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The Role of Social Support in Fostering School Engagement in Urban Schools Characterised by High Risk Of Early Leaving from Education and Training

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1. Introduction

Tackling Early Leaving from Education and Training (ELET)¹ is one of the main focuses of education policy across many member states of the European Union. This also holds true for the Flemish Region in Belgium, an autonomous region with regard to education policy, on which this paper focuses (Crevits 2014; European Council 2011). The prominent place given to reducing ELET in education policy is most commonly motivated by its adverse effects on both the individual student's future opportunities and society in general. Personal costs include higher risks of unemployment, poverty, social exclusion and health hazards. The societal costs referred to in policy documents are primarily economic in nature, such as higher youth unemployment, higher costs of social benefits, a labour force that lacks skills and, therefore, less economic competitiveness in the global knowledge economy (Araujo et al. 2014). Building on and directly referring to the EU 2020 strategy of the European Commission, the Flemish government, in collaboration with the main stakeholders in education and training, employment and care, has worked out a strategy for reducing ELET that consists of a broad set of specific actions (Authors 2015; Flemish Ministry of Education and Training 2012).

Although the overall Flemish ELET rates have dropped below the EU-wide target of 10%,² within Flanders, there are large disparities between different localities, as well as in relation to gender and social and ethnic categories. For example, young people living in the two largest Flemish urban areas (the cities of Antwerp and Ghent) leave secondary education without a diploma in upper secondary education disproportionately more often than elsewhere (in 2016, 20.7% and 14.4% respectively). Furthermore, as for most EU member states, the risk of ELET among male students, the socially disadvantaged and ethnic minority groups is substantially higher (Flemish Ministry of Education and Training 2018). Another large disproportionality in ELET figures, which is common for educational

¹ ELET was initially developed as a statistical concept within the European Union (Eurostat) and is defined as young people aged 18-24 who have left education or training without an upper secondary education diploma. As this study was part of a large-scale EU-funded comparative research project on Reducing Early School Leaving in Europe (RESL.eu Project), we will use this concept rather than school dropout (more commonly used in the US context and other countries).

² When considering the EU Labour Force Survey Data, the 10% target is being reached in the Flemish Region. Calculations based on administrative data from the Flemish Department of Education and Training (2018), however, showed that the EU target was not reached for the 2015-2016 school year (10.4%).

systems characterised by early and hierarchical tracking in secondary education, concerns the higher risks for students in vocational tracks, especially among socially disadvantaged students (Eurydice and Cedefop 2014; Lavrijsen and Nicaise 2015). In the 2015-2016 school year, students in full-time school-based vocational education were six times more at risk of ELET compared to students in general secondary education (Flemish Ministry of Education and Training 2018).³ Moreover, grade retention, which is a common practice in Flemish education, is found to be harmful to students' graduation potential (Jimerson et al. 2002; Stearns et al. 2007). Flemish administrative data has shown that students who were delayed one year were eleven times more at risk of ELET than others, while students who have been delayed for two years or more, leave education or training early over 35 times more often than those who do not experience any grade retention (Flemish Department of Education and Training 2018).

Most of the above-mentioned risk factors for ELET in Flanders can be found throughout the international literature on school dropout. Although systemic features of the educational system, such as early tracking and grade retention, steer the overrepresentation of specific socio-demographic groups in ELET rates, certain socio-demographic risk factors are, however, often considered quite fixed and beyond the capacity of individual educators and parents to address (Finn and Rock 1997; Christenson and Thurlow 2004). Partly due to the robustness of such social inequalities in educational outcomes, educational research has increasingly focused on explaining the variance within at-risk groups for ELET (Christenson and Thurlow 2004). A central concept in this strand of the literature is the concept of school engagement, which is a concept that tries to capture the process of how interrelated cognitive, emotional and behavioural processes can predict educational outcomes (Fredricks, Blumenfeld and Paris 2004). For example, Lamote et al. (2013) have shown that school engagement is also a strong predictor of ELET in Flanders. Stimulated by the educational policy context discussed above and following research attempting to move beyond the focus on relatively fixed risk status indicators, this study attempts to answer the following research question: 'Can the social support networks in which students are embedded foster school engagement in urban secondary schools characterised by student populations with a high risk of ELET?'

Although the school engagement concept is widely acknowledged for its explanatory power in studies on ELET, there is still significant debate about its specific dimensions and the relationships between them (Appleton, Christenson and Furlong 2008). Moreover, most scholars acknowledge that there is still a lot to be learned about how students' school engagement relates to socio-demographic and educational career characteristics, as well as

³ A report from the Flemish Department of Education and Training presented the following ELET rates by educational track for the 2015-2016 school year: 2.5% in general secondary education; 15.5% in full-time school-based vocational education.

to support mechanisms such as parental, peer and teacher support (Wang and Eccles 2012; Elffers, Oort and Karsten 2012). Our current study builds on the existing literature regarding the interconnection of risk status and the predictive value of school engagement and its relationship to social support available to students. It does so based on a recent survey sample of 1401 students in 26 urban schools in the two largest Flemish cities with the highest ELET rates. This sample enables us to further explain the variance in school engagement within at-risk groups and to disentangle the specific relationships between students' risk status, social support, attitudes towards and engagement in education. In doing so we aim to study how individual features such as school engagement are embedded within the broader social environment in which they emerge.

2. Theoretical Background

2.1 School Engagement as a Multidimensional and Dynamic Concept

School engagement is a prominent concept in theories explaining ELET. The engagement concept has its origin in Hirschi's Social Control Theory (1969), which was more closely linked to educational institutions in Tinto's mediation model to explain dropout from American colleges (Tinto 1975). Both scholars give a central role to a lack of individual feelings of attachment and belonging to institutions – such as those providing education – in explaining disengagement from them. In ongoing interactions that students experience with educational institutions, a match with individual goal-setting and family background characteristics can contribute to their commitment to education, and through this commitment, engaged behaviour can develop accordingly. A mismatch, conversely, can lead to a process of disengagement (Archambault et al. 2009). Finn's (1989) participation-identification model of school withdrawal presented a similar dynamic process approach to the theory of school engagement, in which engagement is defined in terms of identification and participation processes related to school. 'Identification' refers to a sense of belonging and the perceived valuing of education. 'Participation', on the other hand, comprises responsiveness to school requirements, participation in class-related initiatives, as well as extracurricular activities. In Finn's participation-identification model, students who identify more with school will increasingly participate in these activities. On the contrary, a lack of participation heightens disengagement and eventual withdrawal from school. In the past decade, the concept of school engagement has been further refined and has become one of the most important factors explaining early leaving from education or training at the individual level (*e.g.* Barry and Reschly 2012; Christenson et al. 2008).

While the school engagement concept has gained in importance, there is also discussion about its definition, operationalisation and measurement in the literature. As Appleton et al. (2008) put it, a myriad conceptualisations of school engagement have been developed and there is a need for a clearer definition and delineation of the concept. Nevertheless, broad support can be found throughout the literature on school engagement with respect to two of the most basic elements: (1) the dynamic nature of school engagement and (2) the multidimensionality of the concept.

The first widely acknowledged aspect of the school engagement concept is that it can capture a gradual process of disengagement that may ultimately lead to emotional and behavioural withdrawal from school. As research shows that leaving education or training early is the outcome of a long process of disengagement from school, ELET is often preceded by indicators of withdrawal (*e.g.* truancy) or unsuccessful school experiences (*e.g.* academic or behavioural difficulties). Furthermore, more overt signals of disengagement are considered to be accompanied by more covert indicators such as a poor sense of belonging to school and a more general dislike of education (Christenson and Thurlow 2004).

A second constant across the myriad conceptualisations of school engagement is that it is a multidimensional concept. There is, however, little agreement about the number and types of engagement dimensions (Appleton et al. 2008). While all definitions include behavioural and affective aspects (see *e.g.* Finn 1989), there is variation in the extent to which it also contains cognitive components (see *e.g.* Fredricks et al. 2004). Behavioural engagement consists of the actions and practices students direct towards school and learning: both positive (*e.g.* paying attention in class, doing school work) and negative behaviour (*e.g.* truancy, school misconduct). Emotional engagement represents a student's sense of belonging to school and the valuing of education. Cognitive engagement refers to a student's self-regulated and strategic approach to learning. Essential in this respect is that these engagement components do not operate in isolation but are interrelated and dynamic. Moreover, Fredricks et al. (2014) proposed that over time, the different dimensions have a reciprocal influence on each another and that these patterns have long-term effects on academic achievement, including ELET. More recently, researchers have proposed a school engagement construct with four subdimensions and distinguished academic engagement from more general behavioural engagement (Appleton et al. 2008; Reschly and Christenson 2012). The academic engagement component includes variables such as attention and participation in class and homework completion, as opposed to the behavioural sub-construct that captures anti-social behaviour such as truancy and misconduct, as well as positive participation in extra-curricular activities (Appleton et al. 2008).

Although Fredricks et al. (2004) theorised the internal relationships between the different dimensions to some extent – as being dynamic and reciprocal – they did not fully capture how the more covert or internalised dimensions such as the emotional and cognitive are externalised through students’ academic and behavioural engagement in school. To grasp the underlying mechanisms, we turn to theory of motivational development, which suggests that the effects of internalised emotional and cognitive engagement on school dropout are mediated by externalised behavioural and academic engagement/disengagement (Archambault et al. 2009; Fall and Roberts 2012). Moreover, most school engagement theory does not incorporate the external relationship with social support provided in the students’ environment and other school-related attitudes, such as academic self-concept and locus of control, which have been shown to be related to students’ engagement and achievement in education (*e.g.* Connell and Wellborn 1991; Wang and Eccles 2012).

2.2 Theorising the Relationships: the Self-System Model of Motivational Development

In a literature review on the school engagement concept, Appleton et al. (2008) argue that the conceptualisation of school engagement presented above is consistent with theories on motivation. Many theories on motivation build on the idea that individuals have the urge to satisfy the fundamental human needs of feeling in control, feeling competent and feeling related in order to feel motivated in a certain domain (*e.g.* Connell and Wellborn 1991). Although Appleton et al. (2008: 379) argue that academic motivation and school engagement are separate concepts – although not unrelated (‘motivation is thus necessary, but not sufficient for engagement’) – the self-system model of motivational development provides opportunities to connect students’ social context, internalised emotional and cognitive dimensions, externalised engagement behaviour and educational outcomes. Appleton et al. (2008) indicated that motivation is central to understanding engagement and that it is important to view engagement within a motivational framework that includes both contextual and self-system level factors. These theoretical models on motivational development presuppose that an individual’s context determines their self-system (incorporating perceived control, competence and relatedness) and subsequently influences the level of engaged/disengaged behaviour and therefore educational outcomes (Caraway et al. 2003; Fall and Roberts 2012; Skinner, Kindermann and Furrer 2009).

In aiming to incorporate these relationships into a coherent framework, we will build on the theory of the Self-system Model of Motivational Development (SSMMD). The SSMMD, developed by Skinner and colleagues (*e.g.* Skinner and Belmont 1993), hypothesises that contextual and self-system variables can either enhance or hamper

school engagement. Contextual variables refer to external factors such as family, peer and teacher support. Self-system factors are individual features such as the perceived level of self-efficacy, control and feelings of relatedness (Connell and Wellborn 1991; Skinner, Wellborn and Connell 1990). Furthermore, according to the self-system model of motivational development, school engagement (here limited to its externalised or behavioural dimensions) directly influences academic outcomes. Several empirical studies support this theoretical model (*e.g.* Caraway et al. 2003; Connell, Spencer and Aber 1994; Connell and Wellborn 1991; Fall and Roberts 2012). In conclusion, the SSMMD provides us with a broader theoretical framework for explaining processes of school engagement/disengagement by theorising the relationships between its emotional, cognitive and behavioural dimensions, as well as social support in student contexts (Caraway et al. 2003; Fall and Roberts 2012; Rotermund 2010).

2.3 Moving Beyond Risk Status Indicators for ELET

Prior to empirically testing the relationships hypothesised by the SSMMD as described above, here we will discuss some socio-demographic and school career characteristics that are found to increase students' risk of ELET. The concept of risk indicators for ELET captures what are called 'unalterable' individual features that increase the likelihood that a student will experience certain adverse behaviour and outcomes. Risk status for ELET should be distinguished from more alterable features such as social support, a greater sense of competence or control in the field of education, and feeling more related to school or education as a whole (Barry and Reschly 2012; Finn and Rock 1997).

Well-established risk status indicators for ELET include socio-demographic characteristics such as being a male student, having an immigration background and having parents with a lower socio-economic status (SES) (Rumberger and Lim 2008; Lamote et al. 2013). In addition, school career features help to predict a student's risk of ELET. There is broad consensus about negative educational experiences that increase one's risk of ELET, such as grade retention, low prior achievement levels and studying in lower status educational tracks (Elffers 2012; Eurydice and Cedefop 2014; Janosz et al. 1997). Although socio-demographic risk indicators can also predict some adverse school career features (*e.g.* grade retention, being in a lower status educational track), in our analysis we consider all risk status variables as exogenous control variables in modelling the effects of social support and self-system level factors on behavioural engagement. We therefore test how these risk indicators are related to more

'alterable' mechanisms that might increase students' resilience and allow them to overcome their risk status (Fall and Roberts 2012; Reschly and Christenson 2006; Rotermund 2010).

2.3.1 Social Support Factors

Research has studied a wide range of social support factors associated with school engagement and ELET, including family, peer and teacher support (Brewster and Bowen 2004; Elffers et al. 2012; Faircloth and Hamm 2003; Goodenow and Grady 1993; Roorda and Koomen 2011). Rosenfeld et al. (2000), for instance, compared the effects of students' support from parents, peers and teachers on various school outcomes. The findings indicated that students who perceive greater support from all three spend more time studying, avoid anti-social behaviour, report higher school belonging, self-efficacy and engagement. Wang and Eccles (2012) examined the relative influence of adolescents' supportive relationships with teachers, peers and parents on different dimensions of school engagement and found that different sources of social support had diverse impacts on each of the dimensions. Hence, all three social support factors are relevant to and should be incorporated into the study of contextual facilitators of school engagement.

2.3.2 Self-System Factors

Central to the SSMMMD is that the effects of social support on school engagement and educational outcomes such as ELET are mediated by factors at the self-system level, such as feeling related, competent and in control in the domain of education. This research suggests that adolescents especially have the need to feel related and a member of a group to internalise the values upheld in a certain domain (Connell and Wellborn 1991; Deci et al. 1991). Hence, students' feelings of belonging have been shown to mediate the relationship between social support, school engagement and student achievement (Furrer and Skinner 2003). In addition to relatedness, perceived academic competence and a sense of control about one's achievements also predict more positive behavioural school engagement, and subsequently also educational achievement and ELET (Fall and Roberts 2012).

2.3.3 Behavioural and Academic Engagement

The academic and behavioural dimensions of the school engagement concept can be considered to be the final element of the self-system model of motivational development (Caraway et al. 2003). According to the SSMMMD,

school engagement mediates the effects of social support and self-system factors on academic achievement (Archambault et al. 2009; Skinner et al. 2009). For instance, Connell et al.'s (1994) path analyses revealed that students who avoided negative behaviour were more likely to stay in school, while behaviourally engaged students reported more positive perceptions of competence, control and school belonging. Other studies have shown that students who adhere to school regulations and avoid misconduct show better school results (*e.g.* Janosz et al. 1997; Rosenfeld et al. 2000). Furthermore, positive effects of attentiveness in class and being involved in study work were registered, even when controlled for risk indicators (Elffers 2013; Finn and Rock 1997).

The present study aims to empirically test the hypotheses based on the theory of the SSMMMD, as presented above. More concretely, we attempt to model if and how students' social support from teachers, parents and peers affects self-system processes (*i.e.* feeling related, competent and in control in the domain of education) and can subsequently explain behavioural and academic engagement, while controlling for a range of relevant risk status indicators for ELET. Our sample of students from vocational urban secondary schools in Flanders provides a unique setting to test these relationships because of the omnipresence of socio-demographic and educational risk status indicators in the student composition. In the following section, we discuss this particular student sample in which we tested our hypotheses using structural equation modelling (SEM).

3. Data and Methods

This study is based on data from a student survey administered during the spring of 2014 in the two largest Flemish cities of Antwerp and Ghent. The dataset includes 1401 students in grades 10 and 12 of the school-based vocational track across 26 different school locations. Students' answers were recorded through an online or a paper-and-pencil survey, both administered in a class context with at least one of the principal researchers present. The selection of schools focused on those comprised of student populations with high-risk profiles for ELET; in other words, urban schools with high proportions of socially disadvantaged and ethnic minority students. The main selection criteria for schools were: being located in one of the two urban areas involved in this study and providing vocational study courses.

Table 1 shows the distribution of risk indicators across the vocational and general tracks within the same schools.⁴ While the full sample is more or less equally distributed for gender (47.4% males and 52.6% females), there is an overrepresentation of female students (57.6% females) in general education. Regarding a migration background, 51.2% of our full sample of students have at least one grandparent born outside the European Union. The distribution of students with a non-EU migration background is, however, different for both tracks: while most students in vocational education (58.5%) have a non-EU migration background, only⁵ 37.8% of students in general education have at least one grandparent born outside the EU.

Table 1: Distributions of risk status indicators across the general and vocational track

		General	Vocational	Total
Gender	Male	42,4%	50,4%	47,4%
	Female	57,6%	49,2%	52,6%
Migration background	EU	65,8%	37,8%	45,7%
	Non-EU	32,4%	58,5%	51,2%
Highest occupational group of both parents	Inactive without prior job reported	6,8%	21,0%	17,0%
	Unschooler labourer	4,9%	11,2%	9,4%
	Schooled labourer	15,2%	27,5%	24,0%
	Service, sales, clerical workers and technicians	32,5%	30,8%	31,3%
	Professionals and managers	40,6%	9,6%	18,3%
Grade retention	No grade retention	80,6%	37,2%	49,7%
	Grade retention	19,4%	62,8%	50,3%
Grade point average at end of the previous school year	Less than 50 %	0,6%	1,9%	1,5%
	50 – 60 %	7,3%	13,1%	11,4%
	60 – 70 %	50,4%	38,2%	41,8%
	70 – 80 %	33,1%	38,3%	36,8%
	More than 80 %	8,6%	8,5%	8,5%

⁴ The general track primarily prepares students for higher education, while the vocational track is directed towards labour-market entry after graduation. Apart from the general and vocational tracks, Flemish secondary education also provides technical tracks that intend to prepare students for both higher education and/or direct labour-market entry.

⁵ When compared at the overall Flemish level, this is still a strong overrepresentation of young people with a non-European migration background.

As more than one quarter of our population reported that they did not know their parents' educational level, we used the highest occupational group classification of both parents as the measurement of socio-economic status (SES). We asked respondents to provide the job title and a short description of both parents' professions and recoded these data based on the International Standard Classification of Occupations codes, which we then recoded into five broader job categories (ISCO-08; International Labour Office 2012). Table 1 shows strong SES differences between the student bodies in the general and vocational education tracks. Students in vocational education more often have parents in lower skilled professions than students in general education. Students in vocational education also more often reported that their parents were economically inactive or working in unskilled professions, while students in general education have at least one parent working as a professional or manager up to four times more often than those in the vocational track, which, according to the ISCO-08, presumes a higher education qualification.

Regarding school career-related risk indicators, our analysis controlled for having experienced grade retention and the self-reported grade point average at the end of the previous academic year. In the full sample, about half of the students had not experienced grade retention during their school career. However, there are again large differences between both educational tracks with regard to grade retention. In general education, over 80% have not experienced grade retention, while in vocational education, more than 60% have experienced at least one year of grade retention. Regarding prior achievement, the largest group of students reported a median level grade point average (GPA) of 60-70% at the end of the last school year. As Table 1 shows, the distribution of GPA also differs between both tracks.

All but one of the latent variables included in this study were based on validated scales. We now discuss all latent constructs measuring social support, self-system factors and engagement. For each of the latent constructs in the measurement model, we present some of the items and the alpha values of the reliability testing. The description of the items, standardised regression coefficients, standard error terms and p-values of the measurement model can be found in Table 3 in the Appendices.

3.1 Social Support Factors

With respect to social support factors, our study distinguishes parental, peer and teacher support. In relation to parental support, we made use of a parental support measurement which entails discussing educational issues and future aspirations at home. This scale was adapted from Eggert et al.'s Parental Support Scale (1991) and includes

five items, such as ‘My parents praise me when I do well in school’ or ‘My parents give me the support I need to do well in school’ ($\alpha = .83$). Social support by peers was measured through students’ assessment of pro-school attitudes among peers and was constructed based on four scale items that show a high internal reliability ($\alpha = .90$). The respondents were asked to rate the importance their peers ascribe to attending class regularly, studying, getting good grades and finishing secondary education.⁶ To measure teacher support, we relied on the Attitudes Towards Teachers Measurement developed by McCoach (2002), which include items such as: ‘Most of the teachers at this school are good teachers’ or ‘My teachers try to help me do well in school’ ($\alpha = .80$).

3.2 Self-system Factors

For the self-system level factors, we distinguished self-perceptions regarding one’s competence and control in education and two separate measurements of students’ relatedness to the school and education. With regard to self-perceptions, we used items from the Academic Self-Concept Questionnaire adapted from Liu and Wang (2005) for perceived competence and Wang et al.’s (2011) measurement of self-regulated learning for perceived control. Our measurement of student’s perceived academic competence included five items, such as ‘I perform well in most of my school subjects’ and ‘I can follow the lessons easily’ ($\alpha = .73$). For students’ perceived control, we used items such as, ‘I often try to learn from my mistakes in school’ and ‘I am good at figuring out problems and planning how to solve them’ ($\alpha = .62$).

For the self-system variables measuring students’ relatedness to school and education, this study adapted Wang et al.’s (2011) constructs for school belonging and the valuing of school education. Sample items for school belonging are: ‘I think this is a good school’ and ‘I feel like a real part of this school’ ($\alpha = .88$). To measure the valuing of education, we used a five-item scale including items such as, ‘Trying hard at school will help me to get a good job’ and ‘School has been a waste of time’ (reverse scored; $\alpha = .75$).

3.3 Behavioural and Academic Engagement

Our measurement of behavioural engagement entailed two constructs for academic engagement and one for behavioural engagement. The first measurement of academic engagement was adapted from Wang et al.’s (2011)

⁶ Students could answer on a five-point Likert scale ranging from ‘not at all important’, ‘not very important’, ‘neutral’, ‘fairly important’ to ‘very important’.

operationalisation of attentiveness in class (*e.g.* ‘I often find it hard to keep my mind on my work at school’ – reverse scored; $\alpha = .72$). Another factor for academic engagement was adapted from Wang et al.’s (2011) measurement of cognitive strategy use (*e.g.* ‘When I do my homework I make sure that I get started on it early’). While the cognitive strategy use measurement initially measured cognitive engagement, all items included the phrase ‘when I *do* my homework ...’. An initial explorative factor analysis also convinced us to add two items from our survey that would more clearly capture the behavioural engagement dimension of the construct (*e.g.* ‘I put a lot of effort into my schoolwork’; $\alpha = .87$).

To measure the non-academic behavioural engagement dimension, our survey data only used items on being compliant in school (*e.g.* ‘How often have you been sent to the office for doing something wrong?’ – reverse scored; ‘How often have you been involved in a physical fight?’ – reverse scored; $\alpha = .82$).⁷ Our data on behavioural engagement might have been enriched by participation in positive school-related behaviour such as extra-curricular activities. However, these activities are quite rare in Flemish urban secondary schools.

4. Findings

In this section, we mainly explore the structural equation modelling carried out using AMOS software (Byrne 2001). As prior measurement invariance testing of some of the latent constructs using the same dataset showed weak measurement invariance across the general and vocational educational tracks (Author 2016), we decided not to include both groups of students within the same model. Our analysis therefore concentrates on the vocational students, who are – in the context of the Flemish educational system (see above) – theoretically the most relevant to studying processes of school disengagement. Table 3 in the Appendices shows, overall, strong results for the measurement model in the sample of vocational students. All regression weights have p-values less than .01, and the lowest factor loading across all latent constructs amounts to 0.485.

With regard to the structural model, we start by briefly discussing how the control variables are related to the latent constructs making up the conceptual model of the SSMMD in Figure 1 (see Table 4 in the Appendix). With regard to the socio-demographic risk-status variables, our analysis illustrates the complexity and multidimensionality of risk status for ELET. For example, not all known risk indicators for ELET in Table 1 are also negatively related to the latent constructs in the SSMMD (*i.e.* support factors, school-related attitudes or behavioural school

⁷ These items were also scored on a five-point Likert scale and allowed for responses ranging from ‘never’, ‘rarely’, ‘sometimes’, ‘quite often’ to ‘very often’.

engagement). While male students significantly report lower levels of parental, teacher and peer support than female students, they show higher levels of perceived academic competence and control. Male students do, however, value education less and report lower levels of study behaviour, although the latter relationship is only marginally significant ($p = 0.06$). Although students with a non-EU migration background tend to be overrepresented in ELET rates, in our sample, these students show significantly higher levels of parental and peer support than students with an EU background. They also show higher levels of perceived competence and control, valuing of education, study behaviour and attentiveness in class. Family SES shows only weak relationships in our model, with a higher family SES positively related to valuing education and negatively related to paying attention in class.

Looking at the relationship between the educational risk indicators and the latent constructs in the SSMMMD, we found that having experienced grade retention is negatively related to feeling supported by teachers. However, those who have experienced grade retention do not value education less, but in fact more. This could potentially be explained by the fact that those students who have experienced grade retention and do not value education as much have already left education before grade 12 (or even grade 10). With regard to behavioural school engagement, students who have been retained for at least one school year report lower levels of study behaviour and attention in class. Although many students in vocational education have experienced ‘downward’ track mobility – that is, from the more prestigious academic to the lower status vocational track – as well as grade retention sometime in their school career, the more recent positive feedback on their study results in terms of the grade point average they received at the end of the previous school year, in general, has significant positive effects on their perceived support from parents, teachers and peers. Furthermore, after being controlled for other risk indicators, these positive study results are also positively related to their perceived academic competence and control, as well as attentiveness in class.

*** *Figure 1 about here* ***

*Figure 1: The final Structural Model for the SSMMMD (Significant relationships only; * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$)*

Having discussed the relationships between the control variables and the latent constructs making up the SSMMMD, we now turn to the examination of the structural relationships presented in Figure 1. Figure 1 shows the significant

structural relations of the SEM. The figure only shows the latent variables and excludes the observed items, error terms and the control variables to improve readability. All of the relationships in the conceptual model were, however, controlled for the variables presented in Table 1. To this end, Table 2 shows the direct and total effects, standard errors and p-values of all the relationships tested in the model. This enables us to discuss if and how the hypotheses based on the SSMMD are supported by our sample of ‘at-risk’ students in urban vocational schools. Most importantly, we want to determine if and how the SSMMD can help us to move beyond the socio-demographic and educational risk indicators in explaining school disengagement by keeping the risk-status indicators constant while testing the structural relationships hypothesised by the theoretical framework of the SSMMD.

Table 2: Standardised Regression Weights in the Structural Model (no control variables)

			β_{direct} (β_{total})	SE	p-values
Competence	<---	Parental Support	0.183	0.024	***
Control	<---	Parental Support	0.165	0.021	***
Valuing	<---	Parental Support	0.327	0.021	***
Belonging	<---	Parental Support	0.003	0.042	0.914
Study Behaviour	<---	Parental Support	0.129 (0.183)	0.035	***
Attentiveness	<---	Parental Support	0.005 (0.098)	0.053	0.892
Compliance	<---	Parental Support	-0.044 (-0.023)	0.031	0.276
Competence	<---	Teacher Support	0.356	0.035	***
Control	<---	Teacher Support	0.339	0.031	***
Valuing	<---	Teacher Support	0.523	0.035	***
Belonging	<---	Teacher Support	0.559	0.073	***
Study Behaviour	<---	Teacher Support	0.183 (0.27)	0.066	0.001
Attentiveness	<---	Teacher Support	0.162 (0.319)	0.1	0.009
Compliance	<---	Teacher Support	0.29 (0.262)	0.06	***
Competence	<---	Peer Support	0.061	0.027	0.061
Control	<---	Peer Support	-0.044	0.022	0.207
Valuing	<---	Peer Support	0.18	0.022	***
Belonging	<---	Peer Support	-0.019	0.047	0.534
Study Behaviour	<---	Peer Support	0.167 (0.194)	0.034	***
Attentiveness	<---	Peer Support	0.036 (0.066)	0.051	0.3
Compliance	<---	Peer Support	0.023 (0.041)	0.028	0.487
Study Behaviour	<---	Competence	0.006	0.049	0.881
Attentiveness	<---	Competence	0.309	0.078	***
Compliance	<---	Competence	-0.097	0.045	0.026
Study Behaviour	<---	Control	0.018	0.06	0.622
Attentiveness	<---	Control	0.074	0.092	0.071
Compliance	<---	Control	-0.01	0.054	0.813
Study Behaviour	<---	Valuing	0.153	0.075	0.002
Attentiveness	<---	Valuing	0.073	0.113	0.181

Compliance	<---	Valuing	0.121	0.066	0.026
Study Behaviour	<---	Belonging	-0.002	0.024	0.952
Attentiveness	<---	Belonging	-0.03	0.037	0.456
Compliance	<---	Belonging	-0.097	0.022	0.016

Notes: Notes: *** $p < .01$.; Model fit indices: $\chi^2/df = 4.125$; CFI= 0.877; RMSEA= 0.047.

With respect to the role of social support in the SSMMD, the findings show clear support for most of the hypothesised structural relationships. Overall, parental, teacher and peer support relate to higher levels of perceived competence, control and relatedness, and, through these self-system processes, relate to higher levels of behavioural school engagement. However, not all structural relationships hypothesised by the SSMMD are significant in our model.

Students who feel more supported by their parents significantly report higher levels of perceived academic competence and control, as well as a strong increase in their valuing of education. However, parental support does not affect school belonging. Parental support also directly and indirectly boosts study behaviour. Taking into account the indirect effects of parental support that run through students' perceived competence, control and valuing of education, the total effect of parental support exceeds its initial direct effect on study behaviour.

The hypotheses regarding teacher support are all confirmed by significant structural relationships in our model. Teacher support strongly and positively relates to perceived academic competence and control, and even more to valuing education and a sense of school belonging. Our hypotheses about the direct and indirect role of teacher support on behavioural engagement are largely confirmed. When also considering the indirect effects running through the self-system processes, the total effects of teacher support on study behaviour and attentiveness in class further increase, although it diminishes regarding school compliance.

The structural relationships involving peer support are backed up less by our model than those regarding teacher and parental support. However, peer support shows significant positive relationships to perceived competence and, more significantly, to students' valuing of education and study behaviour. Taking into account the indirect effects of the self-system processes, the total effect of peer support on study behaviour further increases when compared to the direct effects.

When examining the structural relationships between the self-system factors and the factors measuring behavioural and academic engagement, our findings draw a less clear picture than for the social support factors. Not all relationships were supported by our data and two relationships significantly counter the hypotheses put forward

by the SSMMMD. Students' perceived competence shows only two significant relationships to the three latent constructs measuring behavioural engagement, of which one shows a weak but significant negative relationship. Feeling confident about one's academic competences positively relates to reporting more attention in class but relates negatively to being compliant to school regulations. We elaborate on the latter relationship in more detail in the discussion section. Feeling in control of one's academic achievements only shows one significant structural relationship to the three different engagement measurements, and this relationship is only marginally significant ($p = 0.071$). Students who feel more control over their academic achievement do tend to report higher levels of attentiveness in class.

With regard to feelings of relatedness, that is, valuing education and school belonging, our specific sample shows three significant structural relationships, of which one is counter to what would be theoretically expected. Students' valuing of education positively relates to both their study behaviour and adherence to school regulations. Valuing education shows the strongest relationships to behavioural and academic school engagement of all factors on the level of the self-system. Students' sense of school belonging, however, only shows one significant but weak relationship: a negative relationship to school compliance. This finding will be elaborated on in the following section.

Finally, we addressed to what extent the SSMMMD helped us to move beyond the relatively unalterable risk indicators in explaining students' academic and behavioural school engagement. When comparing the explained variance within students' compliance to school regulations, attentiveness in class and study behaviour between the full model and the model that only included the control variables, we can clearly discern that the SSMMMD strengthened our ability to account for the variance in all our measurements of behavioural and academic engagement. We found the smallest increase in explained variance (from $R^2 = .107$ to $R^2 = .192$) for being compliant to school regulations. The explanatory power of the SSMMMD was higher for both measurements of academic engagement. For attentiveness in class and study behaviour, the squared multiple correlations rose from .126 and .080 to .304 and .228 respectively. Although our sampling particularly targeted at-risk school populations with regard to school disengagement and ELET, the SSMMMD still allowed us to make significant gains in explaining the variance in school engagement after controlling for the unalterable risk indicators.

5. Discussion

This study builds on motivation theory to further explain the high risk of school disengagement and early leaving from education or training (ELET) in Flemish urban secondary schools. The Self-system Model of Motivational Development (SSMMD) posits that an individual student needs to feel related, sufficiently competent and in control to be engaged and thus make positive achievements in education. The SSMMD theory argues that perceived relatedness, competence and control mediate the way students' social contexts influence behavioural and academic engagement. In testing the theoretical model of SSMMD in relation to school engagement using survey data collected in Flemish urban schools, we included both relatively unalterable risk indicators – which were identified as strong predictors of ELET by previous studies – as well as more readily alterable factors such as social support and psychological antecedents at the self-system level, which include feeling related to school and education and perceived academic competence and control.

To start with, the structural equation modelling (SEM) testing the relationships hypothesised by the SSMMD using a sample of students considered to have a high risk of school disengagement, overall supported the additional explanatory power of the SSMMD, in addition to the 'fixed' risk indicators. Adding the latent constructs making up the SSMMD to the model doubled or in some cases nearly tripled the explained variance in our measurements of behavioural and academic engagement. All of the sources of social support tested in the model – parental, teacher and peer support – directly and indirectly strengthened students' academic and/or behavioural engagement. The strongest source of support with regard to school engagement, however, was teacher support. Feeling supported by teachers had a strong positive direct relationship with all of the measurements of academic and behavioural engagement. Teacher support was also indirectly a protective factor in relation to school disengagement as it was positively related to feeling academically competent and in control, as well as feeling related to both the individual school the student is enrolled in and the societal institution of education itself.

Most of these self-system factors positively related to academic and behavioural engagement, as hypothesised by the SSMMD. These findings lead us to conclude that even within urban vocational schools with student populations showing high risks of school disengagement and ELET, providing school-wide and targeted support can foster pro-school attitudes and school engagement. Parents and peers who share the belief that gaining a good education is important, as well as parents and teachers who provide the support that enables students to do well in school, can serve as important protective factors in influencing students' attitudes towards and engagement in education, even when their socio-demographic or educational background predict that they are at risk of ELET.

Notwithstanding the fact that most of the hypotheses based on the SSMMD were supported by our data, not all of the structural relationships we found were in line with the hypotheses based on the SSMMD. Among vocational

students in Flemish urban schools, perceived academic competence, for instance, appeared to hamper school compliance. In addition, students in our sample who reported a greater sense of school belonging, overall showed significantly lower school compliance. Previous research in a similar setting (in urban vocational schools in Flanders) showed the potential negative effects of early tracking, particularly regarding the negative effects of segregating socially disadvantaged students in urban vocationally oriented schools (e.g. Demanet and Van Houtte 2014; Van Houtte and Stevens 2009). Van Houtte (2006), for example, found negative effects of early tracking on the school culture of students, as well as on school staff beliefs about the teachability of the student population in Flemish vocational tracks. Feeling a strong sense of belonging to a rather negative school culture could lead these students to behaviourally disengage from school regulations.

One of our previous studies also showed how segregating ethnic minority students by placing them in lower status vocational tracks can lead to stereotype threat effects. This study showed that – in response to negative stereotypes of students with a non-European migration background and students in the lower status vocational tracks – students in these stigmatised groups may psychologically disengage such that their perceived academic competence does not reflect their actual achievement and, ultimately, they disidentify from setting positive goals in education, especially when they do not feel accepted or supported by their teachers (Authors 2016). These studies on the effects of systemic features of the Flemish education system – including high levels of social and ethnic stratification between educational tracks, particularly in urban contexts – could provide part of the explanation for the relationships that diverge from what can be deduced from the theory of the SSMMD. Our findings could therefore encourage scholars to study how systemic features have an impact on the dynamic interactions between social support, self-system processes and behavioural school engagement.

6 Limitations and future research

This study has two main limitations that we discuss here in combination with potential perspectives for future research. One main limitation that could not be compensated for within the framework of the broader research project in which this particular study is situated, is the fact that all of the data were self-reported by students, which makes the data vulnerable to a social desirability bias. Future research could strengthen the claims made in this study by including other data sources such as administrative data on truancy or non-compliance to school regulations. Data on students' school engagement collected among teachers could also be added to counter the social desirability bias in self-reported data collected solely among students.

The second limitation of this study is that we could only make use of cross-sectional data, which impedes us from making claims about cause and effects that move beyond the mere testing of the theory-based hypotheses about the direction of relationships in the SSMMMD. Being able to make use of a longitudinal dataset would not only provide stronger ground for making causality claims but could also shed more light on the dynamics of the relationships between social support, self-system processes, behavioural engagement and educational outcomes over time.

7 Conclusions

This study brings new theoretical as well as empirical insights to the current state of the art by applying the Self-system Model of Motivational Development (SSMMD) to the topic of early leaving from education and training in a European context. The results show that the theory of SSMMMD indeed explains a significant portion of the variance in school engagement within at-risk groups in education. It does so primarily by revealing how social support impacts on students' self-system level factors of feeling related, competent and in control in education which in turn impacts on students' school engagement. Our findings in particular show the strong impact of teacher support. The findings present a clear message to educators and scholars to move beyond a focus on rather fixed socio-demographic risk factors of students, and study the complex relationships between the social processes of support and the individual processes of self-system factors to address the key issue of school engagement and, ultimately, tackle students' early leaving from education and training.

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Appendices

Table 3: Standardized Regression Weights of the Measurement Model

Latent constructs	Observed variables	Description of the items	β	SE	p-values
Parental Support	Ind1	My parents give me the support I need to do well in school	0.782		
	Ind2	My parents talk to me about my future	0.731	0.035	***
	Ind3	My parents believe that education is important to succeed in life	0.618	0.027	***
	Ind4	My parents praise me when I do well in school	0.784	0.029	***
	Ind5	My parents make sure that I go to school every day	0.602	0.035	***
	Ind6	My parents make sure that I do my homework	0.594	0.046	***
Teacher Support	Ind7	My teachers don't care if I fail or succeed - reverse scored	0.525		
	Ind8	My teachers do not treat me fairly - reverse scored	0.635	0.067	***
	Ind9	My teachers respect me as a person	0.725	0.063	***
	Ind10	My teachers try to help me do well in school	0.676	0.063	***
	Ind11	My teachers feel that my work is poor - reverse scored	0.537	0.057	***
	Ind12	Most of the teachers at this school are good teachers	0.688	0.068	***

Peer Support	Ind13	Importance amongst friends to finish secondary school	0.793		
	Ind14	Importance amongst friends to get good grades	0.904	0.034	***
	Ind15	Importance amongst friends to study	0.871	0.037	***
	Ind16	Importance amongst friends to attend class regularly	0.78	0.038	***
Perceived	Ind17	I can follow the lessons easily	0.705		
Competence	Ind18	I am able to do better than my friends in most subjects	0.512	0.053	***
	Ind19	I usually do poorly in tests - reverse scored	0.527	0.055	***
	Ind20	I am good in most of my school subjects	0.711	0.049	***
	Ind21	I am able to help my classmates in their schoolwork	0.551	0.053	***
Perceived	Ind22	I often try to learn from my mistakes	0.57		
Control	Ind23	I am good at figuring out problems and planning how to solve them	0.815	0.112	***
	Ind24	I am good at dealing with setbacks at school	0.485	0.085	***
Valuing of	Ind25	Getting a good education is the best way to get ahead in life	0.645		
Education	Ind26	Trying hard at school will help me to go to college/university	0.645	0.067	***
	Ind27	Schooling is not so important for kids like me - reverse scored	0.459	0.079	***
	Ind28	Trying hard at school will help me to get a good job	0.699	0.068	***
	Ind29	School has been a waste of time - reverse scored	0.58	0.08	***
School	Ind30	I would recommend to other kids that they go to my school	0.869		
Belonging	Ind31	I feel like a real part of this school	0.801	0.026	***
	Ind32	I think this is a good school	0.858	0.024	***
Study	Ind33	When I do my homework, I make sure that I get started on it early	0.642		
Behaviour	Ind34	When I do my homework, I try to plan what I have to do before I get started	0.6	0.051	***
	Ind35	I put a lot of effort into my schoolwork	0.916	0.052	***
	Ind36	I spend a lot of time on my schoolwork	0.919	0.052	***
Attentiveness	Ind37	I often find it hard to keep my mind on my work at school - reverse scored	0.823		
In Class	Ind38	I often have trouble paying attention to the teacher in class - reverse scored	0.676	0.054	***

School Compliance	Ind39	How often have you been sent to office for doing something wrong? (reverse scored)	0.604		
	Ind40	How often have you been involved in a physical fight? (reverse scored)	0.896	0.072	***
	Ind41	How often have you hit someone for what they said/did? (reverse scored)	0.866	0.07	***

Notes: Using SEM to estimate the parameters, standard errors and p-values, required the variance of the first indicator of each latent construct to be set to 1; *** $p < .01$; Model fit indices: $\chi^2/df = 4.125$; CFI= 0.877; RMSEA= 0.047.

Table 4: Standardized Regression Weights of the Control Variables in the Structural Model

Endogenous variable		Control variable	β	SE	p-values
Parental Support	<---	Male	-0.056	0.043	0.05
Teacher Support	<---	Male	-0.188	0.039	***
Peer Support	<---	Male	-0.131	0.042	***
Competence	<---	Male	0.099	0.033	***
Control	<---	Male	0.187	0.029	***
Valuing	<---	Male	-0.065	0.027	0.022
Belonging	<---	Male	0.009	0.06	0.749
Study Behaviour	<---	Male	-0.053	0.041	0.063
Attentiveness	<---	Male	0.023	0.063	0.463
Compliance	<---	Male	-0.247	0.038	***
Parental Support	<---	Non-EU	0.205	0.049	***
Teacher Support	<---	Non-EU	0.011	0.042	0.733
Peer Support	<---	Non-EU	0.158	0.046	***
Competence	<---	Non-EU	0.089	0.037	0.005
Control	<---	Non-EU	0.151	0.032	***
Valuing	<---	Non-EU	0.079	0.03	0.01
Belonging	<---	Non-EU	-0.011	0.066	0.724
Study Behaviour	<---	Non-EU	0.104	0.045	***
Attentiveness	<---	Non-EU	0.097	0.068	0.004
Compliance	<---	Non-EU	-0.052	0.04	0.12
Parental Support	<---	Family SES	0.064	0.018	0.038
Teacher Support	<---	Family SES	0.021	0.016	0.522
Peer Support	<---	Family SES	0.017	0.017	0.595
Competence	<---	Family SES	0.025	0.013	0.415
Control	<---	Family SES	-0.002	0.011	0.947
Valuing	<---	Family SES	0.07	0.011	0.016
Belonging	<---	Family SES	-0.009	0.024	0.746
Study Behaviour	<---	Family SES	-0.031	0.016	0.266
Attentiveness	<---	Family SES	-0.097	0.024	0.002
Compliance	<---	Family SES	-0.015	0.014	0.621
Parental Support	<---	Grade Retention	-0.021	0.047	0.474

Teacher Support	<---	Grade Retention	-0.078	0.041	0.014
Peer Support	<---	Grade Retention	-0.045	0.045	0.15
Competence	<---	Grade Retention	-0.02	0.035	0.5
Control	<---	Grade Retention	0.035	0.029	0.272
Valuing	<---	Grade Retention	0.086	0.029	0.003
Belonging	<---	Grade Retention	0.046	0.062	0.099
Study Behaviour	<---	Grade Retention	-0.056	0.042	0.043
Attentiveness	<---	Grade Retention	-0.062	0.063	0.043
Compliance	<---	Grade Retention	-0.02	0.037	0.524
Parental Support	<---	Prior GPA	0.117	0.023	***
Teacher Support	<---	Prior GPA	0.21	0.021	***
Peer Support	<---	Prior GPA	0.095	0.022	0.003
Competence	<---	Prior GPA	0.266	0.018	***
Control	<---	Prior GPA	0.147	0.015	***
Valuing	<---	Prior GPA	-0.009	0.015	0.774
Belonging	<---	Prior GPA	-0.015	0.032	0.608
Study Behaviour	<---	Prior GPA	0.037	0.023	0.239
Attentiveness	<---	Prior GPA	0.085	0.035	0.014
Compliance	<---	Prior GPA	-0.029	0.02	0.407

Notes: *** $p < .01$; Model fit indices: $\chi^2/df = 4.125$; CFI= 0.877; RMSEA= 0.047.

Ethical approval

All procedures performed in this study (involving minors) were in accordance with the Belgian national Commission for the protection of privacy (CPP) and the ethical standards of the Ethics Committee for Social Sciences & Humanities (EA SHW, University of Antwerp).

Informed consent

Written informed consent was signed and obtained from the school management of all the schools included in the study. Beforehand information letters and information meetings were organized for the heads of schools concerning the project and what participation involves. Next to this all the parents received an information letter concerning the project, that anonymity and confidentiality is ensured and no personal information on their child will be shared with the school and with an explicit 'opt-out opportunity' by simply informing the school or the project team of the non-participation of their child.

Declaration on conflict of interest

All authors declare that they have no conflict of interest.

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