Journal of Applied Youth Studies
https://doi.org/10.1007/s43151-025-00193-y

ORIGINAL ARTICLE

Youth Transition to Upper Tracked Secondary School in Barcelona: a Longitudinal Analysis of Behavioural Engagement and Achievement

Ona Valls[1] · **Albert Sánchez-Gelabert**[2] · **Rafael Merino**[3]

Received: 10 December 2024 / Revised: 23 May 2025 / Accepted: 1 September 2025
© The Author(s) 2026

Abstract
School tracking may influence school engagement and academic results, however, few studies have compared the evolution of engagement and achievement across different educational contexts. This study examines the relationship between academic achievement and behavioural school engagement during the transition to either the academic track or vocational track after compulsory education. Using a two-wave panel dataset of pupils from Barcelona ($n=2056$), we conducted a cross-lagged analysis to explore the interactions over time between self-reported marks and behavioural engagement. The findings indicate that tracking does not polarise pupils or foster anti-school attitudes and behaviours among those entering technical and vocational tracks. Notably, the results reveal an increase in both achievement and behavioural engagement, particularly among vocational track pupils. These findings contribute to the debate on the academic demands of post-compulsory education and the educational practices that encourage young people to remain in education beyond compulsory schooling.

Keywords Engagement · Academic achievement · Educational tracks · Educational transition · Longitudinal analysis · Cross-lagged panel analysis

✉ Ona Valls
ona.valls@ub.edu

[1] Departament de Mètodes d'Investigació i Diagnòstic en Educació (MIDE), Facultat d'Educació, Universitat de Barcelona (UB), passeig de la Vall d'Hebron, 171, 08035 Barcelona, Spain

[2] Institute of Education Sciences, Universitat Politècnica de Catalunya (UPC), Barcelona, Spain

[3] Department of Sociology, Universitat Autònoma de Barcelona (UAB), Bellaterra, Barcelona, Spain

Published online: 13 April 2026

Introduction

The transition to post-compulsory education is a critical turning point in young people's life course trajectories, as it can influence their educational trajectories as well as their future labour and social opportunities. This transition is closely related to how lower secondary education connects with upper secondary education, how the system defines the conditions for moving from one track to another, and how pupils—based on their experiences during compulsory education—decide whether to pursue an academic track (which holds greater prestige and is oriented towards university) or vocational studies (which have lower social prestige).

Another factor that makes this transition particularly important is that it may involve a change of educational institution, leading to changes in teaching staff, learning methodologies, and peer groups. As a result, the transition to post-compulsory education can have varying academic, psychosocial, or behavioural effects on pupils, ultimately impacting their educational outcomes.

In this regard, the conceptualisation of youth as a transition has a long tradition in sociology, particularly in explaining the increasingly prolonged and complex transitions to adulthood (Evans and Furlong 1997). While some scholars criticise this perspective for being overly simplistic and adult-centric (Wyn and Woodman 2021), others highlight its relevance, particularly in education, where institutional structures define critical decision-making moments (Roberts 2022). These structures within the education system play a key role in shaping pupils' trajectories and reinforcing the concept of transition. One of the major bifurcations occurs at the transition from compulsory to post-compulsory education, which significantly impacts students' long-term educational and professional trajectories. In countries with comprehensive secondary education, the curriculum remains theoretically uniform for all pupils until this point, after which it diversifies into two main tracks: academic and vocational.

Research has consistently shown that this decision is deeply intertwined with social inequality: the academic track, being more prestigious and providing direct access to university, is disproportionately chosen by students from middle-class backgrounds (Triventi et al. 2016). Additionally, research has established a strong connection between school performance and track choice: high-achieving students are more likely to follow the academic track, while low academic performance increases the probability of choosing the vocational track.

However, academic success in this transition is not solely defined by grades or pathway prestige. It also encompasses multiple dimensions, including persistence, attainment of learning objectives, and the development of key competencies that enable students to adapt to new educational environments (York et al. 2015). From this perspective, student success goes beyond academic achievement and includes factors such as social integration, self-efficacy, and preparation for future challenges, among others (Kuh et al. 2006). Thus, a transition—whether to an academic or vocational track—can be considered a form of success, as it reflects students' ability to navigate structural constraints and continue their

educational trajectory. In this context, analysing the transition from compulsory to post-compulsory education in greater depth is crucial to understanding its impact on future educational trajectories and exploring different processes of educational and social inequality. While this topic has been studied from different fields and perspectives, some important gaps remain. Few studies compare the evolution of engagement across different educational contexts, as most research has examined engagement only after pupils have been tracked. Moreover, longitudinal research on the topic is scarce, not only in Spain but also in mixed educational systems like the Spanish one.

To address these gaps, this study aims to analyse the evolution of behavioural school engagement and pupil performance during the transition from compulsory to post-compulsory education—both before and after tracking occurs—according to the type of study track chosen, whether academic or vocational.

School Engagement and Educational Outcomes

Over the last few decades, school engagement has been considered a key factor in academic success, skill development, and differences in achievement and dropout rates (Archambault et al. 2009; Jimerson et al. 2003; Rumberger and Ah Lim 2008; Appleton et al. 2008; Fredricks et al. 2004). Despite its complexity (Appleton et al. 2008; Jimerson et al. 2003; Libbey 2004), engagement is widely understood as a multidimensional construct (Fredricks et al. 2004) encompassing cognitive, emotional, and behavioural dimensions.

Cognitive engagement refers to reflective and strategic learning efforts to master difficult tasks and to understand complex ideas (Fredricks et al. 2004). Emotional engagement involves interest in school and relationships with teachers, classmates, and subjects, fostering a sense of belonging (Boekaerts 2016). Behavioural engagement includes attending class, avoiding trouble, and showing readiness to learn (Finn and Voelkl 1993). Some scholars measure behavioural engagement (or disengagement) based on misbehaviour (Janosz et al. 2008), disruptive actions, or absenteeism (Rumberger and Ah Lim 2008; Palardy and Rumberger 2019).

Behavioural engagement is a strong predictor of school dropout (Archambault et al. 2009; Fredricks et al. 2004; Hospel et al. 2016; Rumberger and Rotermund 2012) and long-term achievement (Buhs et al. 2006; Ladd and Dinella 2009; Petrides et al. 2005). Pupils who are behaviourally engaged obtain better results than pupils who are disengaged (Hospel et al. 2016). However, some studies do not show a clear link (Finn and Zimmer 2012; Hughes et al. 2008). These inconsistencies may stem from differing engagement measures, such as types of absences or disruptive behaviours (Hospel et al. 2016).

Most research focuses on compulsory education (Janosz et al. 2008), with fewer studies examining post-compulsory and higher education (Zepke et al. 2010). Furthermore, short-term effects of engagement on achievement (Archambault et al. 2009), or anti-social behaviours (Müller and Hofmann 2016) have been widely analysed. However, engagement and achievement influence each other over time, as low

achievement can reinforce school disengagement (Brown 1987) and modify behavioural engagement (Dubet 1992; Galland 1988; Rodríguez Izquierdo 2015).

Some studies take a longitudinal approach, showing that engagement impacts school dropout and extends beyond the school context, with lasting effects on pupils' trajectories (Janosz et al. 2008; Rumberger and Ah Lim 2008).

School Engagement and Educational Tracks

A critical institutional factor influencing school engagement is the structure of the educational system. Tracking—the practice of sorting pupils into distinct academic or vocational tracks—has been shown to shape pupils' experiences and engagement in multiple ways. First, there is an individual effect associated with educational expectations and how education is conceived, which varies depending on the track the pupil takes (Stevens and Vermeersch 2010; Van Houtte 2016). Second, there are differences in the social composition of tracks. Pupils entering vocational or non-academic tracks are most likely to be men from a variety of migrant backgrounds and from more disadvantaged social environments (Merino 2013; Müller and Hofmann 2016). Third, there is a relational dimension related to the relationship with classmates (e.g., peer effect, shared norms/rules) (Furrer and Skinner 2003). Last, there is an institutional dimension according to which the educational objectives, the teaching practices and materials, the demands of the course and the teachers are different depending on the track in which the pupil is enrolled (Lawson and Lawson 2013; Pàmies and Castejón 2015; Zepke et al. 2010).

Although tracking has been studied from various fields and perspectives, few studies compare the evolution of engagement across different educational contexts. One challenge in such comparisons is determining whether changes in engagement are due to prior school experiences or the new educational environment. This distinction is crucial for understanding educational inequality, as pupils in vocational education and training (VET) tracks often face more adjustment difficulties than those in academic tracks, leading to higher qualifications (Müller and Hofmann 2016).

Several studies examine how tracking impacts school engagement or other psychosocial factors like burnout. For instance, a longitudinal study based on the Flemish education system found that only pupils who moved from a higher to a lower track showed a significant decline in emotional engagement, with no significant changes in behavioural engagement (Dockx et al. 2019). Similarly, a study on Finnish pupils (Salmela-Aro et al. 2008) showed that those in academic tracks were more prone to burnout than those in vocational tracks. These findings suggest that vocational tracks may better suit pupils oriented toward practical activities (Salmela-Aro et al. 2008).

These results align with Eccles and Midgley's stage-environment fit theory (1989; 1993), which seeks to explain how the alignment—or misalignment—between adolescents' needs and their social environments affects their motivation and behaviour. Specifically, the theory postulates that positive outcomes occur when there is a congruence between the evolving needs and desires of adolescents and the opportunities

provided by their environment, including educational settings. Based on an analysis of the transition to junior high school for North American adolescents, the authors identify that the large size of schools, departmentalised teaching, the number of pupils, or the difficulty of establishing close relationships with teachers, contribute to creating a climate that undermines pupils' motivation and attachment to school.

Additionally, the differentiation-polarisation theory, first developed by Hargreaves (1967) and Lacey (1966), suggests that tracking leads to the development of pro- and anti-school attitudes. According to this theory, differentiation occurs when schools sort students into different tracks or streams based on perceived ability or achievement. This institutional sorting process creates status hierarchies among pupils. In response to this differentiation, polarisation emerges, and students assigned to higher tracks tend to adopt pro-school attitudes, while those in lower tracks often develop anti-school subcultures. According to the authors, students experience being assigned to a lower track as a failure, for this indicates that they did not meet the academic demands of the higher tracks. This sense of exclusion or inferiority can lead to resistance and disengagement from school norms. In this line, other studies show that academic track pupils tend to have more positive school experiences due to a sense of belonging to a track with a higher status, while vocational track pupils often develop anti-school attitudes due to the lowered prestige of their track (Gamoran et al. 1995; Müller and Hofmann 2016; Van Houtte 2006, 2016). These attitudes are critical when examining youth transitions, as they directly influence how pupils navigate their educational pathways and their transitions to post-school opportunities. Pupils in academic tracks, who feel a stronger connection to the educational system, are more likely to engage in higher academic achievement, pursue further education, and have a smoother transition into the labour market. On the other hand, the anti-school attitudes developed by vocational track pupils can contribute to disengagement, higher dropout rates, and lower aspirations, ultimately hindering their successful transition to the workforce or higher education (Geven 2019a, b; Müller and Hofmann 2016). Studies on VET have analysed the experiences of young people in different countries such as Denmark (Nielsen 2016), Finland (Niittylahti et al. 2019), England, The Netherlands and Sweden (Geven 2019a, b), or Belgium (Van Houtte 2016). The results show how pupils in vocational tracks have higher levels of perception of uselessness (Müller and Hofmann 2016; Van Houtte 2016). However, this perception increases across all tracks during the first two years of compulsory secondary school, a fact that may be related to adolescence, a life stage when, according to Coleman (1960), parents and popularity take on greater importance, and school is generally considered to be boring (Van Houtte 2016). Another explanation is related to a greater concentration of pupils with certain characteristics in specific tracks. Pupils in lower-status tracks also tend to have more behavioural issues and lower self-perception due to prior academic struggles (Geven et al. 2016).

These theoretical frameworks are especially valuable for our study, as they offer complementary lenses through which to interpret how institutional arrangements—such as tracking—and adolescents' needs interact to shape school engagement. Together, they help explain why engagement trajectories may diverge across tracks, highlighting the role of both the educational environment and students' evolving sense of identity, belonging, and purpose during the transition from compulsory to post-compulsory education.

Engagement from a Longitudinal Perspective

Research on the evolution of engagement in educational environments has consistently shown a decline as pupils progress through the education system (Dockx et al. 2019; Wylie and Hodgen 2012). Studies conducted in New Zealand (Wylie and Hodgen 2012) and Belgium (Van de Gaer et al. 2009) reported a general decrease in engagement as pupils advance through the system. Other analyses, such as those by Janosz et al. (2008) in Canada, provide a more nuanced perspective, identifying different school engagement trajectories throughout compulsory secondary education based on different pupil profiles.

Some studies have examined whether the decline in engagement in educational tracks varies depending on pupils' social characteristics, such as family resources, gender, and ethnic origin (Wylie and Hodgen 2012). Findings indicate that pupils from low-income households experience the most significant drop in engagement between 10 and 16 years old. Additionally, when considering country of origin, minority ethnic groups are less likely to belong to the group of pupils with high engagement.

As highlighted in the theoretical review, the structure of the education system and the timing of pupils' tracking play a crucial role (Van de Werfhorst 2019). Van de Werfhorst (2019) emphasizes that later tracking can help mitigate inequalities related to socioeconomic background.

Spanish Educational Context

The transition to post-compulsory education is a critical stage within the education system. However, it may be more relevant to consider the connection between lower and upper secondary education, as the compulsory nature of these stages varies across education systems. In Spain, this transition occurs at the age of 16, following 10 years of compulsory education. Lower secondary education lasts four years (ages 13–16) and has been theoretically comprehensive since 1990. Upper secondary education is divided into two tracks—academic and vocational—both of which last two years and are generally full-time, with very few exceptions. As a result, secondary education is completed by the age of 18, allowing pupils to enter higher education unless they have repeated a year.

From an international and comparative perspective, the Spanish education system sits between 'tracked' and 'unified' systems, at an intermediate stage known as 'linked' (Raffe 2003). 'Tracked' systems, such as the Germanic-type ones, separate pupils into different tracks during lower secondary education. In contrast, 'unified' systems, predominantly found in Nordic countries, have implemented comprehensive reforms to a greater extent (Green et al. 1999). Mixed systems like Spain's maintain a comprehensive curriculum during lower secondary education while offering different connections between the academic and vocational tracks at the upper secondary level.

In Spain, obtaining a school leaving certificate at the end of lower secondary education is a prerequisite for continuing in the education system. One common

reason for repeating a school year is failing specific subjects, which has been identified as a predictor of dropout (García-Pérez et al. 2014). This certificate is required to progress to both the academic (baccalaureate) and vocational (intermediate VET) tracks. In theory, this equal entry requirement ensures that academic achievement is not a decisive factor in choosing between the two tracks, thereby enhancing the prestige and appeal of vocational education. In practice, however, this requirement increases the demand for the academic track and incentivises secondary schools to award lower-achieving pupils the school leaving certificate to facilitate their transition to VET (Merino 2013).

The choice between academic or vocational training is shaped by a complex interplay of factors, including school guidance, family expectations, pupils' interests and motivations, and the availability of training options at different institutions. Typically, pupils who continue on the academic track remain in the same school where they completed lower secondary education. By contrast, those opting for the vocational track often need to change schools, which can increase indirect costs and influence decision-making.

Method

Objectives and Hypotheses

The aim of this study is to examine the relationship between school achievement and behavioural engagement from a longitudinal perspective. This relationship is analysed during the transition from comprehensive compulsory school to tracked post-compulsory education, depending on whether pupils enter the academic or vocational track. The paper is guided by the following hypotheses:

(1) Pupils' profiles in terms of sociodemographic characteristics, social background, and achievement vary depending on the track. A higher proportion of pupils from more advantaged social backgrounds and those with good self-reported marks are found in the academic track. Conversely, pupils of foreign origin are less represented in this track.
(2) As pupils progress through the education system, both behavioural engagement and self-reported marks tend to decline over time. This decrease is expected to be more pronounced among pupils entering vocational tracks than among those in academic tracks.
(3) Higher levels of behavioural engagement are associated with higher self-reported marks. This effect does not differ significantly between the academic and vocational tracks.
(4) Higher self-reported marks are associated with greater behavioural engagement. This effect does not differ significantly between the academic and vocational tracks.

Participants and Procedure

The data used in this paper come from the International Study of City Youth (ISCY) in Barcelona, which aims to follow up and analyse the trajectories of young people after completing secondary education through a longitudinal study. For this paper, we use primary data collected during the first and second waves of the study (2013 and 2014 and 2014 and 2015). The sample is representative of the city of Barcelona and consists of 2056 pupils in the 10th grade (aged 15 and 16)—the last year of compulsory education-in the 2013 and 2014 academic year, drawn from 27 schools. It also includes pupils born in 1998 who were in lower years due to having repeated a year. The sample was selected based on the % of public and subsidised private schools (excluding fully private schools) and the social complexity[1] of their location (high, medium, or low), ensuring representativeness for the city. In the first wave, pupils were recruited through their schools. In the second wave, some were contacted again via their schools; however, as some schools did not offer post-compulsory education or pupils had changed schools, alternative methods were required. Consequently, approximately 1200 pupils were re-contacted through schools, while the remaining participants were contacted by telephone.

As with most panel studies, sample attrition occurred. By the second wave, 12.55% of the original sample was lost, resulting in a final sample of 1798 young people. However, there was no significant social selectivity in the attrition. To address this, full information maximum likelihood (FIML) estimation was used, with sociodemographic variables included as controls in the analysis.

Measures

This study focuses on behavioural engagement and self-reported marks. The behavioural engagement scale used has been measured and validated within the framework of the International Study of City Youth (ISCY) (Lamb et al. 2015; Palardy and Rumberger 2019; Siddiq et al. 2020; Lamb and Rumberger 2024). The ISCY project developed a broader framework, and a survey was designed to measure secondary school pupils' engagement, along with other non-cognitive skills. All measures were obtained through self-reports.

Variables

Behavioural engagement is constructed as a latent factor using confirmatory factor analysis (CFA), following the validation of this subdimension of engagement in Siddiq et al. (2020). It is based on five survey questions, each with four possible response options ranging from 'Never' to '5 or more times' (see Table 1 and Table 4a): *I have skipped a class without permission, I didn't go to school one day without permission, I often get into trouble frequently at school, I have been*

[1] Complexity is an indicator used by education authorities to classify schools according to the number of socially disadvantaged pupils, with high-complexity schools having a higher percentage of pupils with a migrant background and on social benefits.

Table 1 Descriptive statistics for behavioural engagement (T1 and T2)

	Min	Max	Mean	SD	Cronbach's α	Factor loadings
T1 behavioural engagement	0	10	8.4	0.26	0.72	0.611–0.785
T2 behavioural engagement	0	10	8.6	0.35	0.68	0.576–0.724

given a detention at school, and I have been in trouble with teachers because of my behaviour. To facilitate interpretation, the response values were reversed so that higher values indicate greater behavioural engagement.

Self-reported marks. Pupils were asked to report their marks at two different points in time: their final marks at the end of the compulsory stage (June 2014) and their marks from the first term of post-compulsory education (November–December 2014). The response options were: 'I get very good results', 'I get good results', 'I passed', 'I get poor results', and 'I get very poor results'.

Grouping Variable

Track. A dichotomous variable distinguishing between the *academic track* and the *vocational track*.

Control Variables

Socio-demographic information was collected through a questionnaire completed by pupils in the first wave of the study.

Sex. A dichotomous variable: male or female.

Family Educational Level. Categorised according to the highest parental educational level: no education or no school leaving certificate; post-compulsory education; university education.

Immigrant origin. A dichotomous variable: native Spanish or immigrant. The immigrant category includes both youth born in Spain to foreign parents, and youth born outside Spain.

Statistical Analyses

In this paper, we sought to explore the interplay between pupils' behavioural engagement and their academic performance over time. Using a cross-lagged analysis, we aimed to uncover the directional influences between these two crucial aspects of student life.

Analyses were conducted using Mplus 7 (Muthén and Muthén 1998-2015). First, a Confirmatory Factor Analysis (CFA) was performed to examine behavioural engagement as a latent variable with five indicators measured at two time points (T). This step ensured that the indicators used to capture behavioural engagement accurately represented the intended construct. By conducting this analysis at multiple time points, we ensured that our measure of engagement remained consistent over time.

Second, the temporal measurement invariance of the behavioural engagement latent variable was tested to confirm that the construct functioned in the same way across time (Table 5a). Establishing invariance is crucial for ensuring that the measure remains stable and reliable over time. In addition, self-reported marks were treated as an ordered categorical variable at both time points.

Finally, a structural equation model (SEM) was constructed to estimate the cross-lagged panel model. The model included four key variables: two latent variables (behavioural engagement in T1 and T2) and two observed variables (self-reported marks in T1 and T2). Sex, family educational level, and immigrant origin were included as covariates. The same model was then estimated separately for two subgroups—academic and vocational tracks—and multi-group invariance was assessed to determine whether the model held across educational tracks. This step allowed us to evaluate the robustness and generalisability of the findings.

Cross-lagged panel models examine the structural relationships between constructs measured at multiple time points (Selig and Little 2012). This approach allowed us to investigate how changes in one variable (e.g., engagement at T1) predicted subsequent changes in another (e.g. marks at T2), and vice versa. We also examined autoregressive effects (Selig and Little 2012), which capture the influence of a variable on itself over time. For instance, we assessed how previous levels of engagement or academic performance influenced subsequent levels. The arrows between the variables *behavioural engagement T1 → marks T2* and *marks T1 → behavioural engagement T2* represent the linear regressions of the cross-lagged panel analysis effects (Fig. 1), illustrating the directional influences of these variables over time. The arrows between the same variables in T1 and T2 represent the linear regressions of the autoregressive effects, indicating the extent to which self-reported marks or behavioural engagement in one year predict those in the following. The curved arrows between variables from the same period represent the correlation between behavioural engagement and self-reported marks at each wave.

To evaluate model fit for both the behavioural engagement latent variable and the SEM, we used the comparative fit index (CFI), Tucker–Lewis index (TLI), root-mean-square error of approximation (RMSEA), and standardized root-mean-square

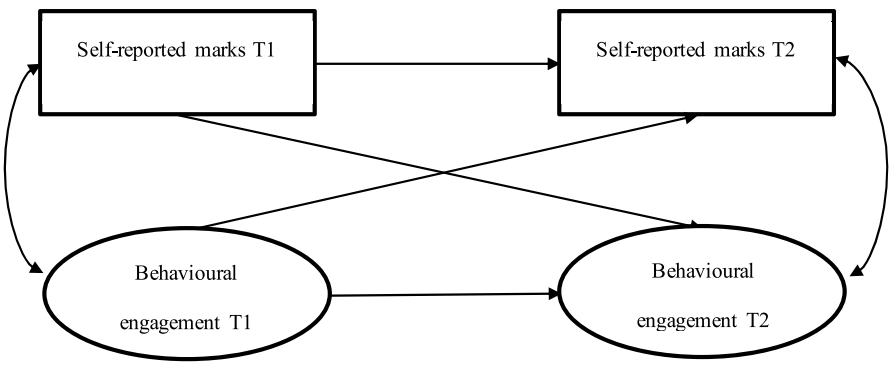


Fig. 1 General cross-lagged panel model

residual (SRMR). These indices provided a comprehensive assessment of how well the model aligned with the observed data. CFI and TLI values above 0.90 indicate adequate fit, while values above 0.95 indicate good fit. For SRMR and RMSEA, values below 0.08 indicate an adequate fit, while values below 0.05 indicate good fit (Byrne 2001; Hu and Bentler 1999; Kline 1998). For the interpretation of the path coefficients of the cross-lagged model, coefficients above 0.05 ($\beta s > 0.05$) are considered small, those above 0.10 ($\beta s > 0.10$) moderate, and those above 0.25 ($\beta s > 0.25$) large (Keith 2019). The criteria used to compare longitudinal and group measurement invariance followed the approach proposed by Chen (2007), where a change of ≥ -0.01 in CFI and a change of ≥ 0.015 in RMSEA or ≥ 0.010 in SRMR indicates non-invariance.

Behavioural engagement exhibited slightly negatively skewed leptokurtic distributions at both time points. Maximum likelihood with robustness (MLR) was used to estimate the models.

Results

Pupil Characteristics According to the Track (H1)

One of the key insights from the theoretical review is that tracking influences academic achievement in a broad sense, affecting educational attainment, academic achievement, and school engagement. Therefore, to understand how engagement evolves, it is essential to first examine the characteristics and specificities of pupils in the different educational tracks within the Spanish education system (Table 2 and Table 3).

To begin with, some pupils in the sample were not included in the present analysis because they did not obtain the school-leaving certificate and were therefore unable to access the post-compulsory educational tracks analysed here. Pupils who do not graduate from compulsory education tend to have low academic achievement and are predominantly boys from immigrant backgrounds with parents who have low cultural capital (Garcia and Valls 2018).

Focusing on the *first hypothesis*, we analyse pupils who do transition to post-compulsory education, revealing significant differences (p-value < 0.001) depending on the track (Table 2). First, boys are more prevalent in vocational tracks than in the academic track (62.7 and 48.8%, respectively). Another significant difference (p-value: < 0.001) is the higher proportion of pupils with an immigrant background in the vocational track (37.5%), compared to a much lower representation in the academic track (14%).

Regarding family educational level, pupils on the academic track tend to come from families with higher educational capital (Table 2). Specifically, 51.4% of pupils in the academic track have at least one parent with a university education, compared to only 13% in the vocational track.

Table 2 Descriptive statistics. Control variables

Track	Academic		Vocational		Total	
	N	%	*N*	%	*N*	%
Sex [Chramer's $V=0.09$***]						
Male	841	48.8%	183	62.7%	1024	50.8%
Female	882	51.2%	109	37.3%	991	49.2%
Total	1723	100.0%	292	100.0%	2015	100.0%
Family educational level [Chramer's $V=0.27$***]						
No education or no school leaving certificate	396	23.4%	148	53.4%	544	27.6%
Postcompulsory education (BUP, CFGM, CFGS, and so on	426	25.2%	93	33.6%	519	26.4%
University education	869	51.4%	36	13.0%	905	46.0%
Total	1691	100.0%	277	100.0%	1968	100.0%
Background [Chramer's $V=0.21$***]						
Native Spanish	1425	86.0%	162	62.5%	1587	82.8%
Immigrant	232	14.0%	97	37.5%	329	17.2%

Table 3 Average engagement and self-reported marks according to the educational track

	Academic track	Vocational track	Total			
	Average	Average	Overall average	Max	*P*-value	*d* Cohen
Behavioural engagement (score)						
T1	8.5	8	8.4	10	< 0.01	0.27
T2	8.6	8.5	8.6	10	< 0.01	0.23
Difference	0.1	0.5				
Self-reported marks						
T1	3.8	2.9	3.7	5	< 0.01	− 0.80
T2	3.0	3.4	3.1	5	n.s	− 0.10
Difference	− 0.8	0.5	− 0.6			

Pupils' Academic Achievement According to the Track: Engagement and Achievement (H2)

The *second hypothesis* posits that both engagement and self-reported marks evolve differently depending on the educational track (Table 3). In previous descriptive analyses, pupils in the academic tracks were found to have higher average scores for behavioural engagement during compulsory education, prior to the transition to post-compulsory education, compared to those in the vocational track − 8.5 and 8, respectively (Table 3).

Notably, this difference diminishes over time and nearly disappears once pupils transition into their respective post-compulsory tracks. Moreover, engagement increases in both tracks, with a particularly pronounced rise among pupils in the vocational track.

Even more interesting results emerge when analysing self-reported marks. On average, pupils in the academic track report better performance during the compulsory stage than their peers who enter the vocational track (3.8 and 2.9, respectively). However, after the transition to post-compulsory education, the trajectories of self-reported marks differ substantially. Pupils in the academic track experience an average decline of one point, whereas those in the vocational track see their self-reported marks increase by half a point. As a result, the difference in self-reported marks between the two tracks becomes statistically non-significant (p-value: n.s., Table 3).

Cross-Lagged Panel Analysis: Effect of Engagement on Academic Achievement and Vice Versa

By adopting a longitudinal perspective, we can analyse how engagement and self-reported marks influence the compulsory education stage and the post-compulsory education stage, and the sequential impact of these relationships (Fig. 2). However, before proceeding with the analysis, it is essential to assess the validity and robustness of the model. To this end, the measurement invariance of the behavioural engagement construct over time (T1 and T2) and across different levels—configural, metric, and scalar invariance—is tested (Dimitrov 2010).

The results indicate that the behavioural engagement construct has measurement invariance over time. The first model, without restrictions (configural), shows a good fit, and imposing equality constraints over time (metric) does not significantly affect the model's fit. Finally, when intercept constraints are introduced (scalar), significant but unimportant changes are observed in the fit of the model. This suggests that the latent variable for behavioural engagement is comparable over time (ΔCFI ranged between 0.003 and 0.015), with $\Delta CFI/\Delta TLI < 0.01$ and $\Delta RMSEA < 0.01$ indicating strong invariance (Table 5a) (Chen 2007).

Once the cross-lagged panel model was constructed and its goodness of fit confirmed (RMSEA 0.049 [C.I. 047–0.051], CFI 0.953, TLI 0.928, SMRM 0.046), the autoregressive relationships revealed substantial stability, both for behavioural engagement ($\beta = 0.732$, $p < 0.001$) and for self-reported marks ($\beta = 0.541$, $p < 0.001$).

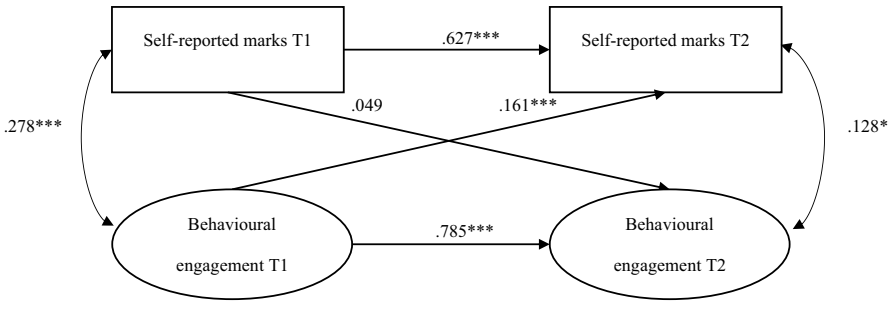


Fig. 2 Results of the general cross-lagged panel model

This indicates that behavioural engagement remains relatively stable over time, while self-reported marks exhibit some variation but no major changes.

Regarding the cross-lagged relationships, behavioural engagement at T1 exerts a stronger influence on self-reported marks at T2 ($\beta = 0.100$, $p < 0.01$) than self-reported marks at T1 on behavioural engagement at T2 ($\beta = 0.065$, $p < 0.05$). This suggests that classroom attendance and behaviour at the end of compulsory schooling have an impact on academic achievement in the first year of post-compulsory education. Finally, it is worth noting the significant correlation between self-reported marks and engagement at both T1 ($p < 0.001$) and T2 ($p < 0.05$).

Differences by Tracks (H3–H4)

Once the general model was constructed, it was analysed by groups, distinguishing between the academic and vocational tracks (Figs. 3 and 4). The goodness of fit for the model by groups was deemed good, based on indicators such as RMSEA (0.054 [C.I. 0.049–0.056]), CFI (0.946), TLI (0.925) and SRMR (0.052). Multi-group invariance was tested ($\Delta CFI > 0.01$), and the model was found to be invariant across the academic and vocational tracks.

The results reveal differences in the stability of self-reported marks between the two groups during the transition from compulsory secondary school to post-compulsory education. The self-reported marks of pupils who transition to the academic track ($\beta = 0.627$, $p < 0.001$) were found to be more stable than those of pupils who choose the vocational track ($\beta = 0.247$, $p < 0.05$). As previously mentioned, self-reported marks for pupils in the vocational track tend to increase compared to the final year of compulsory secondary education.

Differences were also observed in the stability of behavioural engagement, with greater stability in the academic track ($\beta = 0.785$, $p < 0.001$) than in the vocational track ($\beta = 0.416$, $p < 0.05$). Pupils in the vocational track showed a more substantial increase in behavioural engagement during the transition to post-compulsory education.

In light of the *second hypothesis*, it can be seen that, contrary to expectations, there were greater changes in both engagement and self-reported marks in the vocational track. As noted in the earlier results, pupils who chose the vocational track

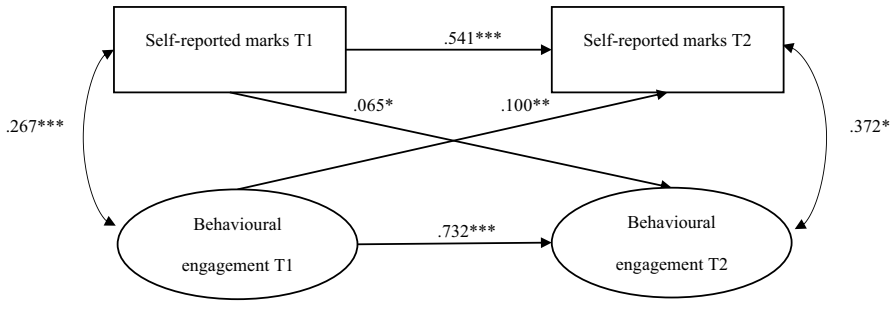


Fig. 3 Cross-lagged panel analysis academic track group

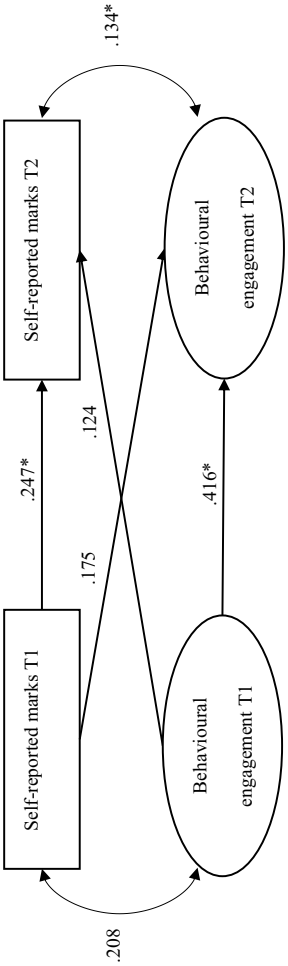


Fig. 4 Cross-lagged panel analysis vocational track group

demonstrated a significant improvement ($\beta = 0.247$, $p < 0.05$) in their perceived academic results, thus leading to the rejection of the hypothesis.

Unlike the general model, the effect of self-reported marks at T1 on behavioural engagement at T2 was not significant in either of the two tracks. However, behavioural engagement at T1 was found to significantly influence self-reported marks at T2 for pupils in the academic track ($\beta = 0.161$, $p < 0.001$), but not for those in the vocational track. Therefore, regarding the *third hypothesis,* which assumed a relationship between engagement and achievement, engagement was found to impact self-reported marks in post-compulsory education for pupils in the academic track but not for those in the vocational track.

Last, with respect to the *fourth hypothesis*, it was observed that self-reported marks at the end of the compulsory stage did not influence engagement in the first year of post-compulsory education in either track. However, a significant correlation was found between self-reported marks and behavioural engagement both in the last year of compulsory education ($\beta = 0.267$, $p < 0.001$) and the first year of post-compulsory education for academic track pupils ($\beta = 0.065$, $p < 0.05$). For vocational track pupils, the correlation was significant only in the first year of post-compulsory education.

Discussion

One of the main contributions of this study is the finding that vocational education does not lead to disengagement or negative attitudes towards school. In fact, vocational track pupils showed a significant increase in both behavioural engagement and self-reported marks after transitioning to post-compulsory education. These results differ from earlier studies (Gamoran et al. 1995; Hargreaves 1967; Van Houtte 2016), which suggested that vocational tracks polarise pupils and exacerbate negative feelings towards school, including perceptions of the uselessness of education (Salmela-Aro et al. 2008; Müller and Hofmann 2016). Instead, this study reveals that both academic and vocational track pupils exhibited increased behavioural engagement after transitioning into post-compulsory education. Interestingly, vocational track pupils experienced a major increase in behavioural engagement and also an increase in self-reported marks that pupils on the academic track do not experience. This could reflect a lower academic demand or a reduction in academic pressure, a greater sense of relevance in their learning, or the greater alignment between vocational curricula and the interests of certain pupils, as suggested by Eccles and Midgley's (1989; 1993) stage-environment fit theory. This finding aligns with studies from the Finnish context (Salmela-Aro et al. 2008), where vocational education appears better suited to pupils with more practical orientations. Future research will need to compare countries with early-tracking (around age 11) and those where it occurs later (around age 15) to see if this can explain the differences between the different studies mentioned above.

Moreover, the study shows that behavioural engagement in the final year of compulsory secondary education is a significant predictor of self-reported marks in the first year of post-compulsory education for pupils in the academic track. This emphasises the importance of maintaining student engagement throughout the compulsory

education phase, as engagement can significantly influence future academic success. This finding supports earlier research (Geven 2019a, b; Rumberger et al. 2008), which suggests that engagement is crucial for academic success.

The results also highlight that socio-demographic factors play a key role in track choice. Consistent with previous research (Garcia et al. 2013; Müller and Hofmann 2016), boys and pupils from immigrant backgrounds are more likely to opt for vocational tracks, while those from higher socio-economic backgrounds are more likely to pursue academic tracks. This reflects broader trends in educational inequality, where access to higher-status tracks is often shaped by family background and social capital.

However, it is important to note the limitations of this study. While the longitudinal design provides valuable insights into the changes over time, it cannot fully explain the mechanisms behind these changes. Future research should explore how the characteristics of the educational environment, such as teaching practices and peer groups, influence student engagement and achievement in both tracks. Furthermore, the reliance on self-reported academic performance presents another limitation. While self-reported marks are useful for capturing pupils' perceptions of their achievements, they may not fully align with actual academic outcomes, as they are influenced by personal biases and the educational context. Further research should consider more objective measures of academic performance, alongside self-reports, to provide a more comprehensive understanding of pupils' academic trajectories.

Finally, the inclusion of only two waves of data limits the ability to observe the long-term evolution of behavioural engagement and achievement beyond the transition period. Future studies should consider including more waves of data to assess the medium- and long-term effects of the transition on pupils' educational and career outcomes. Additionally, more comparative studies across different educational systems and tracking practices could help to better understand the impact of early tracking and the timing of transitions on educational trajectories.

Conclusions

This study offers important insights into a key transition in the life course of young people, namely the transition from compulsory to post-compulsory education. Particularly, the present paper focuses on the relationship between behavioural engagement and self-reported marks across the academic and vocational tracks. The findings suggest that vocational education can have positive effects on student engagement and self-reported academic performance.

Three key conclusions can be drawn from these results:

First, the vocational track exhibits a positive impact on pupils' academic outcomes (self-reported marks and behavioural engagement). While pupils in the vocational track initially report lower academic achievement compared to those in the academic track, these differences diminish over time as engagement and self-reported academic performance increase in the vocational track during the post-compulsory education phase.

Second, the evolution of engagement over time deviates from previous studies, which suggested that vocational tracks lead to disengagement and anti-school attitudes. Contrary to these studies, behavioural engagement increased in both tracks,

with a particularly marked rise in vocational track pupils. This could be explained by a better fit between pupils' needs and the educational opportunities available in vocational tracks.

Last, behavioural engagement in the final year of compulsory education has a significant effect on self-reported marks in the first year of the academic track. The results underscore the importance of fostering engagement throughout the educational process.

In conclusion, these findings challenge traditional assumptions about vocational education and highlight the importance of behavioural engagement in shaping educational outcomes. Furthermore, the results of this paper can contribute to the ongoing debate on how to enhance the status and prestige of VET (Billett 2020; Terry and Orr 2024).

Appendix

Acknowledgements This work was supported by the Ministry of Education, Sports and Culture of Spain [project reference: CSO2016-79945-P] and the Secretariat of Universities and Research of the Ministry of Business and Knowledge of the Government of Catalonia.

Table 4a Descriptive statistics for each item of behavioural engagement (T1 and T2)

		N	%
T1 behavioural engagement			
I have skipped a class without permission	Never	1152	81.2
	1 or 2 times	198	14
	3 or 4 times	37	2.6
	5 or more times	32	2.3
I didn't go to school one day without permission	Never	1247	87.9
	1 or 2 times	131	9.2
	3 or 4 times	25	1.8
	5 or more times	15	1.1
I often get into trouble frequently at school	Totally disagree	996	70
	Disagree	356	25
	Agree	59	4.1
	Total agree	12	0.8
I have been given a detention at school	Never	755	53.2
	1 or 2 times	448	31.6
	3 or 4 times	101	7.1
	5 or more times	115	8.1
I have been in trouble with teachers because of my behaviour	Never	946	66.7
	1 or 2 times	336	23.7
	3 or 4 times	67	4.7
	5 or more times	69	4.9

Table 4a (continued)

		N	%
T2 behavioural engagement			
I have skipped a class without permission	Never	801	71.5
	1 or 2 times	182	16.3
	3 or 4 times	65	5.8
	5 or more times	72	6.4
I didn't go to school one day without permission	Never	990	88.3
	1 or 2 times	79	7
	3 or 4 times	23	2.1
	5 or more times	29	2.6
I often get into trouble frequently at school	Totally disagree	689	61.6
	Disagree	381	34.1
	Agree	38	3.4
	Total agree	10	0.9
I have been given a detention at school	Never	853	76.4
	1 or 2 times	191	17.1
	3 or 4 times	38	3.4
	5 or more times	34	3
I have been in trouble with teachers because of my behaviour	Never	780	69.8
	1 or 2 times	240	21.5
	3 or 4 times	59	5.3
	5 or more times	58	3.4

Table 5a Results of measuring longitudinal invariance and cross-lagged panel model

Measurement invariance	X^2	Scaled x^2 difference	df	df difference	CFI	CFI difference	RMSEA	SRMR
Behavioural engagement								
Configural invariance	362.83		91.00		0.956		0.038	0.044
Metric invariance	346.39	− 16.44	95.00	− 4.00	0.959	0.003	0.036	0.040
Scalar invariance	478.86	132.46	102.00	− 7.00	0.948	− 0.011	0.042	0.048

Author Contribution All authors contributed to the study conception and design. Data preparation and analysis were performed by Ona Valls. The first draft of the manuscript was written by Albert Sánchez-Gelabert and Ona Valls, and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

Funding Open Access funding provided thanks to the CRUE-CSIC agreement with Springer Nature. Ministerio de Educación,Cultura y Deporte,CSO2016-79945-P,Departament d'Empresa i Coneixement,Generalitat de Catalunya

Data Availability Data are available upon request.

Declarations

Ethics Approval Approval was obtained from the ethics committee of Universitat Autònoma de Barcelona. The procedures used in this study adhere to the tenets of the Declaration of Helsinki. For this paper, we used primary data collected during the first and second waves of the study, 2013 and 2014, and 2014 and 2015. It is a representative sample for the city of Barcelona, comprised of 2056 pupils in the 10th grade (15 and 16 years old)—the last year of compulsory education—in the 2013 and 2014 academic year from 27 schools. The sample includes those also born in 1998 but in lower years due to having repeated a year.

Consent to Participate Informed consent was given by all the participants and their parents.

Competing interests The authors declare no competing interests.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit http://creativecommons.org/licenses/by/4.0/.

References

Appleton J, Christenson S, Furlong M (2008) Student engagement with school: critical conceptual and methodological issues of the construct. Psychol Sch 45(5):369–386. https://doi.org/10.1002/pits.20303

Archambault I, Janosz M, Fallu J, Pagani L (2009) Student engagement and its relationship with early high school dropout. J Adolesc 32(3):651–670. https://doi.org/10.1016/j.adolescence.2008.06.007

Billett S (2011) Vocational Education: Purposes, traditions and prospects. Springer; Dordrecht, The Netherlands

Boekaerts M (2016) Engagement as an inherent aspect of the learning process. Learn Instr 43:76–83. https://doi.org/10.1016/j.learninstruc.2016.02.001

Brown P (1987) Schooling ordinary kids: inequality, unemployment, and the new vocationalism. Tavistock Books, London

Buhs E, Ladd G, Herald S (2006) Peer exclusion and victimization: processes that mediate the relation between peer group rejection and children's classroom engagement and achievement? J Educ Psychol 98(1):1–13. https://doi.org/10.1037/0022-0663.98.1.1

Byrne BM (2016) Structural equation modeling with AMOS: Basic concepts, applications, and programming, 3rd edn. Routledge. https://doi.org/10.4324/9781315757421

Chen F (2007) Sensitivity of goodness of fit indexes to lack of measurement invariance. Struct Equ Modeling 14(3):464–504. https://doi.org/10.1080/10705510701301834
Dimitrov DM (2010) Testing for factorial invariance in the context of construct validation. Meas Eval Counsel Dev 43(2):121–149. https://doi.org/10.1177/0748175610373459
Dockx J, Van den Branden N, De Fraine B (2019) Effortless or less effort? Effects of tracks on students' engagement. Br J Educ Psychol. https://doi.org/10.1111/bjep.12290
Dubet F (1992) Les Acteurs du Lycée. Inf Soc 18:20–31
Eccles JS, Midgley C, Wigfield A, Buchanan CM, Reuman D, Flanagan C, Mac Iver D (1993) Development during adolescence: the impact of stage-environment fit on young adolescents' experiences in schools and in families. Am Psychol 48(2):90–101. https://doi.org/10.1037/0003-066X.48.2.90
Eccles JS, Midgley C (1989) "Stage/Environment fit: developmentally appropriate classrooms for early adolescence." In *Research on Motivation in Education*, edited by R. E. Ames and C. Ames. New York: Academic Press
Evans K, Furlong A (1997) Metaphors of youth transitions: niches, pathways, trajectories or navigations. In: Bynner J, Chisholm L, Furlong A (eds) Youth, citizenship and social change in a European context. Aldershot, Hants, England, Ashgate
Finn J, Voelkl K (1993) School characteristics related to student engagement. J Negro Educ. https://doi.org/10.2307/2295464
Finn JD, Zimmer KS (2012) Student engagement: What is it? Why does it matter? In: Christenson SL, Reschly AL, Wylie C (eds) Handbook of research on student engagement. Springer Science + Business Media, pp 97–131. https://doi.org/10.1007/978-1-4614-2018-7_5
Fredricks J, Blumenfeld P, Paris A (2004) School engagement: potential of the concept, state of the evidence. Rev Educ Res 74(1):59–109. https://doi.org/10.3102/00346543074001059
Furrer C, Skinner E (2003) Sense of relatedness as a factor in children's academic engagement and performance. J Educ Psychol 95(1):148–162. https://doi.org/10.1037/0022-0663.95.1.148
Galland O (1988) Représentation du Devenir et Reproduction Sociale: Le Cas des Lycéens d'Elbeuf. Sociol Trav 3:399–417
Gamoran A, Nystrand M, Berends M, LePore P (1995) An organizational analysis of the effects of ability grouping. Am Educ Res J 32(4):687–715. https://doi.org/10.3102/00028312032004687
García M, Casal J, Merino R, Sánchez-Gelabert A (2013) Itinerarios de abandono escolar y transiciones tras la Educación Secundaria Obligatoria. Revista de Educación 361:65–94. https://doi.org/10.4438/1988-592X-RE-2011-361-135
García M, Valls O (2018) Trayectorias de permanencia y abandono educativo temprano: Análisis de secuencias y efectos de la crisis económica. Metamorfosis: Revista Del Centro Reina Sofía Sobre Adolescencia y Juventud 8:129–143.
García-Pérez J, Hidalgo-Hidalgo M, Robles-Zurita J (2014) Does grade retention affect students' achievement? Some evidence from Spain. Appl Econ 46(12):1373–1392. https://doi.org/10.1080/00036846.2013.872761
Geven S (2019) The impact of school tracking on school misconduct: variations by migration background in England, the Netherlands, and Sweden. J Ethn Migr Stud. https://doi.org/10.1080/1369183X.2019.1600402
Geven S (2019) The impact of school tracking on school misconduct: variations by migration background in England, the Netherlands, and Sweden. J Ethnic Migr Stud. https://doi.org/10.1080/1369183X.2019.1600402
Geven S, Kalmijn M, van Tubergen F (2016) The ethnic composition of schools and students' problem behaviour in four European countries: the role of friends. J Ethn Migr Stud 42(9):1473–1495. https://doi.org/10.1080/1369183X.2015.1121806
Green A, Wolf A, Leney T (1999) Convergence and divergence in European education and training system. Institute of Education, London
Hargreaves (1967) Social relations in a secondary school, 1st edn. Routledge. https://doi.org/10.4324/9780203001837
Hospel V, Galand B, Janosz M (2016) Multidimensionality of behavioral engagement: empirical support and implications. Int J Educ Res 77:37–49. https://doi.org/10.1016/j.ijer.2016.02.007
Hu L, Bentler P (1999) Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. Struct Equ Modeling 6(1):1–55. https://doi.org/10.1080/10705519909540118

Hughes J, Luo W, Kwok O-M, Loyd L (2008) Teacher–student support, effortful engagement, and achievement: a 3-year longitudinal study. J Educ Psychol 100(1):1–14. https://doi.org/10.1037/0022-0663.100.1.1

Janosz M, Archambault I, Morizot J, Pagani L (2008) School engagement trajectories and their differential predictive relations to dropout. J Soc Issues 64(1):21–40. https://doi.org/10.1111/j.1540-4560.2008.00546.x

Jimerson S, Campos E, Greif JL (2003) Toward an understanding of definitions and measures of school engagement and related terms. Calif Sch Psychol 8(1):7–27. https://doi.org/10.1007/BF03340893

Keith T (2019) Multiple regression and beyond: an introduction to multiple regression and structural equation modeling. In: multiple regression and beyond: an introduction to multiple regression and structural equation modeling, 2nd ed. Routledge/Taylor & Francis Group.https://doi.org/10.4324/9781315162348

Kline RB (1998) Principles and practice of structural equation modeling. Guilford Press, New York

Kuh GD, Kinzie J, Buckley JA, Bridges BK, Hayek JC (2006) *What matters to student success: a review of the literature.* Commissioned report for the National Symposium on Postsecondary Student Success: Spearheading a Dialog on Student Success. National Postsecondary Education Cooperative, Washington, DC

Lacey C (1966) Some sociological concomitants of academic streaming in a grammar school. Br J Sociol 17(3):245–262. https://doi.org/10.2307/588773

Ladd G, Dinella L (2009) Continuity and change in early school engagement: predictive of children's achievement trajectories from first to eighth grade? J Educ Psychol 101(1):190–206. https://doi.org/10.1037/a0013153

Lamb S, Jackson J, Rumberger R (2015) ISCY technical paper: measuring 21st century skills in ISCY technical report. Victoria University, Centre for International Research on Educational Systems, Melbourne, Victoria

Lamb S, Rumberger RW (eds) (2024) Inequality in key skills of city youth: an international comparison. American Educational Research Association. https://doi.org/10.2307/jj.14020827

Lawson M, Lawson H (2013) New conceptual frameworks for student engagement research, policy, and practice. Rev Educ Res 83(3):432–479. https://doi.org/10.3102/0034654313480891

Libbey H (2004) Measuring student relationships to school: attachment, bonding, connectedness, and engagement. J Sch Health 74(7):274–283. https://doi.org/10.1111/j.1746-1561.2004.tb08284.x

Müller C, Hofmann V (2016) Does being assigned to a low school track negatively affect psychological adjustment? A longitudinal study in the first year of secondary school. Sch Eff School Improv 27(2):95–115. https://doi.org/10.1080/09243453.2014.980277

Muthén LK, Muthén BO (1998-2015) MPlus user's guide, 7th edn. Muthén & Muthén, Los Angeles, CA.

Merino R (2013) Las sucesivas reformas de la formación profesional en España o la paradoja entre integración y segregación escolar. Education Policy Analysis Archives/Archivos Analíticos de Políticas Educativas 21:1–15. https://doi.org/10.14507/epaa.v21n66.2013

Nielsen K (2016) Engagement, conduct of life, and dropouts in the Danish vocational education and training (VET) system. J Vocat Educ Train 68(2):198–213. https://doi.org/10.1080/13636820.2015.1133694

Niittylahti S, Annala J, Mäkinen M, Mäkinen M (2019) Student engagement at the beginning of vocational studies. Nord J Vocat Educ Train 9(1):21–42. https://doi.org/10.3384/njvet.2242-458X.199121

Palardy GJ, Rumberger RW (2019) The effects 21st century skills on behavioral disengagement in Sacramento high schools. In: Demanet J, Van Houtte M (eds) Resisting education: A cross-national study on systems and school effects. Springer, The Netherlands, pp 53–80

Pàmies J, Castejón A (2015) Distribuyendo Oportunidades: El Impacto de los Agrupamientos Escolares en la Experiencia de los Estudiantes. RASE: Revista De La Asociación De Sociología De La Educación 8(3):335–348

Petrides K, Chamorro-Premuzic T, Frederickson N, Furnham A (2005) Explaining individual differences in scholastic behavior and achievement. Br J Educ Psychol 75(2):239–255. https://doi.org/10.1348/000709904X24735

Raffe D (2003) Pathways linking education and work: a review of concepts, research, and policy debates. J Youth Stud 6(1):3–19. https://doi.org/10.1080/1367626032000068136

Roberts K (2022) Political economy and young people's transitions from education-to-work in the UK during and following the 2020 and 2021 lockdowns. J Youth Stud 26(9):1147–1162. https://doi.org/10.1080/13676261.2022.2077641

Rodríguez Izquierdo R (2015) Estudio de las Actitudes Hacia la Escuela y de las Expectativas Educativas de los Estudiantes de Origen Inmigrante. Educ Policy Anal Arch 23:127. https://doi.org/10.14507/epaa.v23.2161

Rumberger RW, Lim SA (2008) Why students drop out of school: A review of 25 years of research. Santa Barbara: California Dropout Research Project. Available: https://www.issuelab.org/resources/11658/11658.pdf

Rumberger RW, Rotermund SL (2012) Handbook of Research on Student Engagement. In: Handbook of Research on Student Engagement, pp 491–513. https://doi.org/10.1007/978-1-4614-2018-7

Salmela-Aro K, Kiuru N, Nurmi J-E (2008) The role of educational track in adolescents' school burnout: a longitudinal study. Br J Educ Psychol 78(4):663–689. https://doi.org/10.1348/000709908X281628

Selig JP, Little TD (2012) Autoregressive and cross-lagged panel analysis for longitudinal data. In: Laursen B, Little TD, Card N (eds) Handbook of Developmental Research Methods. The Guilford Press, New York, pp 265–278

Siddiq F, Gochyyev P, Valls O (2020) The role of engagement and academic behavioural skills on young students' academic performance – A validation across four countries. Studies in Educational Evaluation, 66. https://doi.org/10.1016/j.stueduc.2020.100880

Stevens P, Vermeersch H (2010) Streaming in Flemish secondary schools: exploring teachers' perceptions of and adaptations to students in different streams. Oxf Rev Educ 36(3):267–284. https://doi.org/10.1080/03054981003629862

Terry R, Orr K (2024) Raising the value of VET through qualification reform: the case of English T levels. J Vocat Educ Train 1–17. https://doi.org/10.1080/13636820.2024.2335900

Triventi, M., Skopek, J., Kulic, N., Buchholz, S., and Blossfeld, H.-P. 2016. "Varieties of secondary education models and social inequality: conclusions from a large-scale international comparison". In H. P. Blossfeld, S. Buchholz, J. Skopek, and M. Triventi (Eds.), Models of Secondary Education and Social Inequality. An International Comparison (pp. 377–400). Massachusetts | Glos: Edward Elgar Publishing.

Van de Gaer E, Pustjens H, Van Damme J, De Munter A (2009) School engagement and language achievement: a longitudinal study of gender differences across secondary school. Merrill-Palmer Q 55(4):373–405. https://doi.org/10.1353/mpq.0.0034

Van de Werfhorst H (2019) Early tracking and social inequality in educational attainment: educational reforms in 21 European countries. Am J Educ 126(1):65–99. https://doi.org/10.1086/705500

Van Houtte M (2016) Lower-track students' sense of academic futility: selection or effect? J Sociol 52(4):874–889. https://doi.org/10.1177/1440783315600802

Van Houtte M (2006) School type and academic culture: evidence for the differentiation–polarization theory. J Curriculum Stud 38(3):273–292. https://doi.org/10.1080/00220270500363661

Wylie C, Hodgen E (2012) Trajectories and patterns of student engagement: evidence from a longitudinal study. In: Handbook of research on student engagement. pp 585–599. Springer US, Boston. https://doi.org/10.1007/978-1-4614-2018-7_28

Wyn J, Woodman, D (2021) "A new adulthood: conceptualizing transition using a generational framework". In Marshall, E.A & Symonds, E. (eds). *Young Adult Development at the School-to-Work Transition: International Pathways and Processes*. Oxford: Oxford University Press. Chapter 21, 461–475. https://doi.org/10.1093/oso/9780190941512.003.0021

York TT, Gibson C, Rankin S (2015) Defining and measuring academic success. Pract Assess Res Eval 20(5):n5

Zepke N, Leach L, Butler P (2010) Engagement in post-compulsory education: students' motivation and action. Research in Post-Compulsory Education 15(1):1–17. https://doi.org/10.1080/13596740903565269

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.