*), which is "intended to support a European strategy for skilled employment, economic growth, and mobility [whilst] this concept has also underpinned social cohesion and the combat against social exclusion" (Araújo *et al.*, 2013, p16). Early school leavers are defined as young people, "aged 18 to 24, who have completed at most lower secondary education and are not involved in further education or training" (Eurostat, 2017). The reduction of ESL provides an important tool in the promotion of equity, social cohesion and active citizenship on the one hand; and in the stimulation of economic growth and the creation of new skills, competencies and jobs on the other.

As illustrated by the table below, the current level of ESL in the European Union (10.7%) remains above the headline target of 10% (European Commission, 2010). There are wide disparities of ESL rates across countries: amongst the countries involved in RESL.eu, rates of ESL range from 5.2% in Poland to 19.0% in Spain. National targets for reducing early school leaving are therefore calibrated according to each country's starting point and set to ensure that they converge on the aggregate goal of 10% across the EU.

Table 1: Early school leaving rates and national targets

	ESL rate (2016)	National target
EU (28 countries)	10.7%	10.0%[1]
Belgium	8.8%	9.5%
Spain	19.0%	15.0%
Hungary	12.4%	10.0%
Netherlands	8.0%	8.0%
Austria	6.9%	9.5%
Poland	5.2%	4.5%
Portugal	14.0%	10.0%
Sweden	7.4%	10.0%
United Kingdom	11.2%	*no nat. target*

[1] *Europe 2020 headline target for EU*

Source: Eurostat, 2017, code: [tsdsc410]

Within this context, the RESL.eu project aims to contribute to the development and implementation of education policies and the transferability of country-specific good practices helping to reduce current rates of ESL to below the Europe 2020 target. In particular, the project builds upon existing practices to tackle ESL

and intends to develop innovative approaches for regular schools as well as for alternative learning arenas. In order to achieve this, RESL.eu seeks to advance the understanding of the mechanisms behind, the processes leading to and the trajectories following ESL through focussing on the actions, perceptions and discourses of all youngsters (both early school leavers and non-early school leavers), as well as those of their family, friends and teachers.

Funded through the Framework 7 Programme (FP7), the project operates over five years (2013-18) in nine EU member states (Belgium, the UK, Sweden, Portugal, the Netherlands, Poland, Spain, Hungary and Austria[1]), with research being undertaken in two local urban areas per country, identified by the country teams on the basis of specific economic and socio-demographic indicators.

Further information about RESL.eu, its research components, the research teams, as well as an archive of downloadable publications, are available on the project website: www.resl-eu.org

[1] N.B. primary research did not take place in Austria or Hungary

3 The RESL.eu Survey

One of the key elements of the RESL.eu project was an international, longitudinal survey of young people, aiming at identifying risk and protective factors of early school leaving, as well as other related educational outcomes. The survey involved at least 1,500 participants in each of the seven RESL.eu countries, within two different research areas per country. The data collection took place in two survey waves. The 1st wave (Spring/Summer 2014) surveyed students currently in secondary education, asking a wide range of detailed questions on socio-demographic characteristics as well as behaviours, attitudes and perceptions related to education and training. In most cases, the survey was administered within the schools and colleges using an electronic interface. The 2nd wave took place two years later (Spring/Summer 2016) and was based on a much briefer questionnaire, designed to measure participants' trajectories from school towards further training, higher education of labour market insertion. This was primarily administered via email and telephone, using contact information collected in the first wave[2].

Overall 19,586 young people took part in the first wave of the survey, with 7,072 also responding to the follow-up survey two years later. The breakdown of participants by country is presented below in table 2. The schools and colleges selected to participate in the first RESL.eu survey were chosen on the basis of being located in areas of relatively high youth unemployment and/or areas with specific demographic or socioeconomic challenges. Whilst full academic-year cohorts in schools (two comparable cohorts per country[3]) were targeted to capture a cross-section of the student body in that area, the final country datasets cannot be seen as nationally-representative samples of young people. Similarly, the relatively high overall attrition rate between the first survey and the follow-up survey implies that there is a degree of self-selection bias, whereby it is expected that those young people who did complete the follow-up survey are more likely to be engaged and so vulnerable, disengaged or hard-to-reach young people are expected to be under-represented in the sample.

Table 2: Survey participants and retention rates by country

	Students' survey respondents	Follow-up survey respondents	Retention rate
Belgium	2,790	1,289	46.2%
Netherlands	2,647	840	31.7%
Poland	3,148	1,512	48.0%
Portugal	2,223	1,035	46.6%
Spain	3,712	1,137	30.6%
Sweden	2,048	416	20.3%
UK	3,018	843	27.9%
All countries	**19,586**	**7,072**	**36.1%**

[2] In some countries, for the younger cohort – many of whom were still in education – the second wave was administered at schools/colleges in a similar manner to the first wave.

[3] Cohorts were selected on the basis of academic year groups in relation to both the end of compulsory education in that country and the point at which students would 'usually' be expected to achieve an upper secondary level qualification. Further details of the academic year groups selected for each of the countries is discussed in RESL.eu Project Paper 5 (Kaye *et al.*, 2015).

Nonetheless, each sample has a high degree of diversity with regard to personal characteristics and profiles. For example, of the 19,586 participants in the first survey, 10,196 (52.4%) were female, 8,828 (45.4%) were in the older cohort, 7,756 (41.2%), had a migrant background (at least one parent born outside of country of survey), and 7,113 (36.3%) had parents working in a manual or elementary occupation. Of the 7,072 young people completing the follow-up survey, 4,048 (57.4%) were female, 2,951 (41.7%) were in the older cohort, 2,329 (33.8%) had a migrant background and 2,675 (37.8%) had parents working in a manual or elementary occupation. Female participants, those in the younger cohort, those who do not have a migrant background and those with parents working in professional occupations, therefore, were over-represented in the follow-up survey. Statistical tests showed these differences to be statistically significant.

Table 3: Socio-demographic characteristics of survey respondents

	Students' survey respondents (*N*=19,586)		**Follow-up survey respondents (*N*=7,072)**	
	N	*valid %*	*N*	*valid %*
Gender				
Male	9,275	47.6%	3,010	42.6%
Female	10,196	52.4%	4,048	57.4%
Year group				
Cohort 1	10,691	54.6%	4,120	58.3%
Cohort 2	8,828	45.4%	2,951	41.7%
Migrant status				
Native background	11,073	58.8%	4,563	66.2%
Migrant background	7,756	41.2%	2,329	33.8%
Parental occupational status				
Professional	5,176	33.8%	2,095	35.3%
Technical	3,029	19.8%	1,170	19.7%
Manual and Elementary	7,113	46.4%	2,675	45.0%

Some theoretical and methodological issues related to the measurement and analysis of some these dimensions are discussed in section 4.3. Overall, it is important to highlight that, like all statistical models, the one produced through the RESL.eu questionnaire can only shed light on the role of those particular variables that could be measured in a meaningful and reliable way. Therefore its findings need to be examined taking into consideration the role of the various additional and contextual factors which were not part of the survey.

Despite these methodological limitations, the national and international (aggregate) RESL.eu dataset represent an insightful and innovative source of evidence on the way in which young people's characteristics, behaviours, experiences and educational outcomes interact with each other and the relative importance of each of these. The next section will summarise the theoretical framework which informed the RESL.eu research and will explain how key components of this were 'measured' through the longitudinal survey. A brief overview of the sample characteristics is then followed by the analysis of the findings, presenting a

number of statistical models describing the complex relationship between young people's characteristics, perceptions and behaviour on the one hand, and key educational outcomes (including ESL) on the other. The concluding section, by summarising the key findings of the study, also discusses the possible practical applications of our results as well as highlighting future research avenues.

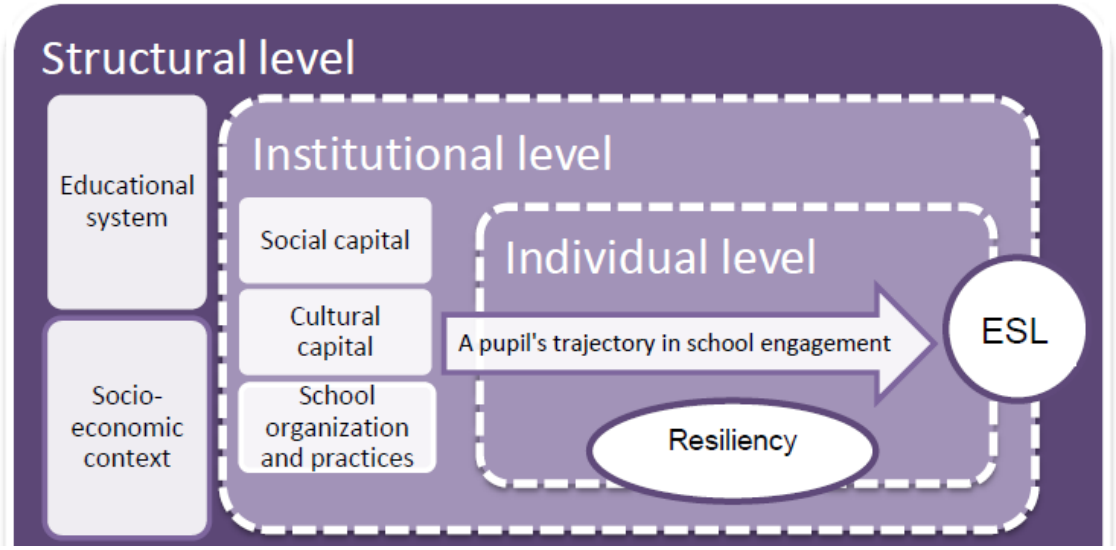
4 Key Concepts and Measures

4.1 Theoretical framework

The RESL.eu project approaches the process of early school leaving from a multilevel perspective, within which three nested levels – the individual, the social-institutional and the structural/systemic – play key and intersecting roles influencing an individual young person's trajectory through the school. This approach has been highlighted as an 'all-factors' framework or 'tripartite' approach in previous studies on early school leaving (Dale, 2010; Lamb *et al.*, 2011).

This theoretical framework has informed the project's conceptual model (see Clycq *et al.*, 2014), illustrated below, within which our research has sought to identify and analyse the interplay between risk and protective factors for ESL by focusing on the role of social and cultural capital, the school environment and practices, and an individual's self-perception and experiences throughout their educational career. This model highlights the link between the structural 'macro' context and an individual's trajectory towards early school leaving ('micro' level), mediated by their experiences in his/her school, alternative learning arena, family, peer group and community ('meso' level).

Figure 1: RESL.eu theoretical model; a multilevel approach to early school leaving



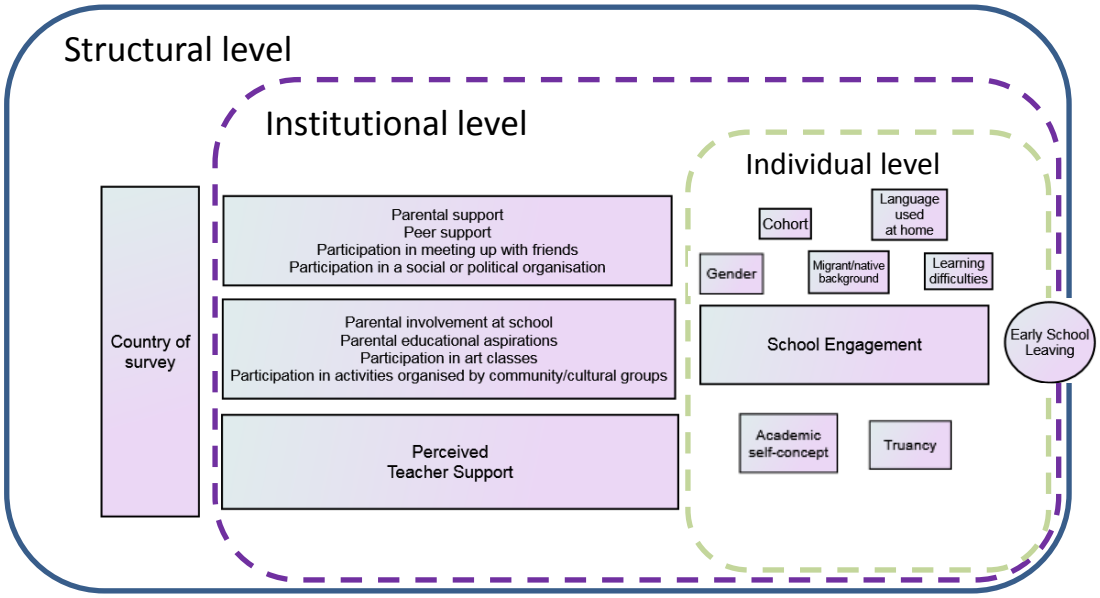
The RESL.eu survey in schools and follow-up survey of the same young people has allowed the study to explore the relationship between factors at each of the three intersecting levels and the extent to which statistical analysis of the survey data can uncover significant predictors of young people's trajectories towards school disengagement and early school leaving.

The analysis undertaken below is guided by one of the RESL.eu project's over-arching research questions, which asks:

> How does the complex and often subtle interplay of factors on a macro-, meso- and micro-level predict early school leaving?

In order to make sense of the concepts contained at each of the structural, institutional and individual levels within the model, the survey questionnaire operationalised some of these key concepts by collecting the specific measurements (variables) summarised in figure 2 below. The 'measurable' model thus produced focused on Early School Leaving as the key outcome variable and included a wide range of other important characteristics and dimensions which are discussed below. The questionnaire design, informed by the theoretical framework, the wider literature and existing survey tools used by practitioners and academics, was undertaken collaboratively within the international RESL.eu team to ensure all questions were relevant to the national contexts and allow for full international comparability. This process also required a selection of what and how many questions could be included in order to keep the questionnaire to a manageable length and also an acknowledgement of all those dimensions which, albeit particularly relevant, could not be measured in an appropriate and reliable way through a tool of this kind. As further discussed below, these include important background characteristics such as class, various indicators of economic status, as well as the national and local contexts and the specificities of the school settings.

Figure 2: The theoretical model measured through the RESL.eu survey



Given the focus of our international project**, Early School Leaving** – measured as a binary outcome variable – was the primary dependent variable upon which the survey analysis was focused. However, it also proved beneficial to run statistical analyses using the concept of **School Engagement** – and the components contained within it – to uncover further relationships between individual variables and the extent to which a young person has begun along the path towards disengaging from school, shown to be part of an on-going process towards early school leaving (Finn, 1989; Alexander *et al.*, 2001; Rumberger & Lim, 2008; Dale, 2010).

School engagement, therefore, is a useful concept for identifying those young people who do – or do not – participate actively in their educational career. As such, school engagement is discussed at length in the literature on early school leaving (Davalos *et al.*, 1999; Fall & Roberts, 2012; Ferguson *et al.*, 2005; Lamb *et al.*, 2011; Elffers *et al.*, 2012; Skinner & Pitzer, 2012) and has been the primary subject of a number of em-

pirical studies (Newmann, 1992; Lamb *et al.*, 2004; Rumberger, 2004; Janosz *et al.*, 2008; Wang & Fredricks, 2014).

Moreover, several authors (Jimerson *et al.*, 2003; Fredricks *et al.*, 2004; Appleton *et al.*, 2008; Archambault *et al.*, 2009; Wang & Eccles, 2012) have identified school engagement as a multidimensional construct of three connected yet discrete 'forms' of engagement: behavioural, affective (or emotional) and cognitive engagement. The first of these dimensions "encompasses students' effort, persistence, participation, and compliance with school structures" (Davis *et al.*, 2012, p23); affective, or emotional engagement relates to the extent which students feel a sense of belonging towards their school; whilst cognitive engagement concerns the level of engagement students have in completing their schoolwork. Beyond levels of effort in doing their work, cognitive engagement implies a degree of self-regulated learning towards increasing their understanding and competencies (Greene *et al.*, 2004; Fredricks *et al.*, 2004).

For this reason, the subsequent analysis of the RESL.eu survey focuses on six dependent variables (or 'target variables'): early school leaving (DV1); educational expectations (DV2; students' aspirations towards their own educational attainment); school engagement (DV3), and three of its components: behavioural engagement (DV4), affective engagement (DV5) and cognitive engagement (DV6). How each of these dependent variables are operationalised and measured is outlined below.

4.2 Dependent variables

The empirical results of the survey analysis are presented as a series of regression models , i.e. statistical models exploring the relative importance of a number of other 'independent variables' (IVs) – such as background characteristics, behaviours, and perceptions – as predictive factors of the 'dependent variables' (DVs). For each of the six dependent variables described above, bivariate correlations were explored at the level of individual national samples and those independent variables (IVs) displaying the strongest correlations with the dependent variable were included in the model[4].

The final regression analysis was then run at aggregate dataset level and, subsequently, at the level of the individual national samples to identify which variables are predictors of the DV for the dataset overall and whether certain IVs are significant predictors for the national datasets.

As mentioned above, the six DVs include not only the project's principal outcome variable of Early School Leaving, but also variables which are closely related to the on-going processes that are associated with a greater propensity to leave education or training early.

- ***Early School Leaving*** is a dichotomous variable (coded as 0=not an early school leaver; 1=early school leaver), which indicates whether, at the time-point of the follow-up survey, participants could be classified as an early school leaver – i.e. participants who are not currently undertaking any education or

[4] Methodological note: *The bivariate correlation analysis was instrumental in reducing the vast number of potential independent variables (IVs) selected for inclusion in the final regression models. The RESL.eu survey collected data on more than 100 key variables, including demographic data, information about educational trajectories and aspirations, individual motivations and attitudes and perceptions of support and expectations of parents, teachers and peers (see Kaye et al., 2015). IVs with the strongest correlations with each of the dependent variables and which were sufficiently strong in the majority of country samples were included and analysed in the final models.*

training and who have not achieved an upper secondary-level qualification (Eurostat, 2017). Only participants responding to the follow-up survey are coded and included in the analysis.

- ***Educational Expectations*** is a continuous variable, constructed as a composite index on a 9-point scale. Young people's expectations (as opposed to aspirations), concern a 'perceived likelihood of success' (Brookover *et al.*, 1967) and, in relation to educational attainment, has been shown to correlate with individuals' future educational achievement (Buchmann & Dalton, 2002). The Educational Expectations index, as employed by Behtoui (2016), was derived from participants' responses to the questions: "What is the highest level of qualification you are aiming to achieve before leaving full-time education?" – measured using the International Standard Classification of Education (ISCED; 1=I don't know, 2=ISCED 0-1, 3=ISCED 3C, 4=ISCED 3A/B, 5=ISCED 4 or above[5]) – and: "How likely do you think it is that you will achieve your desired level of education?', with four alternative answers (Not at all likely, Not very likely, Fairly likely, Very likely). The final index scored respondents who answered 'Fairly likely', or 'Very likely' to the second question higher than those who answered 'Not at all likely', or 'Not very likely' for each of level of educational qualification. Those answering 'I don't know' to the first question are coded '1', whilst those answering 'ISCED 4 or above' to the first question, and either 'Fairly likely' or 'Very likely' to the second question are coded '9'. The questions from which Educational Expectations variable are derived were included in the first students' survey: all those who provided a valid response to both questions are included in the analysis.

- ***School Engagement*** is a continuous variable, which measures participants' mean score on a 21-item composite scale. The items, each rated on a five-point scale, were included in the measure on the basis of factor analysis undertaken on the first students' survey (see Kaye *et al.*, 2015). School engagement emerged from this analysis as a second-order factor; a composite of six first-order factors: school belonging, importance of education, academic self-regulation, academic resilience, compliance behaviour at school and attentiveness at school. The reliability coefficient of the 21-item school engagement scale is .83 and the mean scores range from 1 to 5.

  Further analysis of the survey explores first-order factors within the over-arching school engagement scale that correspond to these different levels of engagement:

  - ***Behavioural Engagement*** is a continuous variable, which measures participants' mean score on a 3-item composite scale. Each of the survey items measures the extent to which students display poor discipline, bad behaviour or violence at school on a five-point scale, which are then reverse-scored to obtain a mean score for behavioural engagement (higher scores indicating more compliant behaviour). The reliability coefficient for this 3-item scale is .82 and the mean scores range from 1 to 5.

  - ***Affective Engagement*** is a continuous variable, measuring participants' responses to 3 survey items relating to school belonging: 'I think this is a good school', 'I feel like a real part of this school' and 'I would recommend to other kids that they go to this school' (adapted from Wang *et al.*, 2011). Answers are measured on a five-point scale (Cronbach's alpha = .87), with mean scores for affective engagement ranging from 1 to 5.

[5] The response options for this question used national-specific educational qualifications for each country's survey before being converted into the international standard classification of education (ISCED-97) at the data analysis stage

- ***Cognitive Engagement*** is a continuous variable, comprising the mean score of responses to 6 survey items measuring participants' levels of academic self-regulation. These items relate to the amount of time and effort students put into their schoolwork as well as the extent to which they employ self-regulated learning strategies when undertaking their academic studies (adapted from McCoach, 2002 and Wang *et al.*, 2011). Responses to each of the six items are measured on a five-point Likert scale and the mean scores range from 1 to 5. The reliability coefficient for the six-item cognitive engagement scale is .84.

Descriptive statistics for each of the scale variables detailed above are provided in table 4, below. In addition, for the sake of completion, statistics are given for the three further subscales which contribute as components of the overall school engagement scale: academic resilience, importance of education and school attentiveness[6]. However, the analysis which follows focuses (in addition to early school leaving and educational expectations) on school engagement as an overarching concept and the three subscales which are conceptualised as aligning most closely to its behavioural, affective and cognitive dimensions.

Table 4: Descriptive statistics for scale variables:

	N	Min	Max	Mean	St Dev
Educational Expectations *(=DV2)*	**18,038**	**1.00**	**9.00**	**7.55**	**2.26**
School Engagement *(=DV3)*	**16,752**	**1.00**	**5.00**	**3.65**	**0.49**
Behavioural engagement (Compliance behaviour at school) *(=DV4)*	18,123	1.00	5.00	4.47	0.78
Affective engagement (School belonging) (*=DV5)*	18,588	1.00	5.00	3.57	1.01
Cognitive engagement (Academic self-regulation) *(=DV6)*	18,309	1.00	5.00	3.36	0.80
Academic resilience	18,545	1.00	5.00	3.40	0.79
Importance of education	18,419	1.00	5.00	4.14	0.76
Attentiveness at school	18,687	1.00	5.00	3.19	1.03

[6] see Kaye *et al.* 2015 for further information on the composition of the statistical scales

4.3 Independent variables and other key risk/protective factors

Overall, the RESL.eu survey included over 80 questions, with some minor variations across countries. In addition to the key Dependent Variables identified above, key variables collected included:

- Basic demographic characteristics, such as gender, age, country of birth and family composition;
- Information about young people's school life: their previous educational trajectory, current studies, attitudes to their teachers and schooling in general, and their future educational aspirations;
- Information about young people's family and home life, including their attitudes towards their parents, siblings and the areas in which they live;
- Information on their peer group, including their interaction with peers at school, the demographic composition of their friendship group, and their aspirations beyond education;
- Young people's self-reported future plans in terms of further education and training, and occupational aspirations.

As mentioned above, all these variables were included in the survey because – on the basis of our theoretical framework and the wider academic literature – they are deemed to have, to a greater or lesser extent, a relevant impact in the processes leading to ESL. In particular, the presence or absence of certain characteristics can increase the risk that a young person may end up leaving school early. However the complex interactions between factors makes it difficult to identify those that, on their own, can univocally be identified as being 'risk' or 'protective' factors.

Different variables are included in each of the statistical models presented in this publication. In the initial stages of data analysis, all variables underwent bivariate correlation analysis with our key Dependent Variables on the level of individual country samples. As standard practice in this type of statistical analysis, the final multivariate models (presented in the next section) include, for each Dependent Variable, only those Independent Variables that showed an acceptable level of statistical significance ($p < 0.05$), with a minimum coefficient of correlation ($r \geq .200$), in the majority of the national sample datasets.

In other words, it is important to highlight that the Independent Variables listed and analysed for each of the regression models presented in the next sections have not been arbitrary 'chosen' by the authors, but included on the basis of statistical patterns emerging from the analysis of the specific RESL.eu dataset. Moreover, this does not mean that – in general terms – none of the other variables matters. On the contrary, we know from extensive literature that there are several other factors and dimensions that could not be measured through the survey or that did not fit the statistical models but that still play a major role in affecting the educational pathways of individual young people.

In particular, much previous research on educational attainment, school engagement and early school leaving has highlighted the importance of social class, migration background and ethnicity, and institutional settings as key protective or risk factors playing a role in a young person's academic success – or failure. These are discussed in the next few sections.

Class and SES

Socio-economic background (or socio-economic status – SES) is widely regarded as one of the strongest predictors of academic achievement (Reay, 2006; Berkowitz *et al*., 2017). More generally, the role of social class in shaping young people's educational aspirations, experiences and attainment has been discussed by many sociologists across many countries (Archer & Yamashita, 2003; Shildrick & MacDonald, 2007; Kintrea & Houston, 2011). Research has highlighted the ways in which middle-class parents build cultural, social and economic capital to support their children's education (Lareau, 2003; Vincent & Ball, 2007). Children from working-class backgrounds experience particular kinds of structural obstacles in navigating their educational pathways (Archer & Yamashita, 2003; Reay, 2001), which may then impact on their aspirations for the future (Archer *et al.*, 2010). Holland *et al.* (2007) refer to a "situated balance between individual and wider resources, and access to support and social capital… for young people from economically deprived backgrounds, individual resources of ability and ambition do not necessarily translate into educational and occupational success" (p108-9). In addition, research shows that children from working class background in the UK are far less likely to apply for and attend an elite university (Reay *et al.*, 2005). The intersection between class, gender and ethnicity is particularly complex and dynamic and has been the subject of numerous research studies (Archer, 2010; Vincent *et al*., 2012).

At the same time, however, class is particularly hard to measure in a reliable way through statistical instruments. In the RESL.eu survey, parental occupational status was included in the questionnaire, as a proxy indicator of socio-economic status (SES). This was coded according to the International Standard Classification of Occupations (ISCO-08), on the basis of students' responses to the questions: 'What is your father's main job?' and: 'What is your mother's main job?' The higher status occupation between respondents' father and mother was used as parental occupational status, which was then aggregated into a three-group classification (see Dumont, 2008; Keeley, 2009). Responses to these questions relied on students' ability accurately to recall and sufficiently describe their parents' jobs; therefore this variable has a low reliability and was subject to high levels of missing data (21.8% in the 1st wave; 16.0% of respondents to the 2nd wave). Furthermore, when used in the preliminary stages of statistical data analysis, this variable appeared to have an extremely weak explanatory power and was in most cases not statistically significant. It is for these practical and methodological reasons that socio-economic status does not appear in the regression models presented in the next sections – although the important role played by class must be taken into consideration when interpreting these.

Other proxy variables for SES and family background included in the RESL.eu dataset included parents' level of education, parental involvement at school and available space and facilities at home (for example the presence of "a quite space" at home to study). Like with all other Independent Variables, these are presented in the statistical models only when they appeared to play a significant role in the variation of the Dependent Variables under investigation.

Migration background and ethnicity

The existing literature supports the idea that, overall, minority/migrant children are more likely to experience educational inequalities as they attempt to navigate a process of acculturalization in the host country

(Gibson 1998; Carrasco, *et al.* 2011; Clycq *et al.*, 2013). On the other hand, in more recent years there has been an increasing amount of research demonstrating a greater level of emotional school engagement (Elffers *et al.*, 2012; Wang and Eccles, 2012) or higher aspirations (Behtoui and Neergaard, 2015) amongst young people with a migrant background. It is well documented that in the UK, for example, native White British children, especially boys from a working class background, are one of the lowest achieving groups in education (Evans 2006; House of Commons 2014; Reay 2009; Stahl 2015; Strand 2014). Recent studies (Stoer & Araújo 2000; Macedo & Araújo 2014a; Macedo & Araújo 2014b) have also shown that lower levels of school engagement amongst native-born students relative to their non-native classmates may be the result of a 'disillusionment' amongst young native adults in the capacity of education to promote social mobility.

It is also important to highlight that migrant background intersects with class in complex ways. The ground breaking work of Alejandro Portes in the USA in the 1990s tested the school attainment of children from a range of diverse migrant and socio-economic backgrounds including Vietnamese and Mexicans. The study found that parents' socio-economic background and length of time in the USA all impacted on students' academic attainment. In addition, the type of school the children attended also impacted on their educational performance. Attending a more affluent school increased both average performance and the positive effects of parents' SES (Portes & MacLeod 1996).

Similarly in the UK, David Gillborn found a strong association between class and educational attainment regardless of students' ethnic or migrant background (Gillborn 1997). Paul Connolly conducted a secondary analysis of three successive cohorts of the Youth Cohort Study of England and Wales and examined the effects of social class and ethnicity on gender differences in GCSE results. He found that both social class and ethnicity exert a far greater influence on the GCSE performance of boys and girls than gender. Simply in terms of the effects of social class, ethnicity and gender on educational attainment, therefore, it is argued that these can actually be understood in terms of a simple 'additive model' (Connolly 2006). However, more recent research challenges the additive view to suggest more complex interactions between class, ethnicity and gender. Based on the analyses of educational achievement at age 11, 14 and 16 of over 15,000 students from the nationally representative longitudinal study of young people in England, Strand (2014) found that at age 16, the achievement gap associated with social class was twice as large as the biggest ethnic gap and six times as large as the gender gap. Among low SES students, all ethnic minority groups achieve significantly better than White British students (except Black Caribbean boys who do not differ from White British boys), but at high SES only Indian students outperform White British students. Strand argues that: 'Parents' educational aspirations for their child and students' own educational aspirations, academic self-concept, frequency of completing homework, truancy and exclusion could account for the minority ethnic advantage at low SES, but conditioning on such factors simultaneously indicates substantial ethnic underachievement at average and high SES' (2014: p131). Reay (2004) also highlighted that the social class position of ethnic minority families in the UK do not necessarily match the parents' educational background and subsequent aspirations. While these families' economic capital might be very low and they might live in impoverished neighbourhoods, with low parental employment status; their cultural capital can be significantly higher, which will be reflected in the children's educational outcomes. Strand concludes that explanations of educational achievement framed exclusively in terms of social class, ethnicity or gender are insufficient (Strand 2014).

Institutional context and school setting

As with other contextual factors, the role of the school setting in which young people undertake their studies is also a hugely influential one. This interaction between adolescents and their institutional environment has formed the basis of several theories of youth development. Most ecological theories of development emphasise the key nature of institutional effects on students' engagement at school (Fredricks *et al.*, 2004; Wang & Eccles, 2014). Stage-environment fit theory (Eccles & Midgley, 1989), for example, highlights the need for adolescents' social context – most importantly, the school context – to adapt to changing developmental needs, whilst self-system theory (Connell, 1990) also frames young people's interactions within a particular school context in terms of the fulfilment (or not) or their psychological 'needs'.

The importance of context in the study of academic achievement is evident and cross-national research highlights the high degree of variation seen between education systems and broader cultural and socio-economic contexts (Eisenmon, 1997; Breen & Jonsson, 2005). For example, there are differences between countries according to types of academic tracking, existence of grade retention, timing of educational transitions, pedagogical norms and classroom practices. Furthermore, there may be school-level and classroom-level effects on individuals' levels of engagement that cannot easily be accounted for and which may vary significantly within a single school or jurisdiction.

Social capital acquired through school has been found to have an important impact on academic achievement and ESL. For example, Oseguera *et al.* (2011) found that in the USA, access to school related social capital – relationships with teachers, other school staff and peers, and potential for their realisation in secondary education – differs among four ethnic groups (Southeast Asian, Black, Mexican and White), and this played an important role in explaining different educational achievement among these groups. In addition, teacher-based forms of social capital have been found to halve the likelihood of young people dropping out of education (Croninger & Lee, 2001).

5 Findings of the Survey

5.1 ESL and other outcome variables

Table 5, below, provides an overview in terms of young people's outcomes at the time of the follow-up survey. Whilst it is to be expected that early school leavers would be amongst the most reluctant to participate in the follow-up survey, around 1.7% of the sample could be classified as ESL (having achieved no higher than lower secondary level education and not currently in any kind of education or training). The proportion of ESL is evenly distributed across the two cohorts. However, it is clear that the numbers of early school leavers are not evenly distributed across the seven countries in which the research took place (Table 6). In fact, whilst almost 5% of the Dutch sample were early school leavers, for the Polish, Swedish and UK samples the figure is below 1%.

In terms of young people's activity status at the time of the follow-up survey, the vast majority of respondents (88.4%) were in education or training, and amongst the younger cohort, the proportion is even higher (96.2%). Overall just over 3% of the young people surveyed are currently not in education, employment or training (NEET); most of these 'NEETs' were amongst the older cohort.

Table 5: Outcomes of Follow-up Survey respondents:

	Survey A2 respondents		Cohort 1		Cohort 2	
	N	*%*	*N*	*%*	*N*	*%*
Early School Leaving						
ESL	113	1.6	66	1.6	47	1.6
non-ESL	6,811	98.4	3,948	98.4	2,863	98.4
Current Activity						
In education or training	6,203	88.4	3,916	96.2	2,287	77.7
In paid employment	584	8.3	89	2.2	495	16.8
NEET	230	3.3	67	1.6	163	5.5

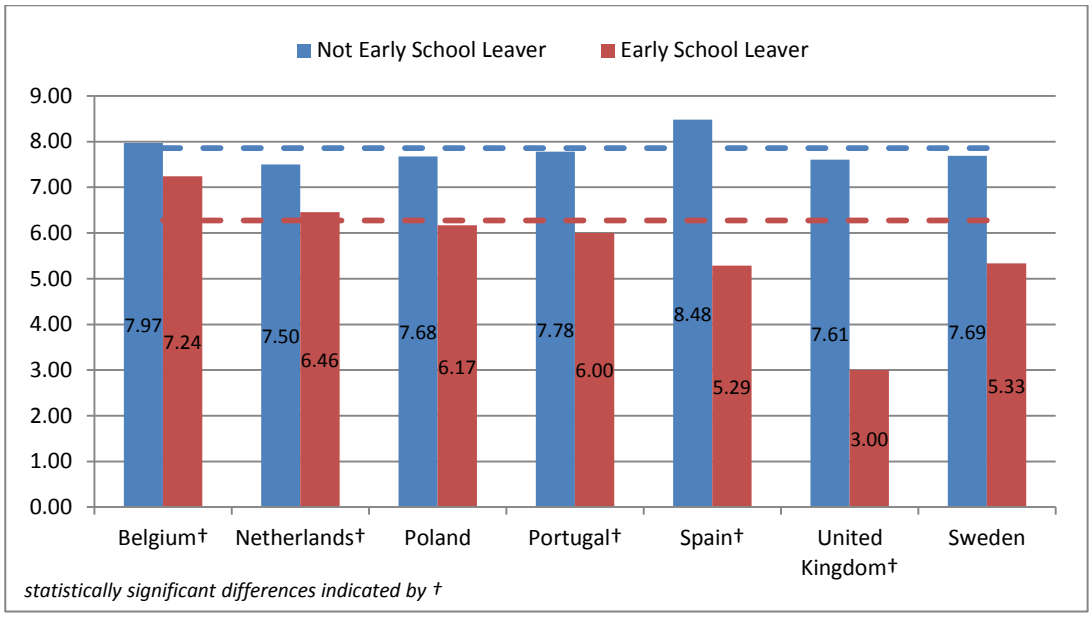
Table 6: Early school leavers by country of survey:

	Early School Leavers	
	N	*%*
Belgium	32	2.5
Netherlands	38	4.9
Poland	6	0.4
Portugal	16	1.6
Spain	14	1.3
Sweden	3	0.7
UK	4	0.5
All countries	**113**	**1.6**

Despite the small absolute numbers of early school leavers captured by the survey, significant differences can be seen in relations to their mean scores for each of the key outcome variables analysed, which supports the hypothesis that these measures are closely related to on-going processes associated with a greater likelihood of leaving education or training early.

In particular, figure 3 shows that in each of the country samples, early school leavers – as identified in the 2nd wave of the survey – scored lower than non-early school leavers in terms of the educational expectations, as measured during the 1st wave. The largest difference can be seen for the UK data (-4.61), whilst for the Belgian sample the difference was much smaller (-0.73), although still statistically significant. This is consistent with previous research into ESL whereby lower educational expectations have been shown to be a strong predictor of which students decide to leave school early (Poole, 1978; Rumberger & Lim, 2008; Elffers & Oort, 2013).

Figure 3: Educational Expectations (mean score) for early school leavers and non-early school leavers by country of survey



As discussed above, young people's level of school engagement can be used as a means of identifying those students who are more or less likely to continue their educational career. Again, survey respondents identified as early school leavers were more likely to score below their non-ESL peers; this is the case in each of the country datasets. For each of the individual components of school engagement investigated here (behavioural, affective and cognitive), this pattern is repeated (figures 4-7). Overall, mean scores for behavioural engagement were higher than those for affective engagement, whilst scores for cognitive engagement were lower still. However, the difference between ESL and non-ESL young people was most pronounced for cognitive engagement: as shown in Figure 7, scores for early school leavers' cognitive engagement averaged below three out of five for all the country samples, except the Netherlands (where the average for ESL young people was 3.02). The differences are relatively small for all the subscales, although in

most cases they are statistically significant and are, in all but one case[7], in the direction hypothesised from the project's theoretical framework.

The data presented in this section, however, does not clarify how these different components of overall engagement interrelate. Likewise, the way in which measured levels of engagement interact with other factors, such as levels of social support, perceptions and attitudes towards education, teachers, parents and peers, and individual aspirations, merit a more in-depth analysis. This is addressed in the next sections, which employ multivariate statistical analysis to explore the relationship between several variables identified as important predictors of each of these key measures associated with early school leaving.

Figure 4: School engagement (mean score) for early school leavers and non-early school leavers by country of survey

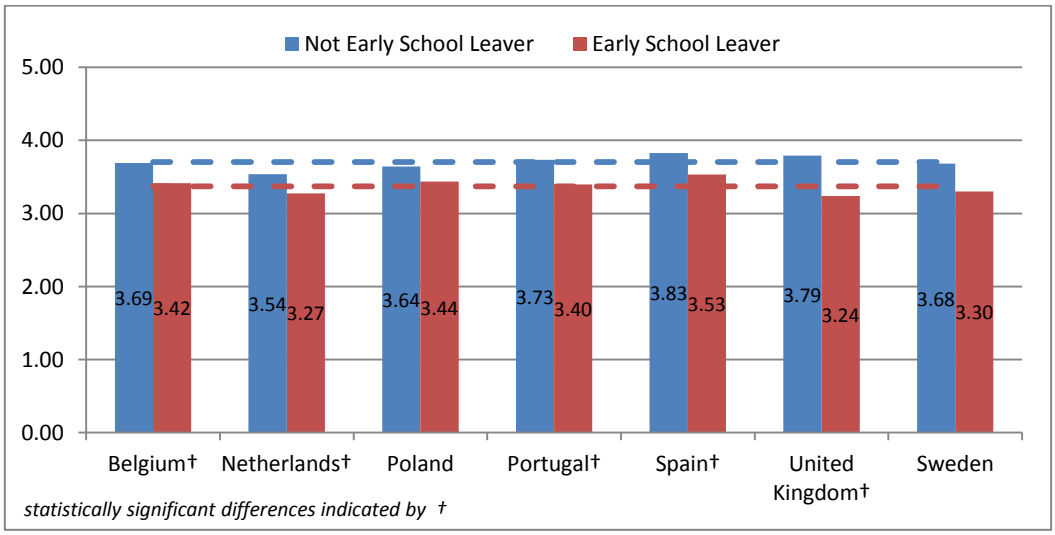
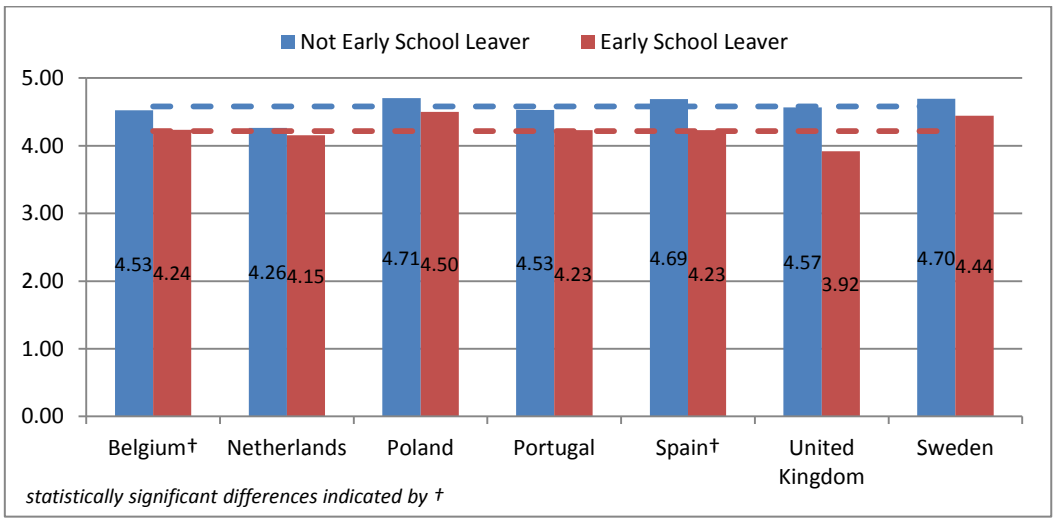


Figure 5: Behavioural engagement (mean score) for early school leavers and non-early school leavers by country of survey



[7] For the Swedish sample, the mean affective engagement score for early school leavers was higher than for those young people who were not ESL, which, although somewhat anomalous was nevertheless found to be not statistically significant

Figure 6: Affective engagement (mean score) for early school leavers and non-early school leavers by country of survey

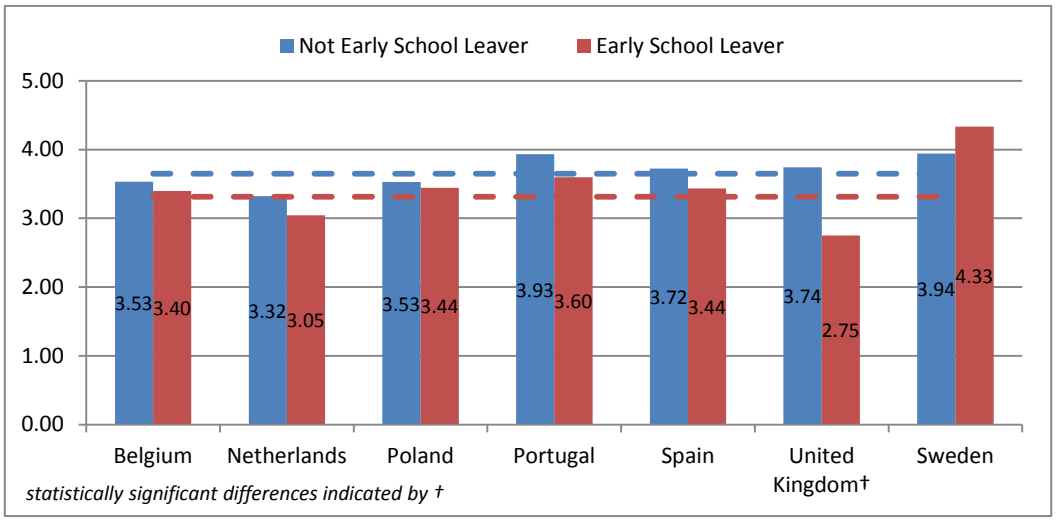
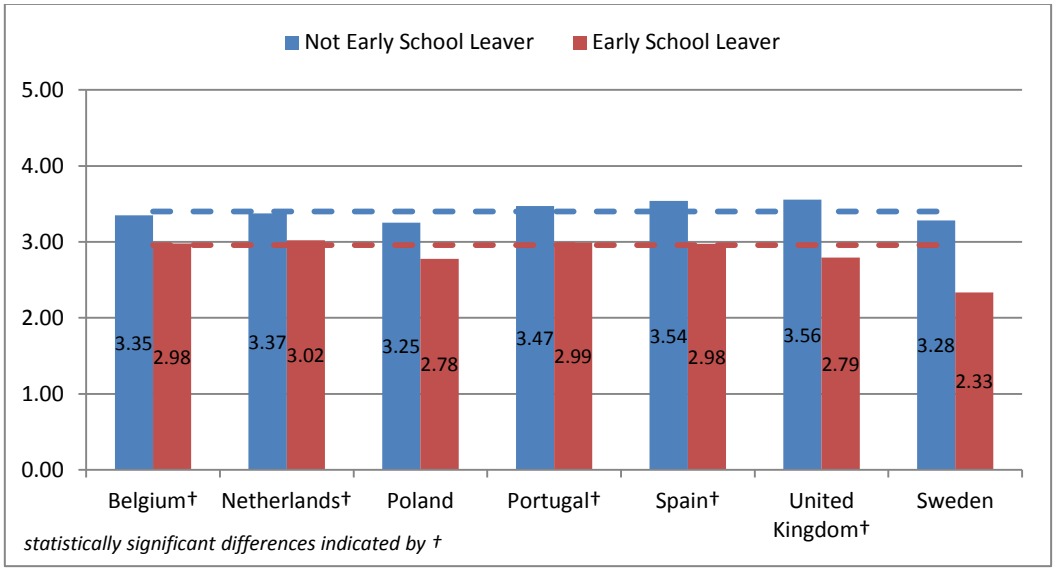


Figure 7: Cognitive engagement (mean score) for early school leavers and non-early school leavers by country of survey



5.2 Predictors of Early School Leaving and related outcome variables

5.2.1 Early School Leaving

Table 7 presents the results of a logistical regression model on the basis of the aggregate international dataset. The model compares the likelihood of being an early school leaver with not being an early school leaver (i.e. either having achieved an upper secondary level qualification or currently still in education or training). Analysis of the survey data indicates that certain factors are significantly associated with an increased risk of becoming ESL. The first part of the table – step 1 – includes only young people's background characteristics, showing that males are more likely than females to become early school leavers; this is also true for those with a migrant background.

In terms of the country in which the data were collected, the effect appears to be small or statistically insignificant except where the number of cases of ESL is extremely small. For example, in the Polish sample (*n*=6), there appears to be much less chance of participants being classified as an early school leaver in comparison to the reference country sample (Belgium).

Step 2 adds levels of truancy, academic grades and school engagement scores to the model. Whilst all of these measures are self-reported at the time of the first students' survey, they are all significant predictors of ESL, whereby higher levels of truancy, lower grades and lower levels of engagement at school are associated with a greater risk of becoming an early school leaver.

Finally, step 3 brings in measures of young people's educational expectations as well as the perceived level of educational expectation held by their parents. When entered into the model, these factors are found to be significant predictors of ESL, with higher levels of educational expectations and parents' expectations being associated with a lower risk of leaving school early. This final model shows that the most important factors predicting early school leaving are School Engagement, migrant background status and gender. Thus, students who report being less engaged at school, having at least one foreign-born parent and who are male are all at significantly greater risk of becoming ESL (table 8).

The variable effect seen for country of survey, owing to the unequal distribution of cases of early school leaving and the extremely small absolute number of such cases within some of the country samples, means that the final model cannot be run for all countries' datasets. Hence, the analysis of ESL is presented only for the aggregate data and the findings of the model should be interpreted with caution.

Regardless, the findings according to the model built using the aggregate international dataset do appear to support the existing literature on dropout and ESL, which has identified boys (Byrne & Smyth, 2010), migrants (Anisef *et al.*, 2010; Jonsson & Rudolphi, 2011) and school engagement (Fall & Roberts, 2012; Ferguson *et al.*, 2005; Lamb *et al.*, 2011; Elffers *et al.*, 2012;) as key predictive factors. Much has also been written regarding the role of truancy (De Witte & Csillag, 2014), prior academic attainment (Bradley & Taylor, 2004; Rumberger, 1995), and aspirations (Marks *et al.*, 2000; Homel & Ryan, 2014) in foreshadowing potential early school leaving.

Table 7: Logistic regression model predicting Early School Leaving for aggregate dataset

	Step 1	Step 2	Step 3
Constant	-24.823**	-19.853	-18.934
Gender (*Ref: Female*)	.925**	.729**	.680**
Migrant background (*Ref: Native*)	.602*	.738**	.781**
Country of survey (*Ref: Belgium*)			
Netherlands	-.811**	-.711*	-.245
Poland	1.531**	1.777**	1.850**
Portugal	.291	.130	.078
Spain	.688°	.570	.558
UK	17.315	16.920	17.055
Sweden	1.259°	1.558*	1.588*
Truancy		.196*	.172°
Academic grades		-.336**	-.256*
School Engagement		-1.111**	-.898**
Educational expectations			-.196**
Parents' educational expectations			-.247*
Model pseudo R^2	***.123***	***.180***	***.211***

** $p < .01$ * $p < .05$ ° $p < .10$

Table 8: Variables in the final model and interpretation in relation to probability of being ESL

	Being ESL predicted by:
Gender	Being male
Migrant background	Having a migrant background
Country of survey	Country effect is not significant except where there are very few cases of ESL, e.g. PL & SE
Truancy	Higher levels of truancy
Academic grades	Lower academic grades
School Engagement	Lower levels of school engagement
Educational expectations	Lower educational expectations
Parents' educational expectations	Lower perceived levels of educational aspiration by one's parents

5.2.2 Educational Expectations

As mentioned in section 4.2, the RESL.eu survey measured educational expectations through responses to two questions:

- What is the highest level of qualification you are aiming to achieve before leaving full-time education?;
- How likely do you think it is that you will achieve your desired level of education?

Overall, as reported in table 9, educational expectations are predicted by a range of interrelated concepts, including individuals' school experiences, their self-perceptions as students and their future aspirations, and the perceived levels of expectations of young people's teacher, parents and peers. The way in which these factors interconnect is complex, but according to our analysis, the most important predictors of educational expectation are:

- ***Parents' educational expectations;*** i.e. students who believe that their parents educational expectations for them are higher are also more likely to report higher levels of educational expectations themselves;

- ***Teachers' educational expectations;*** similarly, those young people who think their teachers expect them to achieve higher levels of educational attainment also report higher educational expectations.

Teachers' expectations are a significant predictor of educational expectations for each of the country samples as well as for the aggregate data set, whilst parents' expectations are significant in all samples except for the Portuguese data (see table 10). Other variables that are significant predictors across all or most of the country samples include:

- ***Cohort;*** i.e. being in the older cohort is a significant predictor of higher educational expectations for all the country samples, expect for the Portuguese data
- ***Academic grades***, with higher self-reported academic grades being correlated with higher levels of educational expectations
- ***Vocational track;*** in education systems where it is applicable, being in the vocational track (as opposed to the academic or general educational track) was associated with lower levels of educational expectations amongst students
- ***Importance of education;*** i.e. the extent to which a young person sees education as an important endeavour towards their future success, is positively correlated with their level of educational expectations. This scale is measured by calculating the mean scores for 3 items on the RESL.eu survey relating to the extent to which they perceive working hard at school will help them to achieve positive outcomes in life.
- ***Academic self-concept;*** i.e. an individual's self-perceived ability to succeed within the context of their academic career (Shavelson *et al.*, 1976; Bong & Skaalvik, 2003). In the RESL.eu survey, aca-

demic self-concept was measured by calculating mean scores for 6 items ranked on a 1 to 5 scale (reliability coefficient = .73). Analysis of the aggregate data indicate that young people with a more positive academic self-concept are more likely to be exhibit higher levels of educational expectations.

- ***Occupational aspirations;*** as coded according to the International Standard Classification of Occupations (ISCO-08), was positively correlated with higher levels of educational expectations, whereby young people expecting to achieve higher levels of educational attainment were also more likely to aspire towards a higher-status occupation in the future

In addition, some variables included in the final statistical model are significant predictors of educational expectations for some countries' sample, whilst for others these variables are not significant. For example:

- ***Gender;*** for the aggregate dataset, being female was a significant predictor of higher educational expectations, although gender was not included as a significant variable in the final model for any of the individual country samples;
- ***Migrant background;*** whilst having a migrant background predicted higher educational expectations in the model built using data from the Netherlands, the relationship was the inverse for the Belgian sample, where young people without a migrant background were more likely to report higher levels of educational expectations. This variable was not significant for any of the other country-level datasets;
- ***Peer aspirations;*** i.e. higher aspirations amongst students' friendship group – measured as the extent to which their peers feel it is important to attend class, study hard, get good grades and continue education beyond upper secondary level – is also a predictor of higher educational expectations for two of the country samples (Poland and Portugal)

Overall, the statistical model built using the aggregate international dataset is robust and moderately strong, able to explain around 30% of the total variation in the young people's level of educational expectations (R^2 = 0.3). The same model also shows predictive power across all the country samples (R^2 between 0.2 and 0.5), though with relevant differences in how individual variables interact. It appears to be particularly robust for the Polish data, where the model accounts for more than half of the overall variation in respondents' level of educational expectations.

Table 9: Final regression models *(DV= Educational Expectations)* for 6 countries and aggregate dataset

	Belgium	Netherlands	Poland	Portugal	Spain	UK	Aggregate dataset (all countries)
Gender							✓
Cohort	✓	✓	✓		✓	✓	✓
Migrant background	✓	✓					✓
Academic grades			✓	✓	✓	✓	✓
Vocational track	✓	✓✓	✓	✓✓	✓		✓
Importance of education	✓	✓	✓			✓	✓
Academic self-concept		✓	✓	✓		✓	✓
Occupational aspirations°	✓	✓	✓✓	✓		✓	✓
Peer aspirations			✓	✓			✓
Parents' educational expectations	✓✓	✓	✓✓		✓✓	✓	✓✓
Teachers' educational expectations	✓	✓	✓	✓	✓	✓	✓
Model adj. R^2	***.326***	***.201***	***.518***	***.216***	***.236***	***.277***	***.299***

°variable reverse-scored *significant coefficients indicated by ✓ - coefficients greater than .200 indicated by ✓✓*

Table 10: Variables in the final model and interpretation in relation to levels of Educational Expectations

	No of countries in which significant predictor in the model	Greater Educational Expectations predicted by:
Gender	0	Being female (Agg. only)
Cohort	5	Being in the older cohort (**not** PT)
Migrant background	2	Having a migrant background (NL) Not having a migrant background (BE)
Academic grades	3	Achieving higher academic grades (ES, UK) Achieving poorer academic grades (PT)
Vocational track	5	Not studying within a vocational track (**not** UK)
Importance of education	4	Placing a higher value on education (**not** ES, PT)
Academic self-concept	4	Having a more positive academic self-concept (not BE, ES)
Occupational aspirations	5	Having higher occupational aspirations (not ES)
Peer aspirations	2	Higher peer aspirations (PL, PT)
Parents' educational expectations	5	Higher educational expectations of one's parents (**not** PT)
Teachers' educational expectations	6	Higher educational expectations of one's teachers

5.2.3 School Engagement

School Engagement – as measured by the RESL.eu scale – is connected to a range of factors relating to young people's socio-demographic characteristics, their self-perceptions and their perceived level of support from teachers and parents. The way in which all these interact with each other is extremely complex; however, when all these variables are pulled together into an overall statistical model (see table 11) it appears that the strongest predictors of school engagement are:

- ***Academic self-concept;*** i.e. an individual's self-perceived ability to succeed within the context of their academic career (Shavelson *et al.*, 1976; Bong & Skaalvik, 2003). In the RESL.eu survey, academic self-concept was measured by calculating mean scores for 6 items ranked on a 1 to 5 scale (reliability coefficient = .73). Analysis of the aggregate data indicate that young people with a more positive academic self-concept are more likely to exhibit higher levels of engagement at school.

- ***Perceived teacher support****;* i.e. the level of positive support that students feel they receive overall from their teachers. Students' scores for perceived teacher support were calculated as the mean of 8 items on the RESL.eu survey, each measured on a five-point Likert scale (reliability coefficient = .89). Based on these measurements, it appears that the higher the level of perceived teacher support, the more likely a student is to report high levels of school engagement.

In terms of academic self-concept, the notion of engagement as the "central component of [a wider self-system] that not only reflects the manifestation of motivation and self-related beliefs but also affects outcomes" (Green *et al.*, 2012, p.1111) has been posited by Skinner *et al.* (2008, 2009), and examined empirically (Green *et al.*, 2012), whilst Marsh (2007) has also shown the academic self-concept is a key predictor of school performance.

Levels of teacher support and positive student-teacher relationships have also received much theoretical and empirical attention with regards to its impact on school engagement. Indeed Quin's (2017) review identified more than 40 quantitative studies published since 1990 focusing on the issue. The empirical evidence points to the strategic importance of the school context in influencing educational outcomes (Masten & Cicchetti, 2010; Oseguera *et al*., 2011; Pianta *et al.*, 2012) and, within this, the positive role that supportive teacher relationships can play to promote engagement at school (Brewster & Bowen, 2004; Croninger & Lee, 2001; Wang & Eccles, 2012). The analysis based on the RESL.eu data appears to support both the prominence of students' individual self-perceptions and the significance of positive teacher-student interactions as key predictors of school engagement.

These two variables are significant predictors of school engagement for each of the country samples as well as for the aggregate data set. Other variables that are significant predictors across all or most of the country samples include certain socio-demographic characteristics:

- ***Gender;*** i.e. being female increases the likelihood of being more engaged at school;
- ***Migrant background;*** i.e. those young people who have a migrant background (at least one parent born outside of the country of survey) are also more likely to report higher levels of school engagement;

Additionally, certain individual behaviours and aspirations at school:

- ***Truancy***, with higher rates of truancy predicting lower levels of school engagement;
- ***Educational expectations;*** i.e. young people with higher educational expectations are more likely to be more engaged at school;

and certain factors relating to young people's interaction with their family, friends and neighbourhood environment:

- ***Parental control;*** i.e. the extent to which students' parents are concerned to know where and what their children are doing. Higher levels of parental control indicate a greater likelihood to be more engaged at school;
- ***Parental involvement at school***, where students' whose parents are more involved in their children's school, e.g. through attending school events and activities, also display higher levels of school engagement themselves;
- ***Peer aspirations;*** higher aspirations amongst students' friendship group – measured as the extent to which their peers feel it is important to attend class, study hard, get good grades and continue education beyond upper secondary level – is also a predictor a high school engagement in the majority of the country samples.

However, with regard to the other variables included in our final statistical model, there appears to be substantial differences in whether and how they work as predictors of school engagement across the different country samples. For example:

- ***Cohort;*** being in the younger or older cohort makes a significant difference in 5 of the country samples, but in the Netherlands, Spain and Sweden high school engagement is associated with being in the older cohort, whereas in Poland and Portugal it is associated with being in the younger cohort. Differences between the country samples could arise due to systemic differences: i.e. the extent to which a year-group cohort is made up of students who may have experienced grade retention in previous years or those who may have left and re-entered education.
- ***Academic grades;*** whilst students' self-reported academic grades was a significant predictor of school engagement overall (higher grades, as reported by the students, predicting higher levels of engagement), this was only the case in the country samples for the Netherlands, Portugal and Spain, whilst for the other samples this was not significant and therefore not included in the final model for these countries' data
- ***Educational expectations of teachers;*** i.e. the educational level that students believed their teachers expected of them, was included in the final model for only three of the country samples (Poland, Portugal and Spain), with students who thought their teachers had higher expectations for their education also more likely to have higher levels of overall school engagement
- ***Perceived parental support;*** i.e. the extent to which students' perceived positive support from their parents, was also a significant predictor in the final model for the aggregate dataset, although at the level of individual country samples this variable was only significant for the Belgian, Spanish and UK data

- ***Neighbourhood environment;*** a more positive neighbourhood environment – measured as the mean score of 4 items on the survey relating to students' feelings of belonging, community cohesion and friendliness of their neighbourhood – was also a predictor of higher student engagement at school. However, this variable was only significant for the overall model and in the final model for four of the country samples (Netherlands, Poland, Portugal and Spain)
- ***Neighbourhood safety*** – measured as the mean score of 4 survey items relating to the extent of graffiti, public drunkenness, perceived levels of harassment and first-hand experience of harassment in students' local area – was included in the final model at aggregate level and also for three of the country samples. Where it was included as a significant predictor, greater perceptions of neighbourhood safety were associated with students reporting higher levels of school engagement

Overall, the statistical model built on the basis of our international dataset is robust and relatively strong, able to explain over half of the total variation in the young people's level of school engagement (R^2 = 0.6). The same model also shows predictive power across all the country samples (R^2 between 0.5 and 0.6), though with relevant differences in how individual variables interact.

However, almost half of the variation cannot be accounted for by the model. The survey did not measure several aspects which undoubtedly contribute to a young person's level of school engagement. On the basis of our theoretical model (see Section 4.1 above) these are likely to include school organisational practices as well as systemic differences, e.g. regarding countries' overall education systems.

Table 11: Final regression models *(DV= School Engagement)* for 7 countries and aggregate dataset

	BE	NL	PL	PT	ES	SE	UK	Aggregate dataset (all countries)
Gender	✓	✓	✓	✓	✓	✓	✓	✓
Cohort		✓	✓	✓	✓	✓		✓
Migrant background	✓	✓			✓	✓		✓
Academic grades		✓		✓	✓			✓
Level of truancy	✓	✓✓	✓	✓	✓	✓	✓	✓
Educational expectations	✓	✓	✓	✓	✓	✓	✓	✓
Academic self-concept	✓	✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓
Self-esteem	✓	✓	✓	✓	✓	✓	✓	✓
Educational expectations of teachers			✓	✓	✓			✓
Perceived teacher support	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓
Negative student-teacher interactions°	✓	✓		✓	✓		✓	✓
Perceived parental support	✓				✓		✓	✓
Parental involvement at school		✓	✓		✓		✓	✓
Parental control	✓		✓	✓	✓	✓	✓	✓
Neighbourhood environment		✓	✓	✓			✓	✓
Neighbourhood safety			✓			✓		✓
Peer aspirations	✓	✓	✓	✓	✓		✓	✓
Model adj. R^2	***.490***	***.495***	***.614***	***.530***	***.584***	***.554***	***.565***	***.555***

°variable reverse-scored *significant coefficients indicated by ✓ - coefficients greater than .200 indicated by ✓✓*

Table 12: Variables in the final model and interpretation in relation to levels of School Engagement

	No of countries in which signifi-cant predictor in the model	Higher levels of School Engagement predicted by:
Gender	7	Being female
Cohort	5	Being in the older cohort (NL, ES, SE, Agg.) Being in the younger cohort (PL, PT)
Migrant background	4	Having a migrant background (**not** in PL, PT or UK)
Academic grades	3	Achieving higher academic grades (NL, PT, ES)
Level of truancy	7	Lower levels of truancy
Educational expectations	7	Higher educational expectations
Academic self-concept	7	Having a more positive academic self-concept
Self-esteem	7	Higher levels of self-esteem
Educational expectations of teachers	3	Higher teacher educational expectations (PL, PT, ES)
Perceived teacher support	7	Higher levels of perceived teacher support
Negative student-teacher interactions°	5	Lower levels of negative student-teacher interactions (**not** PL, SE)
Perceived parental support	3	Higher levels perceived parental support (BE, ES, UK)
Parental involvement at school	4	Greater parental involvement at school (**not** BE, PT, SE)
Parental control	6	Higher levels of parental control (**not** NL)
Neighbourhood environment	4	Living in a more positive neighbourhood environment (**not** BE, ES, SE)
Neighbourhood safety	2	Living in a safer neighbourhood (PL, SE)
Peer aspirations	6	Higher peer aspirations (**not** SE)

5.2.4 Behavioural engagement (compliance behaviour at school)

Behavioural engagement, described as encompassing "students' effort, persistence, participation, and compliance with school structures" (Davis *et al.*, 2012, p23), has been studied as predictive of positive educational outcomes (Skinner & Belmont, 1993; Finn *et al.*, 1995; Fredricks *et al.*, 2004). As shown in table 13, behavioural engagement – as measured by the RESL.eu compliance behaviour at school scale – is connected to a range of factors relating to young people's socio-demographic characteristics, individual-level attitudes, behavioural and self-perception, and their perceived level of support from their teachers, and interactions/composition of their peers.

These variables interrelate in a highly complex way, which is also highly individualised; however, when all these variables are pulled together into an overall statistical model it appears that the strongest predictors of behavioural engagement are:

- ***Gender;*** i.e. based on the RESL.eu international dataset, female students are more likely than their male peers to display higher levels of behavioural engagement at school;

- ***Victimization at school;*** measured as the mean score on a 4-item scale, each rated on a five-point Likert scale. The items relate to the frequency that students have been upset, bullied, threatened or physically assaulted by other students at school. Based on the analysis of the aggregate data, experiencing lower levels of victimization at school has been found to be a strong predictor of higher levels of behavioural engagement.

These findings are not surprising, in that male students have been identified as exhibiting lower levels of engagement at school (Jacobs *et al.*, 2002), especially with regards to behavioural discipline within the school context (Lloyd Smith & Davies, 1995; Lam *et al.*, 2012).

Victimization at school, measured in terms of being the victim of threatened or realised bullying or violence, is clearly a concept related to one's level of compliance behaviour at school. As noted by Craig & Harel (2004), being involved in fighting or bullying, either as victim or perpetrator, has negative consequences for adolescents' development. The prevalence and interrelation between these concepts has been shown to relate to an increased likelihood of developing emotional, physical, psychological and academic problems (Boulton & Underwood, 1992; Harel, 1999; Laufer & Harel, 2003). Bullying behaviour and peer victimization have both been found to be related to lower levels of engagement and compliance behaviour at school. Indeed, Totura *et al.* (2009) note that victims of bullying "report more behavioural misconduct, aggression, delinquency, and substance use, and acceptance of misconduct than students uninvolved in bullying, although not to the same degree as bullies" (p195).

These two variables are significant predictors of school engagement for each of the country samples as well as for the aggregate data set. Other variables that are significant predictors across all or most of the country samples include:

- ***Neighbourhood environment;*** whereby a more positive neighbourhood environment can be identified as a predictor of higher behavioural engagement at school.***;***
- ***Academic self-regulation;*** i.e. students reporting greater academic self-regulation are also more likely to exhibit greater behavioural engagement;
- ***Attentiveness at school;*** similarly, greater attentiveness is also correlated with students reporting higher levels of compliant behaviour at school;
- ***Teachers' educational expectations;*** with students' perceptions of their teachers expected level of educational attainment being positively correlated with their behavioural engagement;
- ***Proportion of friends who left education without ISCED 3;*** i.e. students who have fewer friends who left education without achieving upper secondary education (ISCED level 3) are more likely to report higher levels of behavioural engagement at school.

Conversely, with regard to the other variables included in our final statistical model, there are considerable differences as to whether and how they work as predictors of behavioural engagement across the different country samples. For example:

- ***Cohort;*** whilst being in the older cohort was a significant predictor in the overall model, it was also found to be significant for four of the country samples (Belgium, the Netherlands, Spain and the UK);
- ***Migrant background;*** not having a migrant background, was also a significant predictor in the model, indicating that native students were more likely to exhibit higher levels of behavioural engagement, although this factor was not significant for three of the country teams (Netherlands, Poland and Portugal);
- ***Negative student-teacher interactions*** and ***Perceived level of discrimination by teachers***, whereby students who experience fewer negative interactions with their teachers (in Belgium, the Netherlands and the UK, as well as overall) and those who perceive lower levels of discrimination by any of their teachers (for all of the country samples) are more likely to report greater behavioural engagement;
- ***Proportion of friends left education and have a job;*** students with fewer friends having left education and who are currently employed was a significant predictor of higher behavioural engagement in three of the country samples (Belgium, Portugal and the UK), as well as for the aggregate dataset overall;
- ***Proportion of friends left education and unemployed*** was included in the final model as a significant predictor of behavioural engagement, although at the level of the country datasets it was only found to be significant for the Spanish sample.

Differences across countries could relate to the differences in educational systems, such as, in relation to 'cohort', the extent to which the older cohort is made up of students who have left and re-entered education or who have experienced grade retention in previous years.

Overall, however, with regards to behavioural engagement, the statistical model built on the basis of our international dataset is robust and moderately-sized, able to explain 31% of the total variation in the young people's level of school engagement ($R^2 = 0.31$). The same model also shows predictive power across all the country samples (R^2 between 0.19 and 0.43), although there are some clear differences as which variables

are significant predictors across the countries' sample and how the individual variables remaining in the model interact.

Table 13: Final regression models *(DV= Behavioural Engagement)* for 7 countries and aggregate dataset

	BE	NL	PL	PT	ES	SE	UK	Aggregate dataset (all countries)
Gender	✓✓	✓	✓	✓✓	✓	✓	✓	✓
Cohort	✓	✓			✓		✓	✓
Migrant background	✓				✓	✓	✓	✓
Neighbourhood environment	✓	✓	✓		✓		✓	✓
Educational expectations	✓		✓		✓			✓
Academic self-regulation	✓	✓	✓		✓		✓	✓
Attentiveness at school		✓		✓	✓		✓	✓
Victimization at school	✓✓	✓	✓✓	✓✓	✓	✓✓	✓✓	✓✓
Teachers' educational expectations			✓		✓	✓	✓	✓
Perceived level of discrimination by teachers°	✓	✓	✓	✓	✓	✓	✓	✓
Negative student-teacher inter-actions°	✓	✓					✓	✓
Proportion of friends left education without ISCED 3	✓	✓	✓		✓		✓	✓
Proportion of friends left education and unemployed					✓			✓
Proportion of friends left education and have a job	✓			✓			✓	✓
Model adj. R^2	***.298***	***.239***	***.430***	***.287***	***.311***	***.192***	***.321***	***.308***

°variable reverse-scored *significant coefficients indicated by ✓ - coefficients greater than .200 indicated by ✓✓*

Table 14: Variables in the final model and interpretation in relation to levels of Behavioural Engagement

	No of countries in which significant predictor in the model	Higher levels of Behavioural Engagement predicted by:
Gender	7	Being female
Cohort	4	Being in the older cohort (**not** PL, PT, SE)
Migrant background	4	**Not** having a migrant background (BE, ES, SE, UK)
Neighbourhood environment	5	Living in a more positive neighbourhood environment (**not** PT, SE)
Educational expectations	3	Higher educational expectations (BE, PL, ES)
Academic self-regulation	5	Higher levels of academic self-regulation (**not** PT, SE)
Attentiveness at school	4	Greater attentiveness at school (**not** BE, PL, SE)
Victimization at school	7	Experiencing lower levels of victimization at school
Teachers' educational expectations	4	Higher educational expectations of one's teachers (**not** BE, NL, PT)
Perceived level of discrimination by teachers°	7	Experiencing lower levels of perceived discrimination by teachers
Negative student-teacher interactions°	3	Lower levels of negative student-teacher interactions (BE, NL, UK)
Proportion of friends left education without ISCED 3	6	Having fewer friends who left education without achieving ISCED 3 (not PT)
Proportion of friends left education and unemployed	1	Having fewer friends who left education and are now unemployed (ES)
Proportion of friends left education and have a job	3	Having fewer friends who left education and are now in a job (BE, PT, UK)

5.2.5 Affective engagement (school belonging)

Affective engagement, the extent to which students feel a sense of belonging towards their school, has been shown to have a positive effect on young people's educational outcomes (Goodenow, 1993; Fredricks *et al.*, 2011). As shown in table 15, affective engagement – as measured by the RESL.eu school belonging scale – is connected to a range of factors relating to young people's socio-demographic characteristics, their self-perceptions and their perceived level of support from teachers, parents and peers.

How these variables are interrelated is highly complex and individualised; however, when all these variables are pulled together into an overall statistical model it appears that the strongest predictor of school engagement is:

- ***Perceived teacher support;*** this measure contributes to the final overall model much more strongly than all other variables for the aggregate dataset as well as for the country samples[8]. Students who report higher levels of positive perceived support from their teachers are also much more likely to report greater levels of affective engagement.

This central role that teacher support appears to play in students' levels of affective engagement is consistent with previous studies (Pianta *et al.*, 2012; Sakiz *et al.*, 2012; Amir *et al.*, 2014). Osterman (2000) points out that "teachers play a major role in determining whether students feel they are cared for and that they are a welcome part of the school community" (p351). Students' sense of belonging, therefore, is inherently connected to their experiences of teacher-student interactions, which in turn mediate their perceived levels of affective engagement.

In addition to perceived teacher support, other significant variables that are predictors across the majority of the country samples include certain individual-level factors:

- ***Cohort;*** students in the younger cohort are more likely to have higher levels of affective engagement with school;
- ***Importance of education;*** i.e. the extent to which a young person sees education as an important endeavour towards their future success, is positively correlated with their level of affective engagement. This scale is measured by calculating the mean scores for 3 items on the RESL.eu survey relating to how they perceive working hard at school will help them to achieve positive outcomes in life.

Moreover, indicative of the importance of school environment in predicting levels of belonging and affective engagement with one's school, the following variables relating to teacher-student relations were also significant in the model for almost all of the country samples:

- ***Negative student-teacher interactions,*** and ***Perceived level of discrimination by teachers;*** whereby students who experience fewer negative interactions with their teachers and those who perceive lower levels of discrimination by any of their teachers are more likely to report greater affective engagement.

[8] See Appendix for standardized regression coefficients

Other significant variables in the model for most of the countries' samples were:

- ***Parental involvement at school,*** where students' whose parents are more involved in their child's school also exhibit higher levels of affective engagement (consistent with other studies, e.g. Fan & Williams, 2010)
- ***Perceived peer-group support;*** i.e. those young people who report greater levels of perceived support from their friends are more likely to have higher levels of affective engagement (see also Shin *et al.*, 2007; Wang & Eccles, 2012)

Conversely, certain variables included in our final model proved not to be significant for any or all of the country samples when the same model was applied to the datasets at this level. In particular, whilst ***being male*** was a significant predictor of reporting higher levels of affective engagement for the aggregate sample – and for the Polish, Spanish and UK country samples – gender was not significant in the model for the other country samples. Similarly, having a higher level of ***academic self-regulation*** was associated with higher affective engagement in three of the country samples (Portugal, Spain and the UK), yet was not significant for the other countries' datasets.

Overall, with regards to affective engagement, the statistical model built on the basis of our international dataset is robust and moderately-sized, able to explain 35% of the total variation in the young people's level of school engagement (R^2 = 0.35). The same model also shows predictive power across all the country samples (R^2 between 0.24 and 0.40), though with some distinctions as to how individual variables interact.

Table 15: Final regression models *(DV= Affective Engagement)* for 7 countries and aggregate dataset

	BE	NL	PL	PT	ES	SE	UK	Aggregate dataset (all countries)
Gender			✓		✓		✓	✓
Cohort			✓	✓	✓	✓✓		✓
Academic self-regulation				✓	✓		✓	✓
Importance of education		✓	✓	✓	✓		✓	✓
Positive perceived teacher support	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓
Negative student-teacher interactions°	✓		✓		✓	✓	✓	✓
Perceived level of discrimination by teachers°	✓	✓	✓	✓	✓		✓	✓
Parental involvement at school	✓	✓	✓		✓	✓	✓	✓
Perceived peer-group support	✓		✓	✓		✓		✓
Model adj. R^2	***.236***	***.334***	***.398***	***.278***	***.327***	***.345***	***.394***	***.346***

°variable reverse-scored *significant coefficients indicated by ✓ - coefficients greater than .200 indicated by ✓✓*

Table 16: Variables in the final model and interpretation in relation to levels of Affective Engagement

	No of countries in which significant predictor in the model	Higher levels of Affective Engagement predicted by:
Gender	3	Being male (PL, ES, UK)
Cohort	4	Being in the younger cohort (not BE, NL, UK)
Positive perceived teacher support	7	Greater perceived teacher support
Negative student-teacher interactions°	5	Lower levels of negative student-teacher interactions (**not** NL, PT)
Perceived level of discrimination by teachers°	6	Lower levels of perceived discrimination by one's teachers (**not** SE)
Academic self-regulation	3	Higher levels of academic self-regulation (PT, ES, UK)
Importance of education	5	Placing a higher value on education (**not** NE, SE)
Parental involvement at school	6	Greater parental involvement at school (**not** PT)
Perceived peer-group support	5	Greater perceived peer-group support (**not** NL, ES, UK)

5.2.6 Cognitive engagement (academic self-regulation)

Cognitive engagement – measured in the RESL.eu survey by the academic self-regulation scale – concerns the level of engagement students have in completing their schoolwork. Beyond levels of effort in doing their work, cognitive engagement implies a degree of self-regulated learning towards increasing their understanding and competencies (Greene *et al.*, 2004; Fredricks *et al.*, 2004). The academic self-regulation scale relates to the cognitive dimension of school engagement as it seeks to measure the "active, constructive process whereby learners set goals for their learning and then attempt to monitor, regulate, and control their cognition" (Pintrich & Zusho, 2002, p250).

The table below shows that students' cognitive engagement is connected to a range of factors relating to young people's socio-demographic characteristics, their self-perceptions and behaviours, and their perceived level of support from parents and teachers.

As with the other dimensions of engagement, how these variables interact is highly complex and individualised; however, when all these variables are pulled together into an overall statistical model it appears that the strongest predictors of cognitive engagement are:

- ***Truancy;*** i.e. students with greater levels of truancy are more likely to report lower levels of cognitive engagement

- ***Importance of education;*** as well as being positively correlated with affective engagement (see above), is also a strong predictor of students' levels of cognitive engagement

These two variables are significant predictors of school engagement for each of the country samples, as well as for the aggregate dataset. This corroborates previous evidence, which has highlighted truancy as a key risk factor for disengagement (Henry *et al.*, 2012), whilst students' attitudes towards education has also received academic attention, with regards to the literature of student motivations (Eccles *et al.*, 1983; Brophy, 1987; Ryan & Deci, 2009).

Other variables that are significant predictors across all or most of the country samples include:

- ***Gender;*** being female is associated with higher levels of cognitive engagement overall and in each of the country samples
- ***Cohort;*** young people in the older cohort are more likely to exhibit higher levels of cognitive engagement in the majority of the country samples
- ***Academic grades;*** higher self-reported academic grades is correlated with also reporting high cognitive engagement
- ***Academic self-concept;*** young people with a more positive academic self-concept are more likely to be exhibit higher levels of cognitive engagement.
- ***Attentiveness at school*** is measured by calculating mean scores on a 2-item scale. Both items ('I often have trouble paying attention to the teacher in class' and 'I often find it hard to keep my mind on my work at school') are measured on a five-point scale and reverse-coded to obtain a score for attentiveness at school. Young people with high attentiveness scores are also more likely to report higher levels of cognitive engagement at school.

- ***Parental control;*** higher levels of parental control indicating a greater likelihood to report greater cognitive engagement at school
- ***Parental involvement at school;*** students' whose parents are more involved an their school also display higher levels of affective engagement
- ***Perceived teacher support,*** with higher levels of perceived teacher support being correlated with higher levels of cognitive engagement.

Conversely, certain variables included in our final model proved not to be significant for any or all of the country samples when the same model was applied to the datasets at this level. In particular, whilst ***having a migrant background*** was a significant predictor of higher levels of cognitive engagement for the Belgian, Spanish and Swedish samples, this was not significant when the model was run for the other country samples. Similarly, having higher levels of ***perceived parental support*** was associated with higher cognitive engagement in three of the country samples (Netherlands, Portugal and Spain), yet was not significant for the other countries' datasets.

Overall, with regards to cognitive engagement, the statistical model built on the basis of our international dataset is robust and moderately-sized, able to explain 33% of the total variation in the young people's level of school engagement (R^2 = 0.33). The same model also shows predictive power across all the country samples (R^2 between 0.27 and 0.37), though with some distinctions as to how individual variables interact.

Table 17: Final regression models *(DV= Cognitive Engagement)* for 7 countries and aggregate dataset

	BE	NL	PL	PT	ES	SE	UK	Aggregate dataset (all countries)
Gender	✓	✓	✓	✓✓	✓	✓	✓	✓
Cohort		✓	✓		✓		✓	✓
Migrant background	✓				✓	✓		✓
Academic grades	✓	✓	✓	✓	✓			✓
Level of truancy behaviour	✓	✓✓	✓	✓	✓	✓	✓	✓
Importance of education	✓	✓	✓✓	✓	✓	✓	✓	✓
Attentiveness at school	✓✓	✓		✓	✓	✓	✓✓	✓
Academic self-concept			✓	✓	✓	✓	✓	✓
Parental control	✓		✓	✓	✓	✓		✓
Parental involvement at school	✓	✓	✓	✓		✓	✓	✓
Perceived parental support		✓		✓	✓			✓
Positive perceived teacher support	✓	✓	✓	✓	✓	✓	✓	✓
Model adj. R^2	***.318***	***.265***	***.359***	***.300***	***.359***	***.368***	***.337***	***.328***

° variable reverse-scored *significant coefficients indicated by ✓ - coefficients greater than .200 indicated by ✓✓*

Table 18: Variables in the final model and interpretation in relation to levels of Cognitive Engagement

	No of countries in which significant predictor in the model	Higher levels of Cognitive Engagement predicted by:
Gender	7	Being female
Cohort	4	Being in the older cohort (**not** BE, PT, SE)
Migrant background	3	Having a migrant background (BE, ES, UK)
Academic grades	5	Achieving higher academic grades (**not** SE, UK)
Level of truancy behaviour	7	Lower levels of truancy
Importance of education	7	Placing a higher value on education
Attentiveness at school	6	Greater attentiveness at school (**not** PL)
Academic self-concept	5	Higher levels of academic self-regulation (**not** BE, NL)
Parental control	5	Higher levels of parental control (**not** NL, UK)
Parental involvement at school	6	Greater parental involvement at school (**not** ES)
Perceived parental support	3	Higher levels of perceived parental support (NL, PT, ES)
Positive perceived teacher support	7	Higher levels of perceived teacher support

6 Insights from the Survey: challenges and contributions

The analysis of the RESL.eu survey data presented in this publication confirms that the processes leading to Early School Leaving (ESL) and, more generally, poor educational achievements are extremely complex. Even when looking just at the individual and institutional levels, ESL appears to be dependent on the interaction of personal characteristics, family background, self-perceptions and attitudes, and relationships with teachers and peers, in a way where no individual variable is, on its own, enough of a risk or protective factor, but all contribute to determine the overall likelihood of an individual young person leaving secondary education without an upper secondary qualification. There are, obviously, major variations across countries, partly related to distinct differences in national educational systems and socio-economic contexts. Also, as discussed above, there are several important dimensions and characteristics (social class among those identified in the literature as most significant) that are not captured by the RESL.eu statistical model. Nevertheless, it is possible to identify some dimensions that appear to play a major role irrespective of any contextual element. In particular, the survey results confirm that reported levels of School Engagement – as well as its individual behavioural, affective and cognitive components – are clearly among those. Additionally, gender, as well as migrant background status (having at least one foreign-born parent), appear to play a significant role in affecting the likelihood of becoming an early school leaver. However, as discussed before, the effect of migration background can be very different – appearing to be a risk factor in some countries and a protective factor in others; a complexity at least in part due to the intersection with class.

In its turn, school engagement – as measured in this survey – emerges as significantly correlated with one's academic self-concept as well as the reported level of teachers' support. Also with regard to students' educational expectations, the role of teachers is clearly important, with 'teachers' educational expectations' being one of the main predictors alongside 'parents' educational expectations'.

In this respect, some of the findings emerging from this large-scale piece of quantitative research are not surprising and indeed confirm what has emerged from local practice and national academic research undertaken over the years on a smaller scale – which had informed the theoretical framework presented in section 4. Thus, RESL.eu represents an important exercise in evidence-based theory testing, based on an unprecedented amount of empirical data collected on a large scale and using the same methodology across several different countries. The measurements and statistical models produced through the project, however, make it possible to explore the role of individual components in a new and very detailed way.

Furthermore, the data collection tool (questionnaire) used for RESL.eu lends itself to be adopted in further research projects and to inform local practice. One of the next stages of RESL.eu will be the production of a set of toolkits for teachers and national practitioners, which will incorporate a revised version of the questionnaire to be used to identify young people at risk of becoming early school leavers as well as to monitor progress and the impact of specific measures and interventions. The toolkit will be piloted in a number of locations, working in partnership with schools and stakeholders, and will be part of 'knowledge-exchange' initiatives in the participating countries. In the implementation of these 'risk assessment tools', it will be necessary to ensure that these is not done on the basis of a 'deficit model', but as part of a broader approach that takes into consideration the specific profiles of individual students as well as the broad educational and socio-economic context.

In terms of the contribution of the survey results to policy and academic debates, it is important to highlight that the data presented in this publication are only an initial summary of the information and insights which can emerge from further analysis of the RESL.eu dataset. The project consortium and the individual country teams will be working over the coming months and years to explore and interrogate the data to address various specific research questions, discussing both country-comparative and national-specific issues, and triangulating the results of the quantitative element of the project with what has emerged from the qualitative work – comprising hundreds of in-depth interviews with young people, their parents and peers, and with educational practitioners.

Future publications and initiatives related to RESL.eu will be advertised on the project website (www.resl-eu.org) and by the national research teams.

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Appendices

Early School Leaving - final stepwise logistic regression model

	Step 1	Step 2	Step 3
Constant	-24.823**	-19.853	-18.934
Gender (*Ref: Female*)	.925**	.729**	.680**
Migrant background (*Ref: Native*)	.602*	.738**	.781**
Country of survey (*Ref: Belgium*)			
Netherlands	-.811**	-.711*	-.245
Poland	1.531**	1.777**	1.850**
Portugal	.291	.130	.078
Spain	.688°	.570	.558
UK	17.315	16.920	17.055
Sweden	1.259°	1.558*	1.588*
Truancy		.196*	.172°
Academic grades		-.336**	-.256*
School Engagement		-1.111**	-.898**
Educational expectations			-.196**
Parents' educational aspirations			-.247*
Model pseudo R^2	***.123***	***.180***	***.211***

** *p < .01* * *p < .05* ° *p < .10*

Educational Expectations - final stepwise regression model

	Step 1		Step 2		Step 3		Step 4	
	B	**Beta**	**B**	**Beta**	**B**	**Beta**	**B**	**Beta**
(Constant)	6.695		6.078		4.286		3.655	
Gender	.380	.112**	.270	.080**	.191	.056**	.103	.030*
Cohort	.324	.096**	.394	.117**	.434	.129**	.314	.093**
Migrant background	.041	.012	.112	.032*	.038	.011	-.039	-.011
Country of survey (Ref=Netherlands)								
Country of survey = Belgium	.660	.150**	.806	.183**	.746	.169**	-.371	-.084**
= Poland	.504	.109**	.051	.011	.231	.050*	-.935	-.203**
Country of survey = Portugal	.824	.142**	.701	.121**	.597	.103**	-.688	-.119**
= Spain	1.096	.279**	.694	.177**	.597	.152**	-.439	-.112**
Country of survey = UK	.408	.090**	-.325	-.072**	-.365	-.081**	-1.308	-.289**
Vocational track			-.971	-.282**	-.851	-.247**	-.558	-.162**
Academic grades			.336	.192**	.189	.108**	.095	.054**
Occupational aspirations					-.012	-.146**	-.008	-.105**
Importance of education					.363	.147**	.228	.092**
Academic self-concept					.308	.111**	.206	.074**
Parents' educational expectations							.407	.284**
Teachers' educational expectations							.190	.170**
Peer aspirations							.083	.038*
Adj. R^2	**.064**		**.156**		**.216**		**.299**	

** *p < .01* * *p < .05*

***Educational Expectations by country - final regression model (standardized beta values) ***

	Belgium	Netherlands	Poland	Portugal	Spain	UK	Aggregate dataset (all countries)
Gender	.025	.041	.028	.019	.018	.003	.030*
Cohort	.072**	.077*	.044*	.065	.085**	.186**	.093**
Migrant background	-.075**	.063*	-.021	-.035	-.021	-.008	-.011
Academic grades	.005	.023	.048	-.094*	.064*	.175**	.054**
Vocational track	-.095**	-.224**	-.117**	-.204**	-.057*	.030	-.162**
Importance of education	.094**	.124**	.154**	.073	.003	.057*	.092**
Academic self-concept	.049	.140**	.107**	.188**	.010	.088**	.074**
Occupational aspirations°	-.148**	-.060*	-.202**	-.137**	-.034	-.103**	-.105**
Peer aspirations	.008	.041	.046*	.104**	.029	-.002	.038**
Parents' educational expectations	.309**	.153**	.293**	.049	.307**	.198**	.284**
Teachers' educational expectations	.158**	.151**	.107**	.114**	.143**	.119**	.170*
Adj. R^2	**.326**	**.201**	**.518**	**.216**	**.236**	**.277**	**.299**

** *p < .01* * *p < .05*

School Engagement - final stepwise regression model

	Step 1		Step 2		Step 3		Step 4		Step 5	
	B	Beta	B	Beta	B	Beta	B	Beta	B	Beta
(Constant)	3.462		1.577		1.010		.586		.473	
Gender	.107	.111**	.133	.138**	.100	.104**	.082	.085**	.071	.074**
Cohort	-.020	-.020	.017	.017*	.005	.005	.017	.018*	.017	.017*
Migrant background	.077	.077**	.054	.054**	.052	.052**	.055	.055**	.052	.052**
Country of survey (Ref=Netherlands)										
= Belgium	.178	.127**	.186	.133**	.139	.100**	.147	.106**	.148	.106**
= Poland	.159	.116**	.406	.296**	.376	.274**	.395	.288**	.397	.290**
= Portugal	.223	.144**	.312	.202**	.221	.143**	.234	.152**	.221	.143**
= Spain	.304	.270**	.352	.313**	.285	.254**	.309	.275**	.291	.259**
= Sweden	.189	.104**	.219	.120**	.146	.080**	.114	.062**	.095	.052**
= UK	.275	.210**	.334	.255**	.257	.196**	.250	.191**	.212	.162**
Academic grades			.028	.059**	.030	.063**	.032	.067**	.031	.065**
Level of truancy			-.086	-.210**	-.070	-.170**	-.057	-.139**	-.053	-.129**
Educational expectations			.024	.093**	.021	.079**	.018	.069**	.015	.058**
Academic self-concept			.284	.370**	.198	.258**	.185	.241**	.183	.239**
Self-esteem			.127	.207**	.100	.162**	.077	.125**	.076	.123**
Teachers' educational expectations					.017	.053**	.017	.053**	.015	.046**
Positive perceived teacher support					.230	.332**	.200	.289**	.192	.276**
Negative student-teacher interactions°					.051	.078**	.054	.081**	.053	.080**
Perceived parental support							.045	.068**	.041	.062**
Parental involvement at school							.031	.060**	.028	.055**
Parental control							.036	.063**	.030	.053**
Neighbourhood environment							.026	.047**	.023	.040**
Neighbourhood safety							.027	.048**	.024	.042**
Peer aspirations									.071	.114**
Adj. R^2	***.051***		***.396***		***.521***		***.545***		***.555***	

** $p < .01$ * $p < .05$

***School Engagement by country - final regression model (standardized beta values) ***

	Belgium	Nether-lands	Poland	Portugal	Spain	Sweden	UK	Aggregate dataset (all countries)
Gender	.074**	.047*	.053**	.085**	.096**	.130**	.041*	.074**
Cohort	-.012	.133**	-.067**	-.062*	.042**	.054*	.019	.017*
Migrant background	.095**	.069**	-.022	.038	.056**	.115**	-.003	.052**
Academic grades	.018	.061**	.030	.098**	.131**	-.015	.013	.065**
Level of truancy	-.138**	-.208**	-.076**	-.089**	-.156**	-.109**	-.088**	-.129**
Educational expectations	.047*	.077**	.076**	.051*	.064**	.071*	.059**	.058**
Academic self-concept	.188**	.172**	.240**	.284**	.239**	.252**	.287**	.239**
Self-esteem	.170**	.105**	.158**	.100**	.101**	.121**	.111**	.123**
Educational expectations of teachers	.042	.011	.069**	.070**	.072**	.039	.024	.046**
Perceived teacher support	.265**	.303**	.279**	.241**	.230**	.338**	.264**	.276**
Negative student-teacher interactions°	.137**	.086**	.019	.067*	.102**	.008	.102**	.080**
Perceived parental support	.079*	.043	.033	.051	.087**	.026	.051*	.062**
Parental involvement at school	.012	.098**	.052**	.019	.061**	.022	.058*	.055**
Parental control	.050*	.038	.081**	.066*	.036*	.090**	.056**	.053**
Neighbourhood environment	.029	.061**	.097**	.072**	-.003	.023	.048*	.040**
Neighbourhood safety	.030	.008	.089**	.038	.028	.123**	.026	.042**
Peer aspirations	.122**	.085**	.121**	.118**	.098**	.041	.132**	.114**
Adj. R^2	***.490***	***.495***	***.614***	***.530***	***.584***	***.554***	***.565***	***.555***

** $p < .01$ * $p < .05$

Behavioural Engagement - final stepwise regression model

	Step 1		Step 2		Step 3		Step 4	
	B	Beta	B	Beta	B	Beta	B	Beta
(Constant)	3.872		3.441		2.955		3.216	
Gender	.379	.257**	.273	.185**	.258	.175**	.246	.166**
Cohort	.128	.087**	.096	.065**	.086	.058**	.105	.072**
Migrant background	-.097	-.064**	-.103	-.068**	-.085	-.056**	-.071	-.047**
Country of survey (Ref = Netherlands)								
= Belgium	.239	.111**	.188	.088**	.134	.062**	.159	.074**
= Poland	.392	.188**	.368	.176**	.363	.174**	.379	.181**
= Portugal	.248	.106**	.261	.111**	.199	.085**	.212	.090**
= Spain	.386	.217**	.324	.182**	.284	.160**	.308	.173**
= Sweden	.400	.148**	.349	.129**	.333	.123**	.364	.135**
= UK	.262	.132**	.241	.121**	.190	.096**	.208	.105**
Victimization at school			-.456	-.288**	-.410	-.259**	-.373	-.235**
Academic self-regulation			.094	.101**	.079	.085**	.082	.088**
Attentiveness at school			.074	.105**	.051	.072**	.051	.072**
Neighbourhood environment			.090	.106**	.075	.089**	.060	.071**
Own educational expectations			.042	.068**	.029	.049**	.019	.031*
Perceived level of discrimination by teachers°					.091	.111**	.085	.104**
Negative student-teacher interactions°					.057	.057**	.046	.046**
Teachers' educational expectations					.025	.053**	.022	.046**
Proportion of friends left education without ISCED 3							-.046	-.062**
Proportion of friends left education and have a job							-.041	-.054**
Proportion of friends left education and unemployed							-.034	-.036*
Adj. R^2	***.114***		***.276***		***.295***		***.308***	

** $p < .01$ * $p < .05$

***Behavioural Engagement by country - final regression model (standardized beta values) ***

	Belgium	Nether-lands	Poland	Portugal	Spain	Sweden	UK	Aggregate dataset (all countries)
Gender	.213**	.122**	.160**	.212**	.155**	.162**	.174**	.169**
Cohort	.063**	.059*	.005	.046	.116**	.033	.107**	.069**
Migrant background	-.069**	-.001	-.035	.045	-.046**	-.100**	-.086**	-.045**
Neighbourhood environment	.050*	.087**	.160**	.009	.121**	-.025	.062**	.137**
Educational expectations	.084**	.009	.046*	.028	.039*	-.056	-.014	.073**
Academic self-regulation	.100**	.105**	.088**	.044	.091**	.029	.083**	.027**
Attentiveness at school	.023	.129**	-.013	.065*	.076**	.066	.106**	.085**
Victimization at school	-.204**	-.184**	-.303**	-.278**	-.173**	-.303**	-.254**	.067**
Teachers' educational expectations	.014	-.020	.098**	.024	.118**	.101**	.080**	-.236**
Perceived level of discrimination by teachers°	.111**	.080**	.081**	.118**	.098**	.094**	.129**	.055**
Negative student-teacher interactions°	.091**	.090**	.044	.021	.016	.019	.059*	.104**
Proportion of friends left education without ISCED 3	-.105**	-.092**	-.077*	.018	-.072**	-.044	-.052*	.044**
Proportion of friends left education and unemployed	.025	-.029	-.012	-.068	-.091**	-.015	-.033	-.059**
Proportion of friends left education and have a job	-.098**	-.033	-.074	-.094**	-.016	.027	-.048*	-.040**
Adj. R^2	***.298***	***.239***	***.430***	***.287***	***.311***	***.192***	***.321***	***.308***

** $p < .01$ * $p < .05$

Affective Engagement - final stepwise regression model

	Step 1		Step 2		Step 3		Step 4		Step 5	
	B	Beta	B	Beta	B	Beta	B	Beta	B	Beta
(Constant)	3.299		.433		-.042		-.184		-.297	
Gender	.020	.010	-.032	-.016*	-.063	-.031**	-.055	-.027**	-.069	-.034**
Cohort	-.065	-.032**	-.087	-.043**	-.069	-.034**	-.053	-.026**	-.057	-.028**
Migrant background	-.002	-.001	-.015	-.007	-.039	-.019*	-.035	-.017*	-.029	-.014
Country of survey (Ref = Netherlands)										
Country = Belgium	.317	.107**	.282	.095**	.266	.090**	.267	.090**	.264	.089**
= Poland	.135	.050**	.379	.141**	.395	.147**	.443	.165**	.441	.164**
Country = Portugal	.606	.195**	.566	.182**	.545	.176**	.571	.184**	.562	.181**
= Spain	.446	.180**	.382	.154**	.347	.140**	.359	.145**	.349	.141**
= UK	.694	.209**	.666	.201**	.655	.197**	.618	.187**	.610	.184**
= Sweden	.438	.158**	.412	.148**	.380	.137**	.356	.128**	.357	.129**
Positive perceived teacher support			.649	.479**	.591	.436**	.584	.430**	.572	.422**
Negative student-teacher interactions°			.086	.064**	.075	.056**	.075	.056**	.075	.056**
Perceived level of discrimination by teachers°			.075	.070**	.076	.072**	.077	.072**	.077	.073**
Academic self-regulation					.048	.038**	.036	.028**	.035	.028**
Importance of education					.137	.101**	.126	.093**	.117	.087**
Parental involvement at school							.062	.059**	.058	.056**
Perceived peer-group support									.054	.041**
Adj. R^2	***.046***		***.332***		***.343***		***.345***		***.346***	

** $p < .01$ * $p < .05$

***Affective Engagement by country - final regression model (standardized beta values) ***

	Belgium	Nether-lands	Poland	Portugal	Spain	Sweden	UK	Aggregate dataset (all countries)
Gender	-.019	-.024	-.093**	-.038	-.032*	.022	-.037*	-.034**
Cohort	-.019	.039	-.188**	-.076**	-.046**	.242**	.002	-.028**
Migrant background	-.024	.006	-.012	-.012	.004	-.012	-.001	-.014
Positive perceived teacher support	.372**	.481**	.398**	.411**	.434**	.420**	.403**	.422**
Negative student-teacher interactions°	.060*	.031	.058**	-.013	.050**	.072**	.130**	.056**
Perceived level of discrimination by teachers°	.055*	.053*	.101**	.084**	.078**	.038	.050**	.073**
Academic self-regulation	.040	.017	.013	.062**	.060**	.032	.064**	.028**
Importance of educa-tion	.042	.091**	.115**	.090**	.092**	-.034	.112**	.087**
Parental involvement at school	.053**	.059**	.067**	.006	.040**	.061**	.066**	.056**
Perceived peer-group support	.048*	.005	.056**	.061**	.020	.091**	.028	.041**
Adj. R^2	***.236***	***.334***	***.398***	***.278***	***.327***	***.345***	***.394***	***.346***

** *p < .01* * *p < .05*

Cognitive Engagement - final stepwise regression model

	Step 1		Step 2		Step 3		Step 4		Step 5	
	B	Beta	B	Beta	B	Beta	B	Beta	B	Beta
(Constant)	3.306		2.733		.951		.398		.261	
Gender	.296	.188**	.243	.154**	.229	.145**	.215	.136**	.215	.136**
Cohort	-.008	-.005	.044	.028*	.070	.044**	.086	.054**	.077	.049**
Migrant background	.155	.095**	.186	.114**	.109	.067**	.112	.069**	.111	.068**
Country of survey (Ref = UK)										
= Belgium	-.193	-.085**	-.111	-.049**	-.129	-.057**	-.106	-.047**	-.101	-.044**
= Netherlands	-.185	-.076**	-.133	-.055**	-.121	-.050**	-.118	-.048**	-.109	-.045**
= Poland	-.210	-.100**	.117	.056**	.121	.058**	.185	.088**	.204	.097**
= Portugal	-.081	-.032*	.019	.008	.044	.018	.077	.031**	.066	.026**
= Spain	-.007	-.004	.128	.068**	.069	.037**	.111	.059**	.104	.055**
= Sweden	-.320	-.120**	-.040	-.015	-.199	-.075**	-.233	-.088**	-.225	-.085**
Academic grades			.150	.194**	.051	.066**	.057	.073**	.062	.080**
Level of truancy behaviour			-.168	-.259**	-.114	-.177**	-.097	-.149**	-.094	-.146**
Importance of education					.244	.227**	.195	.181**	.165	.154**
Attentiveness at school					.148	.193**	.141	.184**	.132	.173**
Academic self-concept					.168	.135**	.141	.113**	.120	.096**
Parental control							.062	.067**	.059	.064**
Parental involvement at school							.063	.076**	.059	.072**
Perceived parental support							.083	.078**	.064	.060**
Positive perceived teacher support									.130	.120**
Adj. R^2	***.061***		***.163***		***.296***		***.317***		***.328***	

** $p < .01$ * $p < .05$

***Cognitive Engagement by country - final regression model (standardized beta values) ***

	Belgium	Nether-lands	Poland	Portugal	Spain	Sweden	UK	Aggregate dataset (all countries)
Gender	.079**	.101**	.155**	.207**	.157**	.128**	.133**	.136**
Cohort	.014	.086**	.128**	.006	.085**	-.014	.043*	.049**
Migrant background	.061**	.045	.015	.040	.062**	.165**	.016	.068**
Academic grades	.057**	.070**	.124**	.122**	.159**	.043	-.034	.080**
Level of truancy be-haviour	-.132**	-.222**	-.144**	-.100**	-.154**	-.127**	-.115**	-.146**
Importance of education	.185**	.152**	.235**	.107**	.105**	.137**	.114**	.154**
Attentiveness at school	.270**	.174**	.031	.145**	.166**	.161**	.228**	.173**
Academic self-concept	.037	-.007	.123**	.132**	.096**	.089**	.164**	.096**
Parental control	.050*	.016	.139**	.051*	.049**	.104**	.031	.064**
Parental involvement at school	.074**	.063*	.060**	.079**	.034	.083**	.112**	.072**
Perceived parental support	.037	.091**	.015	.054*	.102**	.044	.038	.060**
Positive perceived teacher support	.132**	.101**	.064**	.137**	.127**	.143**	.142**	.120**
Model adj. R^2	***.318***	***.265***	***.359***	***.300***	***.359***	***.368***	***.337***	***.328***

** $p < .01$ * $p < .05$