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### The transition to post-secondary vocational education: students' entrance, experiences, and attainment

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## Chapter 6

### Veni Vidi Vici? A Multifaceted Perspective on School Dropout in the First Year of Post-Secondary Vocational Education in the Netherlands\*

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#### ABSTRACT

School dropout in senior vocational education (SVE) accounts for 75% of all dropout in the Netherlands. Half of all dropout in SVE occurs in the first year. In this study, we use logistic regression analysis to examine multiple sources of influence, from both the home and school environment, on dropout in the first year in SVE. Results indicate that students' personal characteristics and circumstances outside school play a prominent role in predicting dropout in the first semester after the transition to SVE, but not in predicting dropout later in the school year. Positive school experiences, in particular the perceived value of education, as well as students' behavioral engagement and performance affect dropout considerably. High aspirations upon entrance help students to succeed in the first months after the transition, but increase the likelihood of dropping out in the second semester. High expectations appear to backfire on ethnic minority students in particular.

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\* This chapter is based on:

Elffers, L. & Oort, F.J. (*under review*) – Veni Vidi Vici? A Multifaceted Perspective on School Dropout in the First Year of Post-Secondary Vocational Education in the Netherlands

## INTRODUCTION

### **The dropout problem in the Netherlands**

The problem of school dropout confronts many Western economies (Field, Kuczera, & Pont, 2007). High dropout rates involve a loss of skilled workers, earnings and revenues, and greater demands on financial aid and social services (Bridgeland, DiIoliou, & Morison, 2006). For individual students, dropping out of school increases the risk of future unemployment, working in low-wage jobs, and unstable careers (Research Centre for Education and the Labor Market, 2009), and the decision to drop out is often accompanied by frustration and disappointment (Bridgeland et al., 2006). In the Netherlands, the percentage of dropouts, defined as citizens under the age of 25 who are not enrolled in any form of education and who have not obtained the minimal qualification level deemed necessary to enter the labor market, was 16% in the year 2000. In agreement with the economic development agenda of the European Union, Dutch government developed a national dropout prevention program to reduce dropout rates to 8% in 2020 (Dutch Ministry of Education Culture and Science, 2010). 75% Of Dutch school dropout occurs in senior vocational education (Dutch Ministry of Education Culture and Science, 2011a). Senior vocational education (SVE) is the senior continuation of the vocational track in secondary education, and provides specialized vocational programs for students aged 16 years and older. SVE programs take one to four years to complete, but after five years, approximately 25% of SVE students have left the educational system without a diploma (CBS Statistics Netherlands, 2011). Half of all dropout in SVE occurs in the first year (Dutch Ministry of Education Culture and Science, 2011b), suggesting that the transition to SVE is difficult for many students. Dutch government has declared that, in the coming years, the focus of its dropout prevention program will be on SVE (Dutch Ministry of Education Culture and Science, 2010).

### **Searching for the roots of dropout**

The key to effective dropout prevention is to gain better insight in the roots of dropout (Dutch Education Inspectorate, 2009). Dropout statistics demonstrate that students' sociodemographic characteristics are important indicators of the risk to drop out (Dutch Ministry of Education Culture and Science, 2009), but they are not the proximal causes of dropout, nor do they inform us about the mechanisms underlying the risk that they signify (Alexander, Entwisle, & Kabbani, 2001). To reduce the dropout problem, it is necessary to uncover those mechanisms, and to focus on factors that allow for interventions from schools or the government (Wehlage, Rutter, Smith, Lesko, & Fernandez, 1989). However, a narrow focus on the school context bears the risk of overlooking the role of other contexts, such as family and peers, and of individual factors in dropout (Janosz, LeBlanc, Boulerice, &

Tremblay, 2000). It is only by integrating the multiple contexts that frame students' school careers that we are able to understand the complex ecologies shaping the pathway to dropout (Battin-Pearson, Newcomb, Abbott, Hill, Catalano, & Hawkins, 2000; Janosz et al., 2000; Rumberger, 1995; Wehlage et al., 1989). Therefore, in this study, we adopt a multifaceted perspective to examine the determinants of dropout in the first year in SVE. Using logistic regression analysis, we study the influence of students' social and educational background, attitudes upon entrance in SVE, and school experiences and performance in the first year in SVE on dropout.

## **THEORETICAL FRAMEWORK**

### **Predictors of dropout relating to students' background outside school**

Sociodemographic background characteristics are common indicators of the risk for dropout. Dutch dropout statistics indicate that male students, students from ethnic minority backgrounds, students growing up in broken families, students coming from lower socioeconomic communities, and older students are more likely to drop out of school (Dutch Ministry of Education Culture and Science, 2009). A considerable amount of Dutch dropouts can be labelled 'overloaded students', due to an accumulation of problems in their lives outside school that impede their school career (Scientific Council for Government Policy, 2008). Students can be engaged in risk behavior or complex circumstances outside school, such as pregnancy and parenthood, the use of drugs, delinquency, problematic debts, and intensive jobs next to school, which increases the risk to drop out (Dutch Ministry of Education Culture and Science, 2011a; Ekstrom, Goertz, Pollack, & Rock, 1986; Lee & Staff, 2007; Roebuck, French, & Dennis, 2004; ter Bogt, van Lieshout, Doornwaard, & Eijkemans, 2009; Verhagen, van Heijst, Jurrius, Calkoen, & Koot, 2010). While such circumstances are not necessarily associated with social class or family background (Wehlage et al., 1989), those circumstances that have been found to increase the risk for dropout occur more often among students from lower socioeconomic backgrounds (e.g. Lee & Staff, 2007; Singh, Darroch, & Frost, 2001). Although the impact of sociodemographic characteristics on dropout has been demonstrated in several studies (Alexander et al., 2001; Ekstrom et al., 1986), it is likely that the strength of this relationship depends on what other factors are taken into account (Rumberger & Lim, 2008). For instance, various studies suggest that the risk for dropout signified by certain sociodemographic characteristics, such as an ethnic minority background or lower socioeconomic status, traces back to differences in access to supportive resources that assist students in their school careers, such as encouragement and support from family and friends (Alexander, Entwisle, & Bedinger, 1994; Audas & Willms, 2001; Kao & Tienda, 1998; Roderick,

1993). The influence of family and peers as socializing agents in adolescent students' development is widely recognized nowadays (Rumberger, 1995), and various scholars attest to the importance of taking into account these sources of influence when studying the processes leading to students' decision to stay or leave school (Alexander et al., 2001; Janosz et al., 2000).

### **Predictors of dropout relating to students' experiences inside school**

For long, the role of the school as an important sphere of influence in students' school careers has been largely ignored in favor of a focus on students' personal and social attributes (Wehlage & Rutter, 1986). In the 1980's, several scholars called for more attention for the role of students' experiences in the school environment in their educational plans and progress (Eccles & Midgley, 1989; Miller, Leinhardt, & Zigmond, 1988; Wehlage & Rutter, 1986). Two influential theoretical models have been developed in that period, which both revolve around students' perceived fit with the school environment as the primary determinant of their progress and persistence in school. The first, Tinto's model of institutional departure, describes the path towards students' persistence or departure after the transition to post-secondary education (Tinto, 1993). Tinto hypothesized that students' school commitment upon entrance predicts their social and academic integration in the new institutional environment. According to the model, students who manage to integrate into the institutional environment will stay committed, and are therefore more likely to persist in school. The commitment of students who fail to integrate in the new school environment will decrease, and those students will eventually depart. The second model is Finn's participation-identification model (Finn, 1989), which describes how students' active participation in school results in good performance, which in turn leads to positive identification with the school environment, with the value of education, and with their role as a student. Subsequently, positive identification reinforces active participation in the classroom, thus forming a self-reinforcing cycle of behavioral and emotional engagement and performance in school. If students fail to participate, their performance and identification will drop, drawing the student into a cycle of declining engagement and performance, which eventually culminates in dropout.

### **Combining the home and school context: a comprehensive model of dropout**

The theoretical frameworks of Tinto and Finn have contributed substantially to the appreciation of the importance of students' experiences in school for their decision to stay or leave. However, neither of the models considers the role of social forces outside school, such as the family and peers (Alexander, Bozick, & Entwisle, 2008; Janosz et al., 2000). Several researchers have stressed that combining multiple sources of influence, such as the family, school, community, and peers, in one

model of school dropout is a challenging but essential next step to advance our understanding of the multiple pathways leading to dropout (Alexander et al., 2008; Battin-Pearson et al., 2000; Janosz et al., 2000; Rumberger, 1995). Moreover, dropout should not be perceived of as an event that takes place at one particular point in time, but rather as a process of gradual disengagement from school that may have its roots in earlier school years (Alexander et al., 2001; Finn, 1993). Efforts to identify the proximal predictors that immediately precede the decision to drop out, such as declines in performance, may conceal the many factors that contribute to the dropout process over a longer course (Battin-Pearson et al., 2000; Rumberger & Lim, 2008). Integration of distal and proximal factors from both the home and school context, and examination of their interactions with individual attributes, will yield a more complete picture of the dropout process (Janosz et al., 2000; Rumberger, 1995). In this study, we take a step towards a more comprehensive model in examining the predictors of dropout over the course of the first year in senior vocational education in the Netherlands. Using stepwise logistic regression analyses, we are able to assess the role of (1) students' background characteristics outside school, including their access to supportive resources from family, peers and the community, (2) students' educational experiences and attainment prior to the transition to SVE, (3) students' expectations, aspirations and attitudes upon entrance in SVE, (4) students' experiences with their school and program in SVE, and (5) students' behavior and performance in SVE. Due to the diverse student population and the frequent occurrence of dropout, the context of the first year in SVE provides an excellent opportunity to examine the multiple sources of dropout.

## **METHODS**

### **Participants and data**

The data used in this study come from a longitudinal research project in which a cohort of students is followed from the moment of entrance in SVE until the start of the second year. Students completed self-report questionnaires under supervision of a classroom teacher. Questionnaires were filled in at three moments: directly upon entrance in SVE, at the end of the first semester, and at the end of the second semester. Schools reported on students' enrollment status after each measurement occasion. To obtain a sociodemographically diverse sample, out of the total of 40 regional SVE school boards in the Netherlands, 10 school boards that are located in highly and intermediate urban areas were invited for participation in the study, of which 5 school boards agreed to participate. From each school board, first year groups were selected from engineering, economics, and health & social care programs at all four SVE degree levels (1: assistant level, 2:

basic vocational level, 3: full professional level, 4: specialist level). The groups were selected during the summer break, before individual students were assigned to the groups. Participation in the study was voluntary for all students, but we received no reports of students not willing to participate. For this study, we selected all students who were present at the first measurement, and who were either present on the subsequent measurement occasions and/or of whom information was available on their enrollment status. The resulting sample consisted of 1377 students at the first measurement, 832 students at the second measurement, and 456 students at the third measurement. Table 1 shows the descriptives of the sample. These descriptives correspond to available statistics of vocational education and urban schools in the Netherlands (Dutch Ministry of Education Culture and Science, 2011b; Dutch Ministry of Health Welfare and Sport, 2010; Knowledge Centre for Vocational Training and Labour Market, 2010; Kuhry, 1998; Scientific Council for Government Policy, 2008), indicating that our sample is representative of the SVE population in urban schools.

### **Outcome variables**

After the second and third measurement, we checked which students from the initial sample did not complete a questionnaire a second or third time. Schools were asked to report on the enrollment status of those students. First, schools were asked to indicate if the student was still enrolled in the program. If so, students received the code 'no dropout'. If students were not enrolled in the program anymore, schools were asked to report on the exit status of the student as documented in the school administration. Several students in level 1 degree programs, which take 6 to 12 months to complete, graduated within the year of data collection. Graduation was also coded as 'no dropout'. In 11 cases, there were special medical or practical reasons for discontinuation of the program, such as hospitalization or migration. Those special cases were excluded from the study. In 68 cases, the school was not able to report on a student's enrollment status. Those cases were excluded from the sample as well. Last, we asked the schools to report on the enrollment status after the summer break, at the start of the second year, of all students who persisted until the end of the first year in SVE. Thus, we have three assessments of dropout in the first year in SVE: *1<sup>st</sup> semester dropout*, *2<sup>nd</sup> semester dropout*, and *summer break dropout*, enabling the assessment of dropout early and later in the school year. Table 2 shows the sample size and the success and dropout percentages for each assessment. In total, 19% of the initial group of 1377 students dropped out over the course of the first year in SVE.

**Table 1: descriptives of sample of 1377 SVE students**

<b>Variable</b>	<b>%</b>
<b>School board</b>	
School board 1	11
School board 2	17
School board 3	21
School board 4	20
School board 5	31
<b>Sector</b>	
Economics	34
Engineering	29
Health & social care	37
<b>Level degree program</b>	
Level 1	13
Level 2	33
Level 3	23
Level 4	31
<b>Age</b>	
Age 16-17	58
Age 18-19	30
Age 20 and older	12
<b>Gender</b>	
Male	46
Female	54
<b>Ethnicity</b>	
Native Dutch background	52
Ethnic minority background	48
<b>Household</b>	
Living with 2 parents	65
Living with 1 parent	25
Living with other persons	7
Living alone	3
<b>Job status parents</b>	
Both parents work	49
One parent works	22
Parents both unemployed	14
Job status parents unknown	15
<b>Parental education level</b>	
Parents' education $\leq$ secondary school	21
Parents' education SVE	21
Parents' education HE	19
Parents' education unknown	40
<b>Difficult financial circumstances family</b>	18
<b>Pregnancy and/or parenthood</b>	3
<b>Debts</b>	8
<b>Police contacts</b>	16
<b>Drugs</b>	10
<b>Extra job</b>	58
<b>Prior education</b>	
PVE with diploma	63
PVE without diploma	5
SVE with diploma	10
SVE without diploma	9
Other prior education	13

**Table 2: respondents and dropout in the first year in SVE**

	Measurement 1: start 1 <sup>st</sup> semester	Measurement 2: start 2 <sup>nd</sup> semester	Measurement 3: end 2 <sup>nd</sup> semester
<b>Respondents</b>			
Number of students	1437	846 <sup>a</sup>	461 <sup>b</sup>
Number of students with unknown enrollment status	55	10	3
Number of special dropout cases	5	4	2
Number of students included in the analyses	1377	832	456
<b>Dropout</b>	Dropout 1 <sup>st</sup> semester	Dropout 2 <sup>nd</sup> semester	Dropout summer break
Percentage of students who stayed	91%	83%	80%
Percentage of students who graduated	0%	5%	11%
Percentage of students who dropped out, per measurement	9%	12%	9%
Cumulative percentage dropout throughout the academic year	9%	16%	19%

Note:

<sup>a</sup> students who were present at measurement 1 and 2

<sup>b</sup> students who were present at measurement 1, 2 and 3

### Predictor variables

We distinguished 7 sets of predictor variables. The first predictor set comprises students' personal background, and consists of students' sociodemographic characteristics (age, gender, ethnic identity, household composition, job status parents, highest educational level parents, financial status of the family), personal circumstances and behaviors outside school that are associated with an increased risk for dropout (pregnancy/parenthood, personal debts, drugs, police contacts, extra job outside school), and students' access to supportive resources: the amount of encouragement and support regarding their school careers that students receive from their parents (*support parents*: 5 items;  $\alpha=.67$ ; e.g. *I can talk to my parents/guardians about my school experiences*), from peers (*support peers*: 4 items;  $\alpha=.68$ ; e.g. *My friends and I talk about school matters*), and from their community in general (*support community*: 2 items;  $\alpha=.73$ ; e.g. *Outside school, there are enough people with whom I can discuss school matters*). All student characteristics were measured on the first measurement occasion. Characteristics that could change over the course of the school year, such as household composition or pregnancy/parenthood, were measured at each measurement occasion. In those cases, the measure that precedes a dropout measure most directly was used for analysis.

The second predictor set consists of measures of students' prior school experiences and attainment: *prior emotional engagement* (e.g. *I felt at home at my previous school*, 3 items,  $\alpha=.88$ ), *prior behavioral engagement* (e.g. *I worked hard at my previous school*, 6 items,  $\alpha=.77$ ), and students' prior educational attainment (*pre-vocational education with diploma*; *pre-vocational education without diploma*; *SVE with diploma*; *SVE without diploma*; *other*).

The third predictor set consists of measures of students' attitudes towards their new school and education at the moment of entrance. Two measures assessed students' expected fit with their new educational environment: *expected institutional fit* (e.g. *I think I will feel at home at this school*, 3 items,  $\alpha=.87$ ), and *expected academic fit* (e.g. *I think this degree program suits me well*, 7 items,  $\alpha=.80$ ). The variable *educational aspirations* (e.g. *I really wish to graduate from this degree program*, 3 items,  $\alpha=.74$ ) reflects students' academic ambitions, and *general educational attitudes* (e.g. *I think it is important to go to school*, 7 items,  $\alpha=.80$ ) refers to students' general perception of education as a means to pursue their career goals.

The fourth predictor set comprises measures of students' emotional engagement in the first semester in SVE. This includes a replication of the variable *general educational attitudes* (e.g. *I think it is important to go to school*, 7 items,  $\alpha=.80$ ) to measure students' identification with education now that they go to school in SVE, and two measures referring to students' identification with the particular SVE environment: students' sense of belonging in their particular school (*sense of*

*belonging*: 4 items,  $\alpha=.90$ , e.g. *I feel at home at this school*), and students' valuing of their particular program (*valuing*: 6 items,  $\alpha=.87$ , e.g. *What I learn in this degree program is useful for my future career*).

The fifth predictor set consists of students' *behavioral engagement* (8 items;  $\alpha=.76$ ; e.g. *I attend most classes*), and *performance* (4 items;  $\alpha=.81$ ; e.g. *Compared to my classmates, my performance in school is very poor / poor / average / good / very good*) in the first semester in SVE.

The variables from sets 4 and 5 were measured again at the end of the second semester (set 6: emotional engagement in the second semester; set 7: behavioral engagement and performance in the second semester). As control variables, we included indicators of students' *regional school board* (numbered 1 to 5), *SVE sector* (engineering, economics, and health & social care), and *program degree level* (level 1 to 4).

### Statistical analysis

We performed three series of logistic regression analyses: one for each dropout assessment. To account for possible differences between groups of students, we included the variables *regional school board*, *SVE sector*, and *program degree level* in all models. To explain *1<sup>st</sup> semester dropout*, we used data from the first measurement occasion in the first week in SVE. This means that predictor sets 1 to 3 were included in the models only, as students did not yet have any experiences in SVE to report. For the explanation of *2<sup>nd</sup> semester dropout*, we added predictor sets 4 and 5, referring to students' experiences in SVE in the first semester. For the explanation of *summer break dropout*, we added predictor sets 6 and 7, referring to students' experiences in SVE in the second semester. In all three series of analyses, we added the predictor sets one by one to the model. At every step, we used the stepwise forward likelihood ratio algorithm to select the predictors that contribute significantly to the classification of dropout cases (SPSS Inc., 2010). As an additional check, we performed a backwards procedure to verify the predictor selection. In addition, we explored the effects of interactions of age, gender, and ethnicity with all predictor variables, by testing whether these interaction effects were selected in a forward predictor selection procedure.

## RESULTS

Table 3 gives an overview of bivariate correlations of all predictor variables with the three dropout variables. We find that characteristics of students' social and educational background, as well as students' attitudes upon entrance in SVE, are stronger correlated with dropout in the 1<sup>st</sup> semester than with dropout later in the academic year. Students' school experiences in SVE are stronger correlated with dropout in the summer break after the first year, than with dropout before the end of the first year.

**Table 3: bivariate correlations of predictor variables with dropout**

	Dropout 1 <sup>st</sup> semester	Dropout 2 <sup>nd</sup> semester	Dropout summer break
<b>Control variables</b>			
School board 1	.012	-.044	-.021
School board 2	-.004	-.046	.088
School board 3	<b>.149***</b>	.103	.042
School board 4	-.008	<b>-.079*</b>	-.013
School board 5	<b>-.130***</b>	<b>-.093**</b>	-.087
Economics	<b>.061*</b>	.011	-.063
Engineering	.029	.055	<b>.159***</b>
Health & social care	<b>-.088***</b>	-.063	-.088
Level 1	.038	<b>.120***</b>	<b>.170***</b>
Level 2	<b>.063*</b>	-.036	-.078
Level 3	<b>-.071**</b>	-.058	-.015
Level 4	-.028	.002	-.018
<b>Predictor set 1: personal background</b>			
Year of birth	<b>-.131***</b>	-.037	-.017
Male gender	<b>.091***</b>	.052	<b>.162***</b>
Ethnic minority background	<b>.128***</b>	<b>.076*</b>	<b>.101*</b>
Living with 2 parents	<b>-.153***</b>	<b>-.076*</b>	<b>-.103*</b>
Living with 1 parent	.038	.047	.051
Living with other persons	<b>.103***</b>	.058	<b>.092*</b>
Living alone	<b>.172***</b>	.007	.009
Both parents work	<b>-.057*</b>	-.056	-.019
One parent works	.000	.002	-.027
Parents both unemployed	.030	.028	.037
Job status parents unknown	.051	.049	.022
Parents' education ≤ secondary school	.005	-.013	.000
Parents' education SVE	.009	-.014	-.072
Parents' education HE	-.024	-.024	.018
Parents' education unknown	.008	.041	.042
Difficult financial circumstances family	.029	.047	.045
Pregnancy and/or parenthood	<b>.087***</b>	.030	-.016
Debts	<b>.189***</b>	<b>.117***</b>	.025
Police contacts	<b>.101***</b>	<b>.077*</b>	.091
Drugs	<b>.083**</b>	.052	.068
Extra job	<b>-.057*</b>	-.039	-.057
Parental support	<b>-.159***</b>	-.053	-.041
Peer support	<b>-.121***</b>	-.022	-.069
Community support	<b>-.089***</b>	-.028	-.013
<b>Predictor set 2: educational background</b>			
Prior emotional engagement	-.037	-.057	-.005
Prior behavioral engagement	<b>-.085**</b>	<b>-.072*</b>	.000
PVE with diploma	<b>-.113***</b>	<b>-.097**</b>	-.024
PVE without diploma	<b>.096***</b>	.020	.090
SVE with diploma	.004	.009	.047
SVE without diploma	<b>.104***</b>	<b>.081*</b>	-.050
Other prior education	.007	.050	-.012

(table 3 continues on next page)

(table 3 continued)

<b>Predictor set 3: attitudes upon entrance</b>			
Expected emotional fit	<b>-.076**</b>	-.020	-.011
Expected academic fit	<b>-.097**</b>	-.059	.001
Aspirations at start	<b>-.100***</b>	.047	-.043
Attitudes at start	-.032	-.035	-.015
<b>Predictor set 4: school experiences 1<sup>st</sup> semester</b>			
Emotional engagement – sense of belonging		<b>-.096**</b>	-.033
Emotional engagement – valuing		<b>-.173***</b>	-.054
Emotional engagement – educational attitudes		<b>-.082*</b>	-.015
<b>Predictor set 5: behavior and performance 1<sup>st</sup> semester</b>			
Behavioral engagement		<b>-.195***</b>	-.072
Performance		<b>-.244***</b>	<b>-.142**</b>
<b>Predictor set 6: school experiences 2<sup>nd</sup> semester</b>			
Emotional engagement – sense of belonging			<b>-.195***</b>
Emotional engagement – valuing			<b>-.266***</b>
Emotional engagement – educational attitudes			<b>-.138**</b>
<b>Predictor set 7: behavior and performance 2<sup>nd</sup> semester</b>			
Behavioral engagement			<b>-.266***</b>
Performance			<b>-.265***</b>

Note: \* p<.05, \*\* p<.01, \*\*\* p<.001.

**Table 4: predictors of dropout in first semester after the transition to SVE**

	Model 1		Model 2		Model 3	
	odds ratio	95% C.I.	odds ratio	95% C.I.	odds ratio	95% C.I.
<i>Constant</i>	.017***		.020***		.015***	
<b>Control variables</b>						
School board ( <i>vs. school board 5</i> )						
School board 1	<b>3.526**</b>	1.571 – 7.913	<b>3.076**</b>	1.376 – 6.879	<b>3.604**</b>	1.586 – 8.193
School board 2	1.488	.698 – 3.173	1.599	.747 – 3.424	1.562	.720 – 3.389
School board 3	<b>3.593***</b>	1.825 – 7.074	<b>3.672***</b>	1.876 – 7.188	<b>3.775***</b>	1.887 – 7.553
School board 4	.997	.462 – 2.150	1.012	.469 – 2.184	1.001	.456 – 2.200
Sector ( <i>vs. health &amp; social care</i> )						
Economics	.992	.550 – 1.787	1.036	.575 – 1.865	1.023	.564 – 1.858
Engineering	.952	.465 – 1.949	.935	.456 – 1.919	.906	.436 – 1.883
Level ( <i>vs. level 4</i> )						
Level 1	.815	.426 – 1.556	.640	.318 – 1.288	.645	.317 – 1.312
Level 2	1.207	.731 – 1.994	1.160	.696 – 1.933	1.210	.724 – 2.021
Level 3	.584	.300 – 1.140	.608	.312 – 1.184	.600	.305 – 1.179
<b>Personal background</b>						
Male ( <i>vs. female</i> )	<b>1.910*</b>	1.099 – 3.321	<b>1.918*</b>	1.105 – 3.332	<b>1.753*</b>	1.003 – 3.065
Ethnic minority ( <i>vs. native Dutch</i> )	<b>1.921**</b>	1.181 – 3.126			<b>2.061**</b>	1.252 – 3.392
Student has debts ( <i>vs. no debts</i> )	<b>2.620***</b>	1.513 – 4.534	<b>2.233**</b>	1.267 – 3.938	<b>2.595***</b>	1.477 – 4.558
Student uses drugs ( <i>vs. no drugs</i> )	<b>2.138**</b>	1.200 – 3.811			<b>2.274**</b>	1.259 – 4.105
Living alone ( <i>vs. living with 2 parents</i> )	<b>4.311***</b>	2.059 – 9.022	<b>5.045***</b>	2.278 – 11.172	<b>4.887***</b>	2.282 – 10.464
Living with other persons ( <i>vs. living with 2 parents</i> )	<b>2.494**</b>	1.325 – 4.692	<b>3.090***</b>	1.583 – 6.030	<b>2.423**</b>	1.271 – 4.619
Living with 1 parent ( <i>vs. living with 2 parents</i> )			<b>1.707*</b>	1.060 – 2.750		
Support parents			<b>.801*</b>	.645 – .995		
Support peers	<b>.726***</b>	.598 – .880	<b>.759**</b>	.617 – .934	<b>.754**</b>	.617 – .922
<b>Educational background</b>						
PVE without diploma ( <i>vs. PVE with diploma</i> ) <sup>a</sup>			<b>2.555*</b>	1.233 – 5.291	<b>2.660**</b>	1.265 – 5.594
SVE without diploma ( <i>vs. PVE with diploma</i> ) <sup>a</sup>			<b>1.851*</b>	1.032 – 3.319		
<b>Attitudes upon entrance</b>						
Aspirations					<b>.677***</b>	.561 – .817
Model statistics	R <sup>2</sup> (H&L) = .16 R <sup>2</sup> (C&S) = .09 R <sup>2</sup> (N) = .20 X <sup>2</sup> = 130.826*** (df 16)		R <sup>2</sup> (H&L) = .17 R <sup>2</sup> (C&S) = .10 R <sup>2</sup> (N) = .21 X <sup>2</sup> = 137.269*** (df 18)		R <sup>2</sup> (H&L) = .19 R <sup>2</sup> (C&S) = .10 R <sup>2</sup> (N) = .23 X <sup>2</sup> = 151.716*** (df 18)	

Note: n=1377, \* p<.05, \*\* p<.01, \*\*\* p<.001. Stepwise forward procedure, criterion for variable entry: p<.05, criterion for variable removal p>.10, based on likelihood ratio.

<sup>a</sup> PVE = pre-vocational education, SVE = senior vocational education. C.I.: confidence interval; R<sup>2</sup> (H&L): Hosmer & Lemeshow test; R<sup>2</sup> (C&S): Cox & Schnell's R<sup>2</sup>; R<sup>2</sup> (N): Nagelkerke's R<sup>2</sup>.

**Table 5: predictors of dropout in second semester after the transition to SVE**

	Model 1, 2 and 3 <sup>a</sup>		Model 4		Model 5	
	odds ratio	95% C.I.	odds ratio	95% C.I.	odds ratio	95% C.I.
<i>Constant</i>	.081***		.068***		.060***	
<b>Control variables</b>						
School board ( <i>vs. school board 5</i> )						
School board 1	.956	.343 – 2.665	1.118	.388 – 3.227	1.384	.485 – 3.955
School board 2	.975	.460 – 2.067	1.069	.501 – 2.284	.889	.409 – 1.931
School board 3	<b>2.175*</b>	1.169 – 4.049	<b>1.935*</b>	1.023 – 3.661	<b>1.927*</b>	1.006 – 3.690
School board 4	<b>2.383**</b>	1.244 – 4.566	<b>2.328*</b>	1.198 – 4.526	<b>2.113*</b>	1.067 – 4.183
Sector ( <i>vs. health &amp; social care</i> )						
Economics	1.061	.602 – 1.869	1.059	.593 – 1.890	1.076	.594 – 1.951
Engineering	1.250	.720 – 2.172	1.542	.869 – 2.736	1.269	.708 – 2.273
Level ( <i>vs. level 4</i> )						
Level 1	1.758	.947 – 3.264	1.686	.892 – 3.186	<b>2.204*</b>	1.143 – 4.252
Level 2	.757	.430 – 1.333	.720	.401 – 1.292	.910	.502 – 1.649
Level 3	.600	.308 – 1.167	.653	.331 – 1.288	.849	.421 – 1.710
<b>Personal background</b>						
Student has debts ( <i>vs. no debts</i> )	<b>2.096*</b>	1.127 – 3.900	<b>2.216*</b>	1.167 – 4.207		
<b>Educational background</b> (n/a) <sup>b</sup>						
<b>Attitudes upon entrance</b>						
Aspirations			<b>1.284*</b>	1.010 – 1.632	<b>1.367*</b>	1.068 – 1.750
<b>School experiences 1<sup>st</sup> semester</b>						
Emotional engagement: valuing			<b>.602***</b>	.491 - .737		
<b>Behavior &amp; performance 1<sup>st</sup> semester</b>						
Behavioral engagement					<b>.753*</b>	.580 - .977
Performance					<b>.510***</b>	.389 - .669
Model statistics						
	R <sup>2</sup> (H&L) = .06		R <sup>2</sup> (H&L) = .10		R <sup>2</sup> (H&L) = .14	
	R <sup>2</sup> (C&S) = .04		R <sup>2</sup> (C&S) = .07		R <sup>2</sup> (C&S) = .10	
	R <sup>2</sup> (N) = .08		R <sup>2</sup> (N) = .14		R <sup>2</sup> (N) = .19	
	X <sup>2</sup> = 35.331*** (df 10)		X <sup>2</sup> = 60.477*** (df 12)		X <sup>2</sup> = 84.670*** (df 12)	

Note: n=832, \* p<.05, \*\* p<.01, \*\*\* p<.001.

Stepwise forward procedure, criterion for variable entry: p<.05, criterion for variable removal p>.10, based on likelihood ratio.

<sup>a</sup> Model 1,2 and 3 did not yield different results, and are therefore presented in one column

<sup>b</sup> n/a: no variables from this predictor group were selected in the models.

C.I.: confidence interval; R<sup>2</sup> (H&L): Hosmer & Lemeshow test; R<sup>2</sup> (C&S): Cox & Schnell's R<sup>2</sup>; R<sup>2</sup> (N): Nagelkerke's R<sup>2</sup>.

**Table 6: predictors of dropout over summer after the first year in SVE**

	Model 1, 2, 3, and 4 <sup>a</sup>		Model 5		Model 6		Model 7	
	odds ratio	95% C.I.	odds ratio	95% C.I.	odds ratio	95% C.I.	odds ratio	95% C.I.
<i>Constant</i>	.032***		.025***		.027***		.016***	
<b>Control variables</b>								
School board ( <i>vs. school board 5</i> )								
School board 1	1.804	.440 – 7.389	2.396	.578 – 9.937	1.526	.323 – 7.210	1.563	.323 – 7.557
School board 2	2.427	.875 – 6.732	1.946	.696 – 5.446	2.090	.728 – 6.003	1.940	.629 – 5.985
School board 3	1.843	.713 – 4.765	1.886	.723 – 4.922	1.652	.626 – 4.364	1.545	.542 – 4.407
School board 4	1.292	.403 – 4.136	1.122	.342 – 3.678	1.062	.307 – 3.674	.864	.246 – 3.029
Sector ( <i>vs. health &amp; social care</i> )								
Economics	1.041	.395 – 2.748	.965	.361 – 2.582	.963	.343 – 2.709	1.205	.408 – 3.558
Engineering	<b>2.585*</b>	1.159 – 5.765	<b>2.708*</b>	1.174 – 6.244	<b>2.778*</b>	1.184 – 6.518	<b>3.297**</b>	1.324 – 8.208
Level ( <i>vs. level 4</i> )								
Level 1	<b>3.251*</b>	1.227 – 8.619	<b>3.825**</b>	1.409 – 10.380	<b>3.776*</b>	1.345 – 10.601	<b>3.982*</b>	1.331 – 11.913
Level 2	1.068	.406 – 2.808	1.126	.421 – 3.011	1.040	.374 – 2.892	1.109	.372 – 3.304
Level 3	1.372	.511 – 3.679	1.662	.609 – 4.531	1.634	.575 – 4.641	1.733	.579 – 5.181
<b>Personal background</b>								
Living with other persons ( <i>vs. 2 parents</i> )			<b>3.266*</b>	1.208 – 8.831			<b>4.149**</b>	1.411 – 12.195
<b>Educational background</b> (n/a) <sup>b</sup>								
<b>Attitudes upon entrance</b>								
Expected academic fit							<b>1.660*</b>	1.087 – 2.537
<b>School experiences 1<sup>st</sup> semester</b> (n/a) <sup>b</sup>								
<b>Behavior &amp; performance 1<sup>st</sup> semester</b>								
Performance			<b>.583**</b>	.412 – .825				
<b>School experiences 2<sup>nd</sup> semester</b>								
Emotional engagement: valuing					<b>.442***</b>	.318 – .614	<b>.529***</b>	.358 – .781
<b>Behavior &amp; performance 2<sup>nd</sup> semester</b>								
Behavioral engagement							<b>.633*</b>	.400 – 1.001
Performance							<b>.602*</b>	.374 – .971
Model statistics	R <sup>2</sup> (H&L) = .08 R <sup>2</sup> (C&S) = .05 R <sup>2</sup> (N) = .10 X <sup>2</sup> = 22.247** (df 9)		R <sup>2</sup> (H&L) = .13 R <sup>2</sup> (C&S) = .07 R <sup>2</sup> (N) = .16 X <sup>2</sup> = 35.085*** (df 11)		R <sup>2</sup> (H&L) = .18 R <sup>2</sup> (C&S) = .10 R <sup>2</sup> (N) = .23 X <sup>2</sup> = 49.645*** (df 10)		R <sup>2</sup> (H&L) = .27 R <sup>2</sup> (C&S) = .15 R <sup>2</sup> (N) = .33 X <sup>2</sup> = 74.292*** (df 14)	

Note: n=456, \* p<.05, \*\* p<.01, \*\*\* p<.001. Stepwise forward procedure, criterion for variable entry: p<.05, criterion for variable removal p>.10, based on likelihood ratio.

<sup>a</sup> Model 1,2, 3 and 4 did not yield different results, and are therefore presented in one column

<sup>b</sup> n/a: no variables from this predictor group were selected in the models.

C.I.: confidence interval; R<sup>2</sup> (H&L): Hosmer & Lemeshow test; R<sup>2</sup> (C&S): Cox & Schnell's R<sup>2</sup>; R<sup>2</sup> (N): Nagelkerke's R<sup>2</sup>.

### Dropout in the first semester

Table 4 shows the results of the logistic regression analyses of dropout in the first semester in SVE. Overall, the dropout odds in the first semester after the transition to SVE are 0.10. The odds are higher for male students, for students from ethnic minority groups, for students who do not live with both of their parents, for students who use drugs or have debts, and for students who did not graduate from their previous school or program. Support from parents and peers lowers the odds, as do high aspirations at the start of the program. In Model 2, an ethnic minority background and the use of drugs do not affect dropout significantly. The significant effects of *support parents*, *living with one parent* and *SVE without diploma* disappear as soon as *aspirations* are taken into account in Model 3. The odds ratios differ substantially between school boards. Forward and backward selection procedures yielded similar results. Analyses of interaction effects showed a differential effect of *living alone* for male and female students. For male students, the odds ratio is 0.040 ( $p < .001$ ), for female students it is 21.669 ( $p < .001$ ). In addition, we find a differential effect of *living with other persons* between native Dutch students (odds ratio = 9.895,  $p < .001$ ) and ethnic minority students (odds ratio = 0.204,  $p < .05$ ).

### Dropout in the second semester

Table 5 shows the logistic regression models for dropout in the second semester in SVE. The overall dropout odds in the second semester of the first year in SVE are 0.13. We find that, apart from an effect of debts in models 1 to 4, personal and educational background characteristics do not predict dropout in the second semester. The effect of debts disappears when *behavioral engagement* and *performance* are taken into account. Positive emotional and behavioral engagement and performance decrease the dropout odds ratio, but the effect of *emotional engagement* disappears when *behavioral engagement* and *performance* are included in Model 5. With indicators of students' experiences, behavior and performance in school included, we see that higher aspirations increase dropout odds in the second semester, which is opposite to the decrease in odds ratio by *aspirations* in the first semester. This conversion from a positive to a negative correlation is also found in the zero order correlations of aspirations with dropout in Table 3. In Model 5, which includes measures of students' behavior and performance, we find that the odds to drop out are higher for students in level 1 degree programs. As with first semester dropout, odds ratios in the second semester differ between school boards. A backwards predictor selection procedure yields a similar set of predictors as the forward procedure. However, in a backward procedure, *debts* and *valuing* are retained in Model 5, and *behavioral engagement* is not, indicating that both *debts* and *valuing* are correlated with *behavioral engagement*. Examination of interaction effects indicates a differential

effect of *general educational attitudes* upon entrance between native Dutch students (odds ratio = 1.357, n.s.) and ethnic minority students (odds ratio = 0.496,  $p < .01$ ). With this interaction effect included, the predictor selection in Model 5 resembles the selection in a backwards selected model: *behavioral engagement* is not selected, while *debts* and *valuing* are preserved as significant predictors of dropout in the model.

### **Dropout over the summer break**

Table 6 shows the results of the logistic regression analysis of dropout over the summer break between the first and second year in SVE. The overall odds to drop out over the summer break are 0.10. None of the variables in Models 1 to 4 predict dropout over the summer break. Nor students' personal and educational background, nor their attitudes upon entrance, nor their experiences in the first semester predict dropout over the summer break, except for students' living situation. Students who live with other people than their family are more likely to drop out. In Model 7, which includes measures of students' engagement and performance in the second semester, we find that high expectations of the academic fit with the SVE program at the start of the academic year increase the odds to drop out over the summer break. Students' *valuing* of their education lowers the odds to drop out, as do students' *behavioral engagement* and *performance*. Students in *level 1* and *engineering* programs are less likely to return to the same program after the summer break. A backwards selection procedure with all seven predictor sets yielded a slightly different predictor selection than a forward selection procedure. *General educational attitudes* in the first semester is included (odds ratio = 1.516,  $p < .05$ ), and performance in the first semester (odds ratio = 0.618,  $p < .05$ ) is selected instead of performance in the second semester, indicating a correlation between those predictors. Two interaction effects were found with respect to students' ethnic background. The odds ratio of *valuing* in the second semester for ethnic minority students is 3.168 ( $p < .05$ ), while for native Dutch students the odds ratio is 0.211 ( $p < .001$ ). Selection of this interaction effect yields an additional main effect of *ethnic minority* (odds ratio = 3.445,  $p < .05$ ). A similar differential pattern is found for the interaction between *expected academic fit* and *ethnicity*: the odds ratio for ethnic minority students is 4.712 ( $p < .01$ ), while for native Dutch students it is 0.509 (n.s.). As a consequence of the selection of this interaction effect, the main effect of *expected academic fit* disappears, and *SVE without diploma* is additionally selected (odds ratio = 3.491,  $p < .05$ ).

## DISCUSSION

### **Predictors of dropout relating to students' background outside school**

Student background characteristics play a prominent role in predicting dropout in the first semester after the transition to SVE, but not in predicting dropout later in the school year. These results are in line with earlier findings that students from disadvantaged backgrounds encounter particular difficulty in making a school transition (Roderick, 1993). The explanation that limited access to supportive resources among disadvantaged students accounts for this difficulty (Roderick, 1993) seems to be confirmed with respect to ethnic minority students in our study. Ethnic minority students have an increased risk to drop out in the first semester, but in a model that includes a measure of the support that students receive from their parents, the effect of an ethnic minority background on dropout is not significant. A difference in the amount of parental support seems a logical explanation for the prominent influence of students' living situation, and in particular for the impact of not living with one or both parent(s), on dropout. However, inclusion of parental support does not decrease the impact of students' living situation on dropout. Next to the support from parents, peers are an important supportive resource for students in SVE, reflecting the growing importance of the peer group in late adolescence (Cotterell, 2007). Having debts affects dropout substantially in both the first and second semester. The negative effect of debts on students' school careers cannot be explained by the necessity to work many hours to pay off debts, as an extra job outside school does not affect dropout. Instead, students with debts appear to participate less in SVE, as the effect of debts on dropout declines once students' behavioral engagement is taken into account. The proportion of Dutch adolescents who have gotten into debts, as well as the amount of those debts, have increased in the past decades (Verhagen et al., 2010). High debts place a heavy burden on students, in both practical and emotional terms. It is likely that debts signify problematic personal circumstances in general, which undermine students' ability to focus on their school career. In fact, this can be said of most background characteristics that affect dropout in the first semester. The use of drugs, having debts, not living with parents, and a less school-oriented peer group point towards personal circumstances that may lead students' focus away from school (Scientific Council for Government Policy, 2008).

### **Predictors of dropout relating to students' experiences inside school**

Students who enter SVE after dropping out from a previous school or program, are more likely to drop out shortly after starting in SVE. Prior dropout may indicate that students are less well equipped to succeed in school. Moreover, prior dropout implies that students have been out of school for a while, which can make it hard to get back into the daily rhythm of school life. It is not surprising that behavioral

engagement and performance have a strong impact on dropout in SVE, as deteriorating participation and performance are unmistakable signs of a process of progressive disengagement from school (Finn, 1989). Emotional engagement in school affects drop out as well. If a student values what she learns in school, she is more likely to persist. In the case of dropout over the summer break, students decide to withdraw even though they made it through the first year. The perceived value of the program for students' personal career goals has particular weight in that decision, but only in the case of native Dutch students. The effect of *valuing* on the likelihood to persist or to drop out is absent for ethnic minority students. Maybe ethnic minority students are less critical of their school experiences, which prevents them from taking corrective action if the SVE program does not match their abilities and interests (cf. Alexander et al., 1994). Ethnic minority students are less likely to drop out if they think education is important, as is indicated by their general educational attitudes upon entrance. Hence, it could also be that ethnic minority students are particularly inclined to persist, even if they turn out to dislike their SVE program.

High aspirations upon entrance in SVE decrease the odds to drop out in the first semester, but increase the odds to drop out in the second semester. Apparently, once students' experiences in SVE are taken into account, high aspirations have opposite effects. We find a similar effect of ethnic minority students' expectations that the SVE program, and the vocational sector for which the program prepares them, fits their interests and abilities. High expectations of an academic fit decrease the odds to drop out for native Dutch students, but increase dropout odds among ethnic minority students over the summer break. A gap between the expectations and attainment of ethnic minority students has been identified in several studies (e.g. Alexander et al., 1994; Downey, Ainsworth, & Qian, 2009). However, in this study, we do not find a weakened, but a negative relationship between expectations and attainment among ethnic minority students. Apparently, SVE experiences do not meet the high expectations of ethnic minority students, suggesting that many ethnic minority students have to contend with feelings of disappointment in SVE. Our findings call for further research into the educational aspirations, experiences and strategies of ethnic minority students.

### **Veni vidi vici**

The findings in this study attest to the importance of integrating multiple sources of influence into a comprehensive model to explain the dropout process. Both family, peers, and the school context play a role in predicting dropout in SVE. Starting with a large set of predictors, the stepwise predictor selection procedure enabled us to obtain a parsimonious dropout model that includes the most prominent predictors of dropout from both the home and school context. Some of these aspects allow for interventions better than others. If students deal with

problematic personal circumstances outside school that demand their time and attention, it is difficult for a school to intervene. Individual problems, such as drugs and debts, may be symptoms of a larger, underlying problem. Yet, as debts stand out as a significant predictor of dropout, programs that teach adolescents to spend their money more sensibly could be helpful.

The gap between students' initial aspirations and expectations and their eventual attainment in the first year in SVE indicates that students need more help to transform their ambitions into concrete career steps. Students with restricted access to supportive resources and to knowledge of the educational system and career options, may benefit from such assistance in particular. Schools can help students to choose an SVE program that suits their interests and abilities best, and to adjust their plans and strategies to their experiences and progress in SVE. Moreover, pre-vocational schools that prepare students for the transition to SVE, parents, peers, and mentors can support students more extensively in their career planning. In addition to present mentoring programs that encourage students to establish long-term career goals, students could benefit from better guidance with respect to short-term options and choices in their school careers. Peer tutors, such as senior SVE students, can be especially helpful in this respect, given their experience in SVE, and given the responsiveness to peer support that SVE students display in our study. If we enable students to transfer to SVE with positive, yet realistic, prospects, this can make the pathway to and through SVE for all students a true *veni vidi vici*.