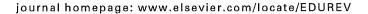Contents lists available at SciVerse ScienceDirect

Educational Research Review

Review

A critical review of the literature on school dropout ☆

CrossMark

Kristof De Witte [a,c,*], Sofie Cabus [a], Geert Thyssen [a,b], Wim Groot [a,d], Henriëtte Maassen van den Brink [a,d]

[a] Top Institute for Evidence Based Education Research, Maastricht University, Kapoenstraat 2, 6200 ML Maastricht, The Netherlands
[b] Faculty of Language and Literature, Humanities, Arts and Education, Université de Luxembourg, Route de Diekirch B.P. 2, 7220 Walferdange, Luxembourg
[c] Faculty of Economics and Business, KU Leuven, Naamsestraat 69, 3000 Leuven, Belgium
[d] Amsterdam School of Economics, University of Amsterdam, Roeterstraat 11, 1017 LW Amsterdam, The Netherlands

ARTICLE INFO

ABSTRACT

This paper reviews the growing literature on early school leaving. We clarify what is at stake with early school leaving, and touch upon underlying problems and methodological issues raised in the literature. The paper investigates the levels, the methods and models with which the topic has been studied, and discusses potential (dis)advantages of each of those. We focus on early school leaving in all its complexity, and on the interplay of relevant (levels of) factors, rather than on just certain factors, typically located in individual students, schools or families. The findings in the literature are discussed and placed into perspective. Finally, a wide set of policy measures are discussed.

Contents

1. Introduction and problem statement

The high dropout rates in Western countries sharply contrast with the social and economic objectives that have been formulated by government officials and policymakers in order to achieve sustainable economic growth. School dropout has been defined as leaving education without obtaining a minimal credential (most often a higher secondary education diploma).[1]

In the OECD countries, on average 72% of all 25- to 34-year-olds had completed a year 12 equivalent in 1999 (Business Council of Australia, 2002a). Another report mentions a year 12 equivalent level of education in the European Union of 77.3% of the population in 2005; a level similar to that of the United States, albeit one that has only slightly improved since 2000 (European Commission & Culture, 2006). These rates mask several things: first, the diversity of standards by which school dropout and completion are measured across various studies (from "event" and "status dropout rates" to "graduation" and "status completion rates" or even "averaged freshman graduation rates"; Cataldi, Laird, & KewalRamani, 2009); second, the plurality of differential criteria underlying them (the age, grade and time range: e.g., "permanent" versus "temporary" dropout or "stopout", types of credentials: e.g., a regular or adult high school diploma versus a GED or alternative diploma, grade entrance versus completion, intra- or inter-school enrolment, etc.; Blue & Cook, 2004; Entwisle, Alexander, & Steffel-Olson, 2004; Hammack, 1986; Pittman & Haughwout, 1987; Rumberger & Lamb, 2003, 2005; Dalton, Gennie, & Ingels, 2009); and third, the interests involved in their measurement (e.g., on the part of schools receiving funds according to a "capitation" formula; cf. Entwisle et al., 2004).

In order to reduce the dropout rates, the "No Child Left Behind Act" (2001), and the "Lisbon 2000" and the "Europe 2020" goals have been formulated in the United States and Europe, respectively. The former aimed at an average high school graduation rate of 90 percent, whereas the latter expressed the desire that at least 85 percent of all 22-year-olds in the European Union complete upper-secondary education and maximum 10% of all pupils leave school early by 2012 (i.e., an objective to halve the dropout rate between 2002 and 2012; see: US Department of Education, 1990; European Commission, 2006).

Despite increasing attention on the part of policy makers, school dropout still is a serious issue. The growing literature on early school leaving indicates that school dropouts, compared with their graduated peers, are more frequently associated with long-term unemployment, poverty, bleak health prospects, sustained dependence on public assistance, single parenthood (in females), political and social apathy, and (juvenile) crime (Business Council of Australia, 2002b; Christenson, Sinclair, Lehr, & Hurley, 2000; Kaufman, Alt, & Chapman, 2004; Rumberger & Lamb, 2003; Vizcain, 2005 and references therein).

However, as Smith (2003) has argued, there is something naïve about the use of such associations, as they do not necessarily imply causation. It is indeed increasingly recognized that caution is required in interpreting such correlations, as the decision to drop out of school may be driven by exogenous factors, or may even result from systemic flaws, rather than factors intrinsic to dropouts themselves (Business Council of Australia, 2002a; Business Council of Australia, 2002b; Rumberger & Lamb, 2003). Structural inequality may not only cause early school leaving, but also for, e.g., health problems or poverty that in turn may be at the origin of dropping out.

In contrast to previous literature reviews on school dropout (e.g. Rumberger, 1994), this paper does not aim to fully summarize the dropout literature. Instead, it focuses on hitherto unchallenged commonplaces, possible underlying problems, methodological issues and research trends. It attempts to analyse the complex interplay of factors in its entirety rather than to concentrate on certain factors one-sidedly, as to avoid reproducing stereotypes. The literature is thereby carefully pondered with the aim of producing an overview of factors that may be most predictive of early school leaving (indicative of correlation), either by themselves or in interaction with other predictors. From this, and again in contrast to the previous reviews, we try to highlight aspects found in the literature that unite both dropouts and graduates, and that have a positive influence on all parties involved. In other words, it is aimed to pinpoint characteristics susceptible to improvement, from which both potential early school leavers and their fellow pupils may benefit. This focus significantly distinguishes our literature review from previous ones on early school leaving, as does its subsequent connection to important policy measures. By presenting policy measures next to predictive variables of early school leaving, we highlight their close interrelation. Indeed, in line with an evidence-informed paradigm, policy measures should focus on what research indicates as the most predictive measures.

This paper has benefitted from journal articles, books and reports from the past three decades (until 1980, with the exception of Reich and Young (1975) which provides a lowly cited yet nonetheless interesting starting point of this paper). To this end we have used the search engines ERIC (Educational Resources Information Center) and Google Scholar. As an additional criterion for inclusion, we have pragmatically restricted the literature search to English language literature. The review's emphasis is on early school leaving at the level of secondary (or high school) education.[2] The keywords "school dropout" or "school leaving", and "secondary education" or "high school" have been used in search for abstracts. Using these keywords, Google Scholar yielded the highest number of hits (over thousands), whereas ERIC only provided us with 12 abstracts. To limit

---

[1] Early school leaving has often been referred to as "dropout", early "withdrawal", or "attrition" from high school, and before the 1960s also "student elimination." We will use these terms interchangeably throughout the paper.

[2] Note that, in this literature review, we did not focus on the level of post-secondary (or college) education, so that it is somewhat underrepresented (exceptions being, Bynum & Thompson, 1983; Perna, Rowan-Kenyon, Bell, Thomas, & Li, 2008; Smith & Naylor, 2005).

the total number of hits in Google Scholar, we also have included the keywords "school to work" or "transition". ERIC then excluded all abstracts from the hit list, while in Google Scholar, we still retained about 600 abstracts.

The greater part of the existing literature has described only one or some dropout determinants, has not provided an overview of, or clear connections to, other dropout determinants, and has only to a limited extend been informative about studies on dropout prevention strategies. This finding is in line with Wilson, Tanner-Smith, Lipsey, Steinka-Fry, and Morrison (2011), who have found in total 167 experimental or quasi-experimental studies eligible for inclusion in their systematic review on school dropout and completion. There are two main reasons why high quality studies of dropout prevention measures or interventions are lacking. First, as various observed and unobserved factors influence the decision to leave school early, evaluations may fail to show program effectiveness. This would result in 'publication bias' (i.e., negative or insignificant results are not published). Second, there is a general lack of uniformity and transparency with respect to school attendance and enrollment registration. Many studies therefore have to rely on surveys/questionnaires or (costly) local experimental settings. Due to self-reported data on attendance behaviour and sample selection, this may lead to difficult statistical inference.

This paper is organized as follows. The next section explores common stereotypes with regard to dropout. Section 3 looks at current research approaches to early school leaving. In turn, a conceptual framework fitting a wide range of potential predictors of early school leaving is presented in Section 4. Section 5 discusses the predictors of early school leaving at student, family, school and community level. Using the insights for the predictors, we link them with common policy measures in Section 6. Finally, Section 7 concludes the paper with policy advice and scope for further research.

2. Stereotypes on school dropout

Over time, potential predictors of non-graduation have generally been looked for, firstly, among individual students and their families, subsequently in schools, teachers and fellow-pupils, and only at a later stage in the broader context or environment (neighbourhoods, peers networks and labour markets; cf. Rumberger, 2004a). Moreover, attention has first been focused on immutable variables (demographic and other intractable risk factors like gender, race and ethnicity, parental education, income, property ownership and place of residence, home language), creating the impression that early school leaving is in part a natural process – literally "attrition" – largely impervious to change efforts (e.g. Appleton, Christenson, et al., 2008; Christenson et al., 2008; Finn, 1989).

Perhaps the focus should not so much be on dropping out as a problem of perceived or actual failures of pupils, schools and the costs associated to it, but on dropout as an indication and origin of fundamental inequities (Smeyers & Depaepe, 2006). This perspective shifts the focus towards school attendance and completion as a right of citizens that is to be safeguarded in any democracy (Dorn, 1996) and calls for a more nuanced view on the many determinants of dropout (cf. Dorn, 1996). While, it is increasingly recognized that early school leaving is a complex, multi-dimensional phenomenon with numerous causes and consequences, it is still sometimes seen as a single symptom of related problems (Dorn, 1996). And although early school leavers are increasingly considered as a heterogeneous group (Jarjoura, 1996; Rumberger, 1983), they are still described in broad categorical terms loaded with negative connotations. Dropout stereotypes thus risk being reproduced, in spite of overwhelming evidence of their untenability. Two stereotypes often mentioned in policy debates presume a correlation between dropout on the one hand and delinquency and unemployment on the other.

Yet, the frequently drawn association between dropout and delinquency is all but univocal. A study based on a large-scale nationally representative probability sample revealed that the propensity to engage in delinquency after early school leaving depends on the reason for leaving and the poverty status of the youth involved (Jarjoura, 1996). The study found that only those who leave education early for personal reasons were more prone to display offending behaviour; those leaving for economical reasons in fact appeared less inclined to offend than those who graduate, independent from their poverty status.

Likewise, the connection between dropout and unemployment is ambiguous. Whereas fewer employment opportunities for young adolescents helped increasing high school attendance and graduation rates from the mid-1940s onwards (Dorn, 1996), so have more job market opportunities in times of economic revival increased dropout rates (Cabus & De Witte, 2011; Marks & Fleming, 1999; Olsen & Farkas, 1989). In countries like the United States, Australia and some European countries (e.g. Portugal and Spain), teenagers have been drawn to the labour market in greater numbers (Cabus & De Witte, 2012). While most of (school-leaving) youth become engaged only in part-time jobs with short-term employment contracts, this need not imply a break from schooling, as to a certain extent it mirrors increased enrolment in part-time education provisions. However, a significant number of them are pulled out of school due to the attractiveness of the labour market (cf. Business Council of Australia, 2002b). Unfortunately, once excluded from full-time employment, and without minimal credential, dropouts' experiences on the job market often do not qualify for an equivalent credential (Dorn, 1996).

"Dropout discourse" has thus linked early school leavers with unemployment, urban poverty and juvenile delinquency (often serving as a substitute for race and class) (cf. Dorn, 1996). Observed determinants have thereby acted as stereotypes. The stereotype, par excellence, of the "culturally deprived", unintelligent, unskilled, unadjusted, non-white male adolescent, who ends up unemployed and delinquent, has increasingly been qualified. Nonetheless, youngsters who display at least some of the characteristics just mentioned are still taken as a starting point in recent studies. This can partly be related

to the way in which early school leaving has long been approached methodologically, that is: as an aggregate of combined probabilities with regard to an array of separate risk factors, the overall average of which is thought to represent the typical dropout (Reich & Young, 1975). In this context Swadener (1995, among others, has stressed: 'what is particularly troubling and problematic is the degree to which [for instance] children's race, gender, class, first language, family makeup, and environment all target them for this at-risk label and associated interventions.' Many students encounter circumstances that might place them at risk, and yet all – however hindered by nurture or nature – are also "at promise" (Swadener, 1995). That this is true, also for "culturally diverse" children and youth, is illustrated by a study of Herbert and Reis (1999). These authors looked at high-achieving minority students, and focused on why they stayed in school and achieved well, in spite of the many risk factors they faced, rather than the other way around.

In sum, we can conclude that the problem of early school leaving implies more than the notion of students failing to achieve academically and graduating from school. The issue may then not only be how to better prepare them for schooling, or even how to attune schools more to their diverse needs. Some may fail merely within the academic system, but nevertheless be forced to remain therein, as it is believed that only schools can provide the kind of formal education and credentials needed for successful transition to work and adulthood in general (Dorn, 1996; Reich & Young, 1975; Swadener, 1995). Whether or not one subscribes to this view and sees dropping out as problematic in itself, or one views it as part of a broader problem related to questions of inequity, if the aim is to prevent youngsters from leaving education early, then it seems worthwhile considering how school dropout determinants are currently studied in the literature.

3. Underlying 'determinants' of early school leaving

The complexity of early school leaving is reflected, among other things, in the levels on which it has been studied, and the kind of models and methods by which it has been investigated. Most studies on school dropout seem to focus either on the national level, the state level, the level of a district, county or city, or that of an individual school (see Table 1). The topic, moreover, has been analysed by means of a large variety of models and methods (see Table 2).

Studies on the national level often analyse the same data sets. Used most frequently for the United States are national longitudinal data. The latter, in particular, draw on the four studies thus far conducted in the frame of the National Education Longitudinal Studies (NELS) programme of the National Center for Education Statistics (NCES), namely: the National Longitudinal Study of the High School Class of 1972, concluded in 1986 (NLS-72); the High School and Beyond (HS&B) study, which started in 1980 and ended in 1993; the National Education Longitudinal Study from in 1988 (NELS:88), with its follow ups until 2000; and the Education Longitudinal Study, initiated more recently in 2002 (ELS:2002). Also studied often, are cross sectional data obtained from the National Center for Educational Statistics' (NCES) Common Core of Data (CCD), a primary census database. Commonly explored as well, are data from the Current Population Survey (CPS), the National Longitudinal Survey of Youth (NLSY), and the National Longitudinal Surveys of Labour Market Experience of the Bureau of Labour Statistics (BLS). Among other national data sources encountered frequently in US national level studies, are the Monitoring the Future Study (MTF) of the National Institute on Drug Abuse, which commenced in 1975 and is still on-going, and the statistical reports of the GED Testing Service (GEDTS), a programme of the American Council on Education. Similarly, national level studies on early school leaving in Australia seem to draw upon common data from the Australian Bureau of Statistics (ABS), the National Centre for Vocational and Educational Research (NCVER), the Ministerial Council for Employment, Education, Training and Youth Affairs (Ministerial Council for Employment & Training, 2000) and the Australian Council for Educational Research (ACER), the latter of which conducted, for instance, national longitudinal surveys as part of the Youth in Transition (YTT) programme. In the UK data mostly obtained from the Department of Education and Skills (DfES), or the Higher Education Statistical Agency (HESA).

As has been noted by Vizcain (2005) relying on such broad-scale data sets has both advantages and disadvantages. While it allows for consistency in patterns across time and space, extrapolating information on early school leaving from national level data sources could also obfuscate trends on a more local level. Conversely, it is evident that findings on a local level

Table 1
Level of analysis.

National level studies
  Observed in: Rumberger (1983), Ekstrom et al. (1986), Pittman and Haughwout (1987), Olsen and Farkas (1989), Jarjoura (1996), Suet-Ling (2000), Business Council of Australia (2002b), Rumberger and Lamb (2003), Kaufman et al. (2004), Plank et al. (2005), Balfanz and Legters (2005), Smith and Naylor (2005), Ishitani and Snider (2006), Henry (2007), Koball (2007), Dustmann and van Soeast (2008), Dalton et al. (2009), Cataldi et al. (2009)

State level studies
  Observed in: Olsen et al. (1987), Entwisle et al. (2004) (2005)

County, district or city level studies
  Observed in: Reich and Young (1975), Okpala et al. (2001), Orthner and Cook (2002), Allensworth (2004) (2005), Vizcain (2005), Ou and Reynolds (2006), De Witte and Van Klaveren (2012)

School level studies
  Observed in: Herbert and Reis (1999)

Table 2
Observed approaches, methods and models.

Instrumental-variables approach
    Observed in: Allensworth (2005)
Logistic regressions
    * Including univariate and multinominal regression analyses, multivariate and multi-level regressions, (multiple-spells) competing risk models
        Observed in: Suet-Ling (2000), Kalmijn and Kraaykamp (2003), ## Duchesne et al. (2005), Allensworth (2005), Entwisle et al. (2005), Vizcain
        (2005), DesJardins et al. (2006), Henry (2007)
Ordinary least squares regressions
    Observed in: Okpala et al. (2001)
Probit models
    Observed in: Rumberger (1983), Adams and Becker (1990), Jarjoura (1996), Allensworth (2005), Ou and Reynolds (2006)
Survival analyses/event history models/time hazard models/cox regression models
    * Including discrete-time survival analyses, non-proportional hazards models, trajectory or path analyses
        Observed in: Ekstrom et al. (1986), Kalmijn and Kraaykamp (2003), Allensworth (2005), Vizcain (2005), Duchesne et al. (2005), DesJardins et al.
        (2006)
Hierarchical generalized linear models (HGLM)
    Observed in: Allensworth (2005)
Difference-in-difference (DD) analyses
    Observed in: Koball (2007), Cabus and De Witte (2011)
Case study and ethnographic methods
    * Including interviews and participant observation
        Observed in: Herbert and Reis (1999)

---

need not hold true on a wider scale. However, this does not imply that there is nothing to be learnt from studies on such level. On the contrary, as Fendler (2006) has contended: 'when research findings [are] held to be generalizable from one setting to another, that practice confuses induction with prediction. [Incidentally,] within statistical modelling, there is no basis for trust or certainty in the generalizability of findings [as] probability is precisely not certainty. … [Arguably,] generalizability has itself become a habitual expectation that continues to validate belief in itself.' Indeed, what may be more problematic with respect to studies at the level of individual schools and school systems, is that the statistics on which they generally rely are still based on the grades in which students are, and on administrative estimations of early school leaving, rather than students' age and graduation; an important limitation (cf. Allensworth, 2005; De Witte & Rogge, 2013; Dorn, 1996).

From a methodological perspective, empirical-analytical or quantitative research predominates the literature. Studies using more qualitative data are in short supply, which seems surprising, given the nature of the topic that, in all its complexity, is inextricably bound up with meaning and values, requiring a great deal of interpretation and judgement. At any rate, it seems an illusion that empirical identification of all relevant factors and interactions will one day be complete, as has been suggested by Frank (1990). Methodological pluralism (i.e., the use of mixed methods) is recommendable, whereby the choice of method should depend on the research question(s) one seeks to answer (Herbert & Reis, 1999).

Rumberger (2004a) and Plank, DeLuca, and Estacion A. (2005) have observed that most studies apply standard logit and multivariate models. Bivariate approaches (i.e., between-group comparisons) have become less popular, yet to date they are still sometimes adopted to describe early school withdrawal. This is mainly the case in policy-oriented statistical reports (e.g., Dalton et al., 2009). However, bivariate analyses do not allow for interaction effects, such that the multiple dimensions of early school leaving are at risk to being underexposed, and 'stereotypes' being sustained. The question should not only be (whether and) which factors may increase the chance of early school leaving, for whom, why and when (Willet & Singer, 1991), but also whether, when and why that this may be a problem, and – if necessary – what could be done about it. In order to be able to find at least some answers to questions like these, one needs a framework that is able to accommodate for a broad spectrum of relevant factors. We aim at presenting such a framework in what follows. Thereafter, we explore a number of often cited, potential "predictors" of early school leaving in Section 5.

4. A "photofit" of those most at risk?

Most often school-related characteristics are revealed as determinants of dropout over and above family-related, work-related and other motives (Dalton et al., 2009; Rumberger, 2004b). However, a large part of the literature is still focused on factors not related to the school, but to pupils themselves and their families. And even though many studies at least hint at the importance of both "proximal" and "distal" factors – that is: aspects related to students, their families, schools and teachers, as well as the community (from neighbourhoods to labour markets and society at large) – a considerable number of studies focus only on one or some of these types of aspects (see, e.g., Ekstrom, Goertz, Pollack, & Rock, 1986). Indeed, the majority of research on early school leaving still endeavours to pin-point personal and social characteristics of potential dropouts that may differentiate them from graduates, so as to create a kind of "photofit" of those most at risk, for whom targeted intervention measures can then be devised (Vizcain, 2005). We have explicitly chosen not to follow this strategy. Rather, this review attempts to locate and highlight aspects that unite both early school leavers and graduates alike, and that may well exert a positive influence on all parties involved.

There exist various theoretical frameworks to model school dropout. The most early frameworks are those developed by Tinto (1975), Spady (1970), Spady (1971) and Finn (1989). The latter author considers a lack of self-esteem as an important reason for student withdrawal, whereas the former authors consider the lack of an optimal match with the school as a critical reason for school dropout. Bean (1980), Bean and Metzner (1985) include the labour market as a reason for student attrition. The most cited theoretical framework, and the one adapted here – as illustrated by Table 3 – is indebted to the work of Rumberger (1983), 2001, Rumberger (2004a), which is regularly cited in the literature (e.g., Plank et al., 2005 and references therein). The typical distinction between "individual factors" (student characteristics) and "institutional factors" (family, school and community characteristics), as made by Rumberger, is however abandoned here. In our opinion, it might give the impression that the weight to be given to individual student factors equals that of all institutional factors taken together. It is a divide that could suggest, albeit involuntarily, that there are only two major lines of inquiry to follow, which seems at odds with the acknowledgement that there are numerous causes of early school leaving (Blue & Cook, 2004). With regard to the latter, Rumberger (2004a) contends that it is a near hopeless task to prove sustained causal effects of the many factors involved in early school leaving, the more so because their impact changes over time. In fact, like most scholars, he considers early school leaving to be merely the last phase of a dynamic, cumulative and multidimensional process of disengagement.

In the framework, the various observed predictors of early school leaving on the level of students, families, schools and the community are explored separately. Nevertheless, they are inextricably bound up with each other. It makes no sense to view these characteristics isolated from each other, as they interact in countless ways. Neither student attributes, nor family or school characteristics can be seen apart from society at large (Reich & Young, 1975). Attempting to disentangle their effects from each other by means of ever more sophisticated statistical modelling, may thus not only prove to be a tremendous challenge (cf. Rumberger, 2004a), perhaps it is not even always worth the effort (Smeyers, 2006).

5. Potential predictors of early school leaving

5.1. Student-related factors

One of the student-related factors that have been associated with early school leaving is academic achievement (sometimes referred to as academic ability). It is most commonly measured using cross-sectional data via standardized testing (particularly on mathematics and language), by local school tests and (exit) exams, but also by other indicators, e.g. school retention and enrolment in special education, remedial or college-preparatory tracks. To an increasing extent this is done longitudinally, in order to discern the effect of students' pathways in terms of achievement or skills (Cooper, Chavira, et al., 2005). Whether measured by exam success (e.g., Dustmann & van Soest, 2008), grade point average (e.g., Entwisle et al., 2004), test scores (e.g., Dalton et al., 2009; Ekstrom et al., 1986) or literacy and numeracy skills level (Business Council of Australia, 2002a), most scholars have found that early academic achievement in elementary and secondary school is predictive of early school leaving (Rumberger, 2004a). Entwisle et al. (2004), however, found no effect in terms of composite test-score quartiles. Allensworth (2004), Allensworth (2005), moreover, questions whether it can be shown to have a direct effect. He suggests it may also lead to less retention, and hence a lower chance of dropout. Plank et al. (2005) further found no effect of academic achievement for older subgroups of students (i.e., those past the typical grade age); for them grade retention may predict early school leaving more accurately. The latter authors additionally stress that not only early achievement, but also grade point average (and course taking) in the most recently completed term could adequately predict nongraduation. Thus, even very recent negative experiences in terms of achievement can be decisive factors.

An even stronger – if not the strongest – predictor of early school leaving, however, is grade retention, sometimes bracketed together with an accumulation of credit deficits. Many studies suggest that being past the typical age in a grade significantly increases the hazard of leaving school early (Rumberger, 2004a). According to Plank et al. (2005), Entwisle et al. (2004), Entwisle, Alexander, and Steffel-Olson (2005) being 'off-age' is a factor that overshadows most other effects, including academic ability or achievement. The last-mentioned authors furthermore add that grade retention significantly increases the likelihood of leaving school permanently, rather than just temporarily. They ascribe this effect to the fact that being retained in the strictly age-based school system is associated with the stigma of being unintelligent, having failed, and lagging behind. Other scholars, including Allensworth (2004), Allensworth (2005), agree that the strong correlation of pupils' grade level and early school leaving is entirely explained by age. In addition, they suggest that several factors "pulling" students away from school, such as teenage pregnancy and high school employment, have a higher chance of occurring the older students become. However, they draw attention to the possibility that research on teacher-initiated retention has not always been successful in accounting for possible intermediary variables, such as overall disengagement from school that could cause retention and thus dropping out. Retention by a "promotional gate" (high stakes standardized testing), they show, revealed less univocal effects; it only significantly increased the likelihood of early school leaving in those students already off-age. Nevertheless, this kind of retention seems hardly recommendable, not least because it worsens disparities between students of different gender or skin colour. While schools in practice often still consider grade retention as necessary, Blue and Cook (2004) conclude that it provides only a short-term solution at best.

Other predictors of both early school leaving and graduation are academic and professional aspirations or expectations, even if exogenous factors are taken into consideration (e.g., Rumberger, 1983). Not unrelated to this, is the influence of engagement, typically measured by school attendance or absenteeism, and (good or problematic) behaviour (Rumberger,

Table 3
Common predictors of early school leaving in the literature (references in following tables).

Dropout predictors	Observed effect	Interaction effect(s)
Student factors		
*Psychological and behaviour factors		
– Academic ability/achievement	– If higher, lower dropout risk	
– Grade retention/repetition	– If the case, higher dropout risk	
– Educational and occupational aspirations	– If higher, lower dropout risk	
– Engagement (often made operational by absenteeism and discipline problems)	– If more absenteeism and/or discipline problems, higher dropout risk	E.g., with gender, race/ethnicity, and employment opportunities
– High school employment	– If intensive, inadequate, stressful and unstable, higher dropout risk	
– Teenage pregnancy & marriage	– Mixed findings	
*Demographic factors		
– Gender	– Mixed findings	
– Race/ethnicity	– Mixed findings	
– Immigration status	– Mixed findings	
– Language background	– If native speaker, lower risk	E.g., with race/ethnicity
– Disabilities	– If the case, higher risk	E.g., with family background, perceived behaviour control, and expectations from teachers
Family factors		
*Structural characteristics		
– Socioeconomic status (parental, education and employment)	– If lower, then higher dropout risk	E.g., with parent–child relationship with income (they both matter)
– Family structure (single-parent, step- and/or large families)	– No independent effect	
*Underlying processes		
– Social capital (relationships between parents, children, other families and school)	– If more, lower dropout risk	
↔ Human/cultural capital (parental education)	– If higher, lower dropout risk, but perhaps no independent effect?	
↔ Financial capital (income, ownership)	– No independent effect	
School factors		
– School type (incl. student composition)	– If public & a-selective, higher risk	
– School resources (e.g., class-l size & teacher–pupil ratio)	– If balanced, lower dropout risk	E.g., with teaching quality and practice
– Structural characteristics of schools (e.g., school size)	– No independent effect	E.g., with school social climate
– School policies and practices	– If smaller, lower dropout risk, but perhaps no independent effect?	
*Social and academic climate (discipline policy considered fair, high attendance rates, and advanced course taking)	– If stimulating, lower dropout risk, lower dropout risk	
*Teacher & teaching quality	– If higher, lower dropout risk	
*School social capital (student–teacher relationship)	– If better, lower dropout risk	
Community factors		
– Neighbourhood characteristics	– If detrimental, higher dropout risk	
– High-achieving vs. dropped-out friends	– Lower & higher dropout risk, resp.	
– Employment opportunities		
— Job scarcity & low salaries	– If job scarcity, lower dropout risk	
— Long working hours		With gender
– Social discrimination/injustice	– If >20 working hours, higher risk	With student's SES-background
	– If the case, higher dropout risk	With race/ethnicity

2004a). Quite some scholars found that a lack of engagement in elementary and middle school predicted early withdrawal from high school. Appleton et al. (2008) has noted in particular the effect of psychological and cognitive subtypes of engagement. However, Entwisle, Alexander, and Steffel-Olson (2005) have remarked that even if engagement is a good estimator of non-graduation, it is not one as powerful as grade retention. In turn closely related to engagement, and other factors mentioned, are negative attitudes, feelings, perceptions and traits, which potentially result in problematic comportment and discipline problems. Such attributes may include: an externalized locus of control (Blue & Cook, 2004; Ekstrom et al., 1986); low motivation (Adams & Becker, 1990; Herbert & Reis, 1999); a problematic temperament, disposition, or feelings of inferiority and self-defeat (Entwisle et al., 2004); lack (versus abundance) of sensitivity and resilience to overcome problems and adversity (Herbert & Reis, 1999); psychological or behavioural problems like aggression, anxiety, and disciplinary problems, suspensions, cutting classes or trouble with the police (Ekstrom et al., 1986; Vizcain, 2005).

Apart from that, substance (ab)use is sometimes mentioned as a factor contributing to early school leaving. Fergusson and et al. (2003) found that students who used cannabis had a higher risk of school leaving, even though nothing in their prior

school history indicated that this would become the case. Prior school leaving – also termed previous withdrawal, temporary dropout or "stopout" – has furthermore been found to affect the likelihood of non-graduation. With respect to this, DesJardins, Ahlburg, et al. (2006) have noted the importance of both its occurrence and duration. In itself stopping out already has the potential to predict a higher chance of early school leaving, but in case stopouts occur repeatedly, and when the first stopout is rather lengthy, the likelihood of more stopouts and eventual dropout increases. Similarly, truancy is known to have a deleterious effect (cf. Rumberger, 1983; Olsen et al., 1987; Henry, 2007). Finally, teenage pregnancy, marriage and parenthood have been shown to result in a higher probability of leaving school before graduation (Kalmijn & Kraaykamp, 2003; Rumberger, 1983).

Even though, as mentioned above, it may not be opportune to focus too much on immutable variables, we mention some demographic or background factors often cited in the literature. With respect to gender, many studies indicate that males have a higher propensity to drop out than females. USNCES (US) suggests that, in general, (event) dropout rates have not tended to differ significantly across both sexes over the last 30–35 years (Cataldi et al., 2009; Kaufman et al., 2004). As for race and ethnicity, there seems to be much debate and considerable contradiction. Especially US and Australian studies suggest that being black, Hispanic/Latino or indigenous, rather than Caucasian, increases the likelihood that one leaves education early. On the other hand, in this context it has been suggested that being Asian/Pacific descent decreases this probability (e.g., Business Council of Australia., 2003b; Bynum & Thompson, 1983; Ekstrom et al., 1986; Ishitani & Snider, 2006). Over the past few years the gap between white and non-white youths has closed, albeit slowly and rather more among females than males (Cataldi et al., 2009; Dalton et al., 2009; Kaufman et al., 2004). However, other scholars contend that race and/or ethnicity do not have a significant effect once accounted for factors as family background and student characteristics (e.g., Balfanz & Legters, 2005; DesJardins et al., 2006; Entwisle et al., 2004; Entwisle et al., 2005; Plank, DeLuca, & Estacion, 2005; Rumberger, 1983).

Table 4
Overview of student factors.

A. Psychological and behavioural factors
1. Academic achievement and ability
   → If higher, lower dropout risk (−)
      Observed in: Rumberger (1983), Ekstrom et al. (1986), Herbert and Reis (1999), Lamb and Rumberger (1998), Ball and Lamb (2001), Teese and Walstab (2002), Vizcain (2005), Dustmann and van Soeast (2008), Entwisle et al. (2004), Dalton et al. (2009), Allensworth (2004) (2005)
      ↔ *Interaction with age:* Plank et al. (2005)
2. Academic and professional aspirations
   → If higher, lower dropout risk (−)
      Observed in: Rumberger (1983), Entwisle et al. (2004), Dustmann and van Soeast (2008)
3. (teacher-initiated) Grade retention, accumulation of credit deficits
   → If more, higher dropout risk (+)
      Observed in: Rumberger (1983), Olsen et al. (1987), Robinson (1999), Blue and Cook (2004), Kaufman et al. (2004), Plank et al. (2005), Entwisle et al. (2004) (2005), Vizcain (2005), Dalton et al. (2009), Cataldi et al. (2009)
      ↔ *Retention by standardized tests: less univocal effects* (Allensworth (2004) (2005)
4. Previous "stopout", truancy
   → If it occurs, it is repeated and/or sustained, higher dropout risk (+)
      Observed in: Rumberger (1983), Olsen et al. (1987), Adams and Becker (1990), DesJardins et al. (2006), Henry (2007), De Witte and Csillag (in press)
5. Engagement
   → If stronger, lower dropout risk (−)
      Observed in: Finn, 1989; Entwisle et al. (2005); Appleton et al. (2008)
6. Attitudes, feelings, perceptions, traits and comportment (including discipline)
   → If positive, lower dropout risk (−)
      Observed in: Ekstrom et al., 1986; Adams and Becker (1990), Herbert and Reis (1999), Blue and Cook (2004), Entwisle et al. (2004), Duchesne et al. (2005), Vizcain (2005)
7. Early pregnancy (and perhaps marriage)
   → If the case, higher dropout risk (+)
      Observed in: Rumberger (1983), Kalmijn and Kraaykamp (2003)
      ↔ *No clear effect if controlled for underlying preferences or opportunities* (Olsen & Farkas, 1989)
8. substance (cannabis) (ab)use
   → If the case, higher dropout risk (+)
      Observed in: Fergusson et al. (2003)
B. Demographic (background) factors
9. Sex/gender
   → If male, higher dropout risk (+)
      Observed in: Rumberger (1983), Bynum and Thompson (1983), Business Council of Australia (2002b), Duchesne et al. (2005, Ou and Reynolds (2006)
      ↔ *Marginal effect in the long run (e.g., further education)* (Business Council of Australia (2002b)
      ↔ *No significant effect over the past 35 years* Observed in: Kaufman et al. (2004), Cataldi et al. (2009)

Where (−) and (+) denote a negative and positive relationship with early school leaving, respectively.
'→' Indicates the main finding, while the symbol ↔ refers to alternative findings.

Among minority students, the time since their immigration may play a key role. With regard to this, contradictory findings emerge from the literature. Based on NELS:88 data, Brisboll (1999) and Vizcain (2005) have suggested that not the recently immigrated (Hispanic/Latino) pupils have a higher chance of leaving education early, but surprisingly third generation immigrants are more likely to drop out. In contrast, Blue and Cook (2004), Cataldi et al. (2009) have mentioned, on the basis of more recent data, that Hispanic/Latino students born in the US tend to have lower dropout rates than second or higher generation students. This may raise questions about the adequacy of terms like race or ethnicity. The connection with one's ethnic origins or cultural background may well fade over time, even if one continues to be labelled as belonging to a certain ethnicity. An overview of student related factors described in earlier literature is provided in Table 4.

5.2. Family-related factors

Among family-related factors, "social class" or "socioeconomic status" (SES) is the most contested one. Often it is measured by parents' (or guardians') occupational status, education and income, all of which are sometimes considered influential (e.g., Dalton et al., 2009). More frequently, only some of these factors are deemed predictive of early school leaving. Thus, for instance, parents' educational level, and the educational aspirations for their children, is mentioned by many scholars, among whom Duchesne et al. (2005), Ishitani and Snider (2006), Koball (2007). Parental employment is also believed to be an adequate estimator of the students' likelihood of leaving education before graduating (see, e.g., Marks & Fleming, 1999; and Business Council of Australia). In addition, families' "cultural index", or the extent to which they have reading material available in the household, has been argued as a more solid predictor of early school leaving across all racial and both sex groups (Rumberger, 1983).

The school dropout determinant over which most disagreement exists is family income. Several scholars stress the importance of parental income, either without clear specifications (e.g. Blue & Cook, 2004; Cataldi et al., 2009; Dorn, 1996; Ishitani & Snider, 2006; Ou & Reynolds, 2006); or only in case parents' income is below the poverty line (Orthner, Cook, et al., 2002); or when low family income is combined with structural aspects such as family disruption (Suet-Ling, 2000). Others have stated that its influence holds good only among whites (Rumberger, 1983), while others again have contended that aspects like "human capital" and parents' acquaintance and comfort with the school system are of more importance, as is the case for the factor race/ethnicity (Frank, 1990; Duchesne et al., 2005; Plank et al., 2005).

More unanimity is observed with regard to family structure; students from large families, that is with five or more siblings, prove to be disadvantaged in terms of graduation prospects (e.g. Dustmann & van Soeast, 2008; Kalmijn & Kraaykamp, 2003); children from single-parent households also seem to be more likely to dropout (Bridgeland, Dilulio, & Morison, 2006); as do children with step parents (Olsen & Farkas, 1989; Plank et al., 2005). Parental support or involvement is also known as a predictor of school dropout, irrespectively of income and ethnicity (Cooper et al., 2005). In fact, it may be the single most significant family factor scholars have agreed upon (Ishitani & Snider, 2006). Finally, the emotional climate of the parent–child relationship is an important predictor, often in interaction with other family aspects (Duchesne et al., 2005). An overview of family related factors is presented in Table 5.

5.3. School-related factors

With respect to school-related aspects, the type of school may correlate with students' educational outcomes, including eventual graduation. Grammar schools that are more selective tend to have fewer early school leavers than non-selective, secondary modern technical or vocational schools (Dustmann & van Soeast, 2008). In addition, Balfanz and Legters (2005) have asserted that if a school has more "promoting power" (that is: an overall higher percentage of pupils passing timely from one grade to the following) – perhaps evidently – dropout is less. Thus, schools that are attended by minority students tend to have low promoting power, especially majority minority schools. With regard to college leaving, it may also matter whether one has been at an independent or state (Local Education Authority) school – at least in the United Kingdom (Smith & Naylor, 2005). If students first attend a private independent school, their level of (university degree) performance tends to be lower, which could be explained by the fact that in college eventual "ability deficits" of these students are no longer compensated by higher resources available in their previous school. Similarly, students attending a public/government school, rather than a Catholic or other private high school in the US, generally have a higher chance of leaving school early (Dalton et al., 2009), as do students frequenting a "poverty school", that is: a school with a high percentage of students on free or reduced-price lunch programs (cf. Dalton et al., 2009; Okpala, Okpala, et al., 2001). As Rumberger (2004a) has argued, such effects may in part be due to schools' student composition, an aggregate of students' individual characteristics on a social level. From the literature it seems clear that a balanced student composition (contrary to the one in majority minority schools) is one to be aimed at.

Closely related with the type of schools are schools' resources, a standard most frequently defined by class size (e.g., Pittman, 1993) and the teacher–pupil ratio (e.g., Balfanz & Legters, 2005). In fact, one of the reasons why independent schools may perform better and why parents often choose independent schools, is because they have small-sized classes. As Smeyers (2006) has contended, there are a number of reasons why smaller class sizes and lower teacher–pupil ratios may have a positive effect on school achievement. For one thing, various aspects may differ between smaller and larger classes, among which teachers' educational practice (Van Klaveren & De Witte, in press). Historically, however, the latter has been shown to be resistant to change (e.g., Cuban, 1993; Depaepe & et al., 2000; Tyack & Cuban, 1995), which may explain the small

Table 5
Overview of family factors.

---

1. Family structure
   → If no biological, two-parent family, higher dropout risk (+)
      Observed in: Rumberger (1983), Olsen and Farkas (1989), Kalmijn and Kraaykamp (2003), Plank et al. (2005), Bridgeland et al. (2006), Dustmann and van Soeast (2008)
2. Family culture/social climate
   → If free from stressors, warm and supportive, lower dropout risk (−)
      Observed in: Frank (1990), Ou and Reynolds (2006), Pittman (1993), Herbert and Reis (1999), Kalmijn and Kraaykamp (2003), Duchesne et al. (2005), Cooper et al. (2005), Ishitani and Snider (2006), Bridgeland et al. (2006), Dustmann and van Soeast (2008)
3. Socioeconomic status
   → If higher, lower dropout risk (−)
      Observed in: Ekstrom et al. (1986), Lamb (1998), Ministerial Council for Employment and Training (2000), Teese and Walstab (2002), Business Council of Australia (2002a), Entwisle et al. (2005), Dalton et al. (2009)   – Parental education
      Observed in: Rumberger (1983), Olsen and Farkas (1989), Frank (1990), Business Council of Australia (2002a), Kalmijn and Kraaykamp (2003), Entwisle et al. (2004), Duchesne et al. (2005), Plank et al. (2005), Ishitani and Snider (2006), Dustmann and van Soeast (2008), Koball (2007), Dalton et al. (2009)
      ↔ No independent effect if controlled for child-parent relationship, parental support/involvement
      Observed in: Rumberger (2004a)
      – Parental employment
      Observed in: Marks and Fleming (1999), Business Council of Australia (2002a)
      – Cultural index
      Observed in: Rumberger (1983)

Where (−) and (+) denote a negative and positive relationship with early school leaving, respectively.
'→' Indicates the main finding, while the symbol ↔ refers to alternative findings.

benefits found related to a smaller class size. Other aspects may reduce the benefits of small-sized classes, such as the age of students, their well-being, teachers' workload, etc. – all measures that in Smeyers (2006) opinion may prove to be difficult, if not impossible, to objectify and investigate empirically.

Different and more structural school aspects explored perhaps to excess in the literature are school size and programme diversity. This is a topic over which there has been considerable debate. Some scholars have contended that smaller schools (counting, for instance, less than 1500 students; cf. Blue & Cook, 2004) are likely to result in lower rates of early school leaving (Pittman, 1993). In contrast, Pittman and Haughwout (1987), among others, have demonstrated what may seem self-evident, namely that the effect of school size on dropout is almost entirely related to schools' social climate, and more particularly the influence of student participation as well as the amount of problems in the school environment. In general, larger schools have greater programme or curriculum diversity, but a less positive social climate. However, Plank et al. (2005) have pleaded to move away from such general assertions; pupils' diverse skills, interests, and learning needs have to be taken into account when varying effects of school size and programme diversity emerge.

More important, perhaps, than the somewhat intractable characteristics of a school is the latter's policy and regular practice. A crucial factor seems to be schools' social and academic climate, made operational, e.g., through a general sense of cohesion, a high level of participation in school activities, smooth student-faculty interaction and the extent to which there are problems at school (Finn, 1989; Pittman & Haughwout, 1987). Also group differences in educational attainment may play a role (Ou & Reynolds, 2006), as well as academic and social integration (Pittman, 1993), and the kind of courses available (e.g., academic or college preparatory versus vocational courses) (Business Council of Australia, 2002b; Vizcain, 2005). Plank et al. (2005) have noted that with respect to course taking, there is a clear effect for younger students, but not for older ones. This may be due to the fact that pupils who made it through the earliest grades, are better situated to make it to the final grades. Be that as it may, having available appropriately challenging courses in each case appears important (Herbert & Reis, 1999), as well as having plenty of opportunities for extracurricular activities, and after-school, summer or special programs (e.g., Herbert & Reis, 1999; Pittman, 1993). Moreover, teachers' experience (Adams & Becker, 1990), expectations (Dalton et al., 2009), support (Herbert & Reis, 1999), and instruction quality (Blue & Cook, 2004) are all aspects that influence the propensity to drop out. Crucial thereby seems to be students' perceptions of teacher (and teaching) quality, rather than that of school principals (e.g., Bridgeland et al., 2006; Rumberger, 2004a).

With regard to instructional quality, Blue and Cook (2004) also stress the importance of cultural relevance and student–teacher cultural synchronization; school environments and teacher attitudes and comportments devaluing and/or negating students' cultural identity and diversity risk alienating students and creating resistance to learning, in spite of apparent talent. This issue is inextricably connected to schools' social capital, that is: the presence of caring teachers (Blue & Cook, 2004), an enjoyable school culture (Business Council of Australia, 2002a) and good student-faculty interaction (Pittman & Haughwout, 1987). A summary of school related factors described in earlier literature is presented in Table 6.

5.4. Community-related factors

As has been stressed earlier, student attributes, school characteristics and family background factors cannot be viewed apart from the broader context in which they are embedded and by which they are inevitably influenced. Neighbourhood characteristics – the geographical location of families' residence, eventual housing problems, lack of playgrounds and green

Table 6
Overview of school factors.

---

1. School type (incl. student composition)
   → If selective, independent, and with high promoting power, lower dropout risk (−)
       Observed in: Okpala et al. (2001), Balfanz and Legters (2005), Smith and Naylor (2005), Dustmann and van Soeast (2008), Dalton et al. (2009)
2. School resources
   → If a higher teacher–pupil ratio or larger class size, higher dropout risk (−)
       Observed in: Pittman (1993), Balfanz and Legters (2005), Rumberger (2004a)
   ↔ *No effect independent from, e.g., teaching practice and age of students*
       Observed in: Smeyers (2006)
3. School policies and practices
   − Social and academic climate
       → If challenging, inclusive and problem-free, lower dropout risk (−)
       Observed in: Pittman and Haughwout (1987), Finn (1989), Pittman (1993), Herbert and Reis (1999), Business Council of Australia (2002a)
       (2002b), Ou and Reynolds (2006), Vizcain (2005)
       − Teachers' experience, expectations, support, and teaching quality
       → If higher, lower dropout risk (−)
       Observed in: Finn (1989), Adams and Becker (1990), Herbert and Reis (1999), Blue and Cook (2004), Dalton et al. (2009)
       − School social capital
       → If positive, with strong cohesion, and care, lower dropout risk (−)
       Observed in: Pittman and Haughwout (1987), Finn (1989), Herbert and Reis (1999), Business Council of Australia (2002a), Blue and Cook
       (2004)

Where (−) and (+) denote a negative and positive relationship with early school leaving, respectively.
'→' Indicates the main finding, while the symbol ↔ refers to alternative findings.

areas (Rumberger, 1983; Rumberger, 2004a) – may have detrimental effects on students' school performance, either directly or indirectly. If youths live in poor and distressing environments they may be more susceptible to early school leaving (Blue & Cook, 2004). Just as "urbanicity" may to some correlate heavily to early school leaving, so could a whole region in which students live be associated with higher dropout rates. This used to be the case, for instance in the South of the US (Ekstrom et al., 1986), although the latter no longer seems to be the case (Kaufman et al., 2004).

At least equally important appears to be the presence of a network of high achieving and high aspiring peers in children's and youths' environment. This factor could exert an influence independent from other variables (Cooper et al., 2005). In addition, employment or apprenticeship opportunities could act as powerful "pull factors" stimulating students to stop out or drop out (Marks & Fleming, 1999; Olsen & Farkas, 1989; Pittman, 1993). Much depends on the type of employment in which youth engage, the intensity of the work exercised, the amount of stress associated to the job, whether or not a stable work pattern is maintained, whether one is male or female, and whether one works in order to support one's family or not (Entwisle et al., 2004; Rumberger, 2004a, 2005; Dustmann & van Soeast, 2008).

Of course, many other community factors and societal mechanisms could play a crucial role, like social discrimination and prejudice (Herbert & Reis, 1999). Such processes have caused minority groups to be "streamed" into special and vocational education tracks for ages. They may moreover still be responsible for differences in dropout and downward mobility between minority and majority students (Kalmijn & Kraaykamp, 2003). An overview of community related factors is presented in Table 7.

5.5. The complex interaction

As Smeyers (2006) has contended, within education it is perhaps not so important to observe that numerous variables are at work, of which many undoubtedly are relevant but, rather, which of these factors have a more significant influence on dropout. Not the many separate elements are likely to be relevant but precisely the complex and dynamic interactions between them (Smeyers, 2006).

For example, the interaction of ethnicity (or race) and sex, respectively, with attitudes, subjective norms (perceived expectations of teachers), perceived behaviour control, and retention seems noteworthy. Blue and Cook (2004), for instance, have found for the US that if a student is black or Hispanic and male, he is more likely to display negative attitudes towards education, perceive his teachers as having low expectations of him, and situate the locus of control over important things in his (school) life outside of himself. Thus, at least some minority students evidently risk ending up in a vicious circle.

Similarly, the interaction between parental involvement, on the one hand, and ethnicity, family income, and home environment, on the other hand, seems to be of some importance. Okpala et al. (2001) found in this respect that, although parental involvement matters a great deal, its effectiveness depends on the kind of involvement parents show, but also, and perhaps equally essential, on their ethnicity, income and home environment. In other words, cultural and structural barriers may have to be removed before parental involvement can be successful.

Likewise, employment among high school students, with or without grade retention, does not by definition result in early school leaving. It has been observed that the job market heavily interacts with students' family background. Entwisle et al., 2004; Entwisle et al., 2005 observed in particular that students from less advantaged backgrounds working after school were not more likely to drop out, contrary to their more well-off counterparts. In fact, the schoolwork of students from families

Table 7
Overview of community factors.

1. Neighbourhood characteristics
→ If more distressing, higher dropout risk (−)
Observed in: Rumberger (1983), Blue and Cook (2004), Rumberger (2004a)
2. Friends/peer networks
→ If positive influence from high-aspiring and achieving peers, lower dropout risk (−)
Observed in: Rumberger (1983), Herbert and Reis (1999), Cooper et al. (2005)
3. Employment conditions
→ If more jobs available, unstable job pattern, higher stress at work, longer working hours, and work for family support higher dropout risk (+)
Observed in: Olsen and Farkas (1989), Marks (1999), Entwisle et al. (2004), Entwisle et al. (2005)
4. Social discrimination and prejudice
→ If more, higher dropout risk (+)
Observed in: Herbert and Reis (1999)

Where (−) and (+) denote a negative and positive relationship with early school leaving, respectively.
'→' Indicates the main finding, while the symbol ↔ refers to alternative findings.

with very low incomes, did not even deteriorate when the so-called "intensity threshold" of twenty hours of work per week was surpassed. For them, and for other students from disadvantaged backgrounds, employment may help them acquire otherwise unobtainable human capital. The authors further found that among retained students, those who maintained an intensive (adult) but stable work pattern between the age of fifteen and sixteen had a lower risk of dropping out than those who took on easy (typical teenagers') jobs at the age of fifteen and more tough (adult) ones the following year.

In addition to these interactions, "intermediary" factors (that is: factors that cannot easily be situated on just one of the levels involved) could matter substantially. For instance, "cultural discontinuities" that originate from frictions or fissures between students', families', schools' and society's goals, values, perceptions, activities, styles of communication, etc. (cf. Cooper et al., 2005), may play a key role.

6. Policy strategies

Any policy decision of relevance must necessarily focus on the whole aggregate of factors at the level of students, families, schools and the broader environment. Whether one views dropping out as a problem in itself or not, there is neither a single or simple solution to be found. Yet, however many "support factors" one envisages, they will have to concern more than just students and their families (Dorn, 1996; Frank, 1990), contrary to what is still sometimes suggested (cf. WWC Intervention Report, 2006). Adequate policies will have to address both the "social" and "academic" issues associated with early school leaving. With regard to this, Rumberger (2004b) has discussed strategies of a "systemic" nature (involving programmes that try to ameliorate students' environments by supporting and/or restructuring them with the help of resources and other forms of assistance) and strategies of a more "programmatic" nature (attempting, rather, to influence students' behaviours, thoughts and feelings, values). A combination of both strategies is probably advisable, even if dropping out in itself is the sole issue targeted. As many studies have discussed policy recommendations that may be both effective and meaningful. In accordance with the framework outlined above, hereafter we will therefore zoom in on several proposed and/or tested policy measures.

6.1. Measures aimed at students

Since research indicates (most often by correlations) that grade retention is the worst culprit among all student-related risks factors with regard to early school leaving, it is of primary importance to restrict its use (Dorn, 1996; Entwisle et al., 2005; Vizcain, 2005). As Orthner and Cook (2002) have noted, the issue of grade retention versus promotion is heavily charged; it seems neither wise to delay children's entry into high school or transition to a higher grade, nor to advance them without the skills necessary to succeed in later years. The key is, they state, to identify those at risk of grade retention as soon as possible, and to provide special care for them, both within and outside school.

Similarly, Adams and Becker (1990) have recommended that teaching support be offered to first-year students, but insisted on its availability for more experienced students as well. Orthner and Cook (2002), in turn have added that purposive assistance is best arranged even before kindergarten and should moreover be complemented by extracurricular activities (involving music, dance, drama and the like) and after-school programmes. Particularly disadvantaged children and youth would benefit from the latter. Orthner and Cook (2002) argue: 'an integrated strategy with clear objectives is much more effective than a diverse strategy with multiple objectives. Children [...] need their own integrated, community-supported strategy with clear direction and mobilized in-school, after-school, and community-based resources to ensure that they arrive and leave school ready to learn and succeed' (p. 119).

Promising strategies to enhance academic achievement, even among minority students from disadvantaged backgrounds, may be found in peer and adult counselling programmes. Teachers, coaches, peers, family members, and sometimes mentors from community programmes have proved capable of motivating students to achieve and even strive for academic honours by acting as supportive role models (Herbert & Reis, 1999). Measures aimed at facilitating social attachments among all those

involved is essential, especially at key moments in pupils' school live, like the transition into high school (Blue & Cook, 2004). In addition, it appears worthwhile to devise programmes addressing students' (culturally diverse) attitudes toward and perceptions of school responsible for underachievement (Ekstrom et al., 1986; Vizcain, 2005).

Finally, there seems to be agreement among scholars that for disadvantaged students work during high school needs not to be discouraged (Ekstrom et al., 1986; Entwisle et al., 2005). Yet, at the same time there is a need for clarification of the circumstances in which work either increases or decreases students' propensity to leave school early. Entwisle et al. (2005), therefore, as a measure of precaution, have advised that students be dissuaded from taking up an adult job before the age of sixteen.

6.2. Measures aimed at families

In order to be effective, policies should not involve students alone but will have to engage students' parents (or guardians) as well (Reich & Young, 1975). Since involvement of parents in the academic achievement of their children has proved to be extremely important, parent engagement strategies seem a necessary path to follow. If well conceived, these may help parents supervise and regulate their sons' and daughters' activities, discuss with them eventual problems and promote in their children a certain degree of self-reliance (Bridgeland et al., 2006). There is some evidence that early childhood (preschool) intervention programmes have positive effects in this regard (cf. Ou & Reynolds, 2006).

Cooper et al. (2005) have stressed the importance of high and unambiguous expectations on the part of parents as well as other adults involved in students' school life, such as counsellors, teachers, school principals, etc. They have warned, however, against a paternalistic attitude, not least towards parents from low-income or minority groups.

One way to ensure that parents feel understood is to foster their supportive activities through parent discussion groups. Herbert and Reis (1999) have recommended that such groups be set up by school counsellors but run by successful parents in their homes.

More generally, policies have to be focused on optimizing families' living conditions in order to secure an inviting environment for studying and a healthy degree of student responsibility in the household (Blue & Cook, 2004; Haelermans & De Witte, 2013), and, moreover, on obtaining a safe emotional climate and parent–child relationship (Duchesne et al., 2005). Finally, welfare programmes need to offer assistance for single parents who suffer a dramatic income loss after having divorced (Suet-Ling, 2000).

6.3. Measures aimed at schools

Since the 1980s, it has increasingly been recognized that apart from personal guidance of students, also strategies have to be developed to influence schools' organization (Dorn, 1996). The literature focused on schools' environment, teacher and teaching characteristics, and schools' relation to both families and community.

With regard to the former, Swadener (1995), te Riele (2006) have stressed that the focus needs to be on establishing school environments adapted to the needs of diverse students, rather than the other way around. In a similar vein, Balfanz and Legters (2005), Bridgeland et al. (2006) have called for student outreach, especially in case of difficulty, and underlined the value of a school climate that cherishes academics and maintains high standards. Yet the school atmosphere, Blue and Cook (2004) have stressed, should at the same time be authentic and caring and defer to pupils' cultural diverse identities and home languages, while seeing the latter as strengths rather than weaknesses. Pittman and Haughwout (1987) have advised schools to remain sufficiently small (that is: not to merge into mega-schools) and to foster a positive social climate through a high degree of pupil participation, while containing problems as much as possible.

Also in view of this social climate, teaching approaches have been proposed that involve discussion and conversation, while relating the school to students' lives (Bridgeland et al., 2006; Cooper et al., 2005). Other scholars have suggested increased personalization (Balfanz & Legters, 2005; Blue & Cook, 2004; Lee & Burkam, 2003) and technological orientation (Pittman, 1993) in teaching. With respect to content, some have recommended the development of literacy and language across various courses, as well as instruction of complex thinking (Cooper et al., 2005). In general, educational programmes should be intensive and courses challenging (i.e., more academic and less remedial) in order to close eventual gaps in terms of achievement (Lee & Burkam, 2003).

Finally, in terms of teacher and trainer quality, coherent and long-term professional development strategies, guidance, care and support for teachers are advocated (Balfanz & Legters, 2005; European Commission, 2006). Some scholars plead for teachers to be allowed to concentrate their instruction activities in one or two terms, as to increase their teaching quality (Adams & Becker, 1990).

7. Discussion

7.1. Alternative credentials as an answer to school dropout

This literature review has made clear that the role of the economy, politics, and society in general is often left out of the picture. Moreover, school systems' organization and its effect on early school leaving is also still underexplored. As a Dutch

case study (Kalmijn & Kraaykamp, 2003) has suggested, its very conception may sometimes lead to unequal chances of "attrition" between majority students, on the one hand, and minority students, on the other. Rather than having "dropped out", the latter may often have been "facilitated out", in other words: driven out of the common education system by teachers' and other personnel's low aspirations and incitements to leave (cf. Vizcain, 2005).

In this case, there should be an alternative for the minimum credential. In the US, early school leavers in the past four decades have been encouraged to obtain an alternative credential – a high school equivalency – by taking a GED (General Educational Development) test, which the American Council of Education administers. Over the years, however, the number of students doing so has risen to such a point that the credential's economic value has been put into question (cf. Rumberger & Lamb, 2003). Similarly, in Australia many early school leavers, instead of returning to school at a later age, choose to attend a TAFE (Technical and Further Education) "college", which is supposed to provide an equivalent to a senior school certificate, especially given that having attended school up until year 12 has more and more become a prerequisite for entry. Another frequently chosen pathway is that of VET (Vocational Education and Training), through which early school leavers can obtain a Certificate II – a year 12 equivalent, according to the OECD. Yet also in Australia, the value of such a credential has been questioned (Business Council of Australia, 2002b).

So, while alternative diplomas have been, and continue to be, advanced as adequate, if not ideal answers to early school leaving, they do not put alternative credential holders on the same footing as high school graduates on the labour market and thus fail to solve problems early school leaver encounter there. This has also been the conclusion of Dorn (1996), who has criticized the reliance on high school credentials for adult education. In his view, 'the dynamics of credentials has fostered an artificial demand for alternative credentials that has supplanted [...] adult education' (p. 133), which seems much more important than the credentials in question. In fact, "credentialism" may one of be greatest problems with regard to dropout.

7.2. Trends and future research

Finally, some last words on current trends within the dropout literature and on viable directions for future research may not be out of place. One prominent trend in current research on early school leaving is to move away from investigating whether a certain factor increases the risk of non-graduation in students in general, and to explore instead when and in whose school careers are more likely to exert a positive or negative influence. This requires more complex, longitudinal and/or retrospective studies on dropping out as a long-term process of disengagement (Bridgeland et al., 2006). More research is also needed on ethnic differences in early school leaving (Kalmijn & Kraaykamp, 2003). While several scholars have pleaded for more experimental, evidence-based research, particularly with respect to dropout prevention/intervention programmes (e.g., Plank et al., 2005; Sinclair, Christenson, & Thurlow, 2005), others have denounced the fact that empirical research 'often plays it too safe and engenders more of the same [...], more details of what is in the end irrelevant. Instead, to make real progress, empirical research should take risks and play a more imaginative, possibly dangerous game' (Smeyers, 2006).

References

Adams, J. L., & Becker, W. E. (1990). Course withdrawals: A probit model and policy recommendations. Research in Higher Education, 31(6), 519–538.
Allensworth, E. M. (2004). Ending social promotion: Dropout rates in Chicago after implementation of the eight-grade promotion gate. Consortium on Chicago School Research.
Allensworth, E. M. (2005). Dropout rates after high-stakes testing in elementary school: A study of the contradictory effects of Chicago's efforts to end social promotion. Educational Evaluation and Policy Analysis, 27(4), 341–364.
Appleton, J. J., Christenson, S. L., et al (2008). Student engagement with school: Critical conceptual and methodological issues of the construct. Psychology in the Schools, 45(5), 369–386.
Balfanz, R., & Legters, N. (2005). Locating the dropout crisis. Which high schools produce the nation's dropouts? Where are they located? Who attends them? Center for Research on the Education of Students Placed at Risk (CRESPAR).
Ball, K., & Lamb, S. (2001). Participation and achievement in VET of non-completers of school. Report, ACER.
Bean, J. P. (1980). Dropouts and turnover: The synthesis and test of a causal model of student attrition. Research in Higher Education, 12, 155–187.
Bean, J. P., & Metzner, B. S. (1985). A conceptual model of nontraditional undergraduate student attrition. Review of Educational Research, 55(4), 485–540.
Blue, D., & Cook, J. E. (2004). High school dropouts: Can we reverse the stagnation in school graduation? Study of High School Restructuring, 1(2), 1–11.
Bridgeland, J. M., Dilulio, J. J., & Morison, K. B. (2006). The silent epidemic. Perspectives of high school dropouts. Civic Enterprises.
Business Council of Australia (2002a). Realising Australia's commitment to young people. Scope, benefits, cost, evaluation and implementation. Dusseldorp Skills Forum and Applied Economics.
Business Council of Australia (2002b). Young persons' education, training and employment outcomes with special reference to early school leavers. Dusseldorp Skills Forum and Applied Economics.
Business Council of Australia. (2003b). Overview of transition programs: Policies and programs. Retrieved 30/03/2010 from <http://www.bca.com.au/content.asp?newsID=87400>.
Bynum, J., & Thompson, W. (1983). Dropouts, stopouts and persisters: The effects of race and sex composition of college classes. College and University, 59(1), 39–48.
Cabus, S., & De Witte, K. (2011). Does school time matter? On the impact of compulsory education age on school dropout. Economics of Education Review, 30, 1384–1398.
Cabus, S., & De Witte, K. (2012). Naming and shaming in a fair way. On disentangling the influence of policy in observed outcomes. Journal of Policy Modeling, 34, 767–787.
Cataldi, E. F., Laird, J., & KewalRamani, A. (2009). High school dropout and completion rates in the United States: 2007 (NCES 2009-064). Washington, DC: National Center for Education Statistics, Institute of Education Sciences, US Department of Education. Retrieved 10/03/2010 from http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2009064.
Christenson, S. L., Sinclair, M. F., Lehr, C. A., & Hurley, C. M. (2000). Promoting successful school completion. In D. Minke & G. Bear (Eds.), Preventing school problems-promoting school success: Strategies and programs that work (pp. 377–420). Bethesda, MD: National Association of School Psychologists.

Christenson, S. L., Reschly, A. L., Appleton, J. J., Berman, S., Sprangers, D., & Varro, P. (2008). Best practices in fostering student engagement. In A. Thomas & J. Grimes (Eds.), *Best practices in school psychology* (pp. 1099–1120). Washington, DC: National Association of School Psychologists.

Cooper, C. R., Chavira, G., et al (2005). From pipelines to partnerships: A synthesis of research on how diverse families, schools, and communities support children's pathways through school. *Journal of Education for Students Placed at Risk, 10*(4), 407–432.

Cuban, L. (1993). *How teachers taught: Constancy and change in american classrooms, 1880–1990.* New York: Teachers College Press.

Dalton, B., Gennie, E., & Ingels, S. J. (2009). *Late high school dropouts: Characteristics, experiences, and changes across cohorts (NCES 2009-307).* Washington, DC: National Center for Education Statistics, Institute of Education Sciences, US Department of Education.

De Witte, K., & Csillag, M. (in press). Does anybody notice? On the impact of improved truancy reporting on school dropout. *Education Economics.*

De Witte, K., & Rogge, N. (2013). Dropout from secondary education: All's well that begins well. *European Journal of Education, 47*(4), 1–20.

De Witte, K., & Van Klaveren, C. (2012). Comparing students by a matching analysis – On early school leaving in Dutch cities. *Applied Economics, 44*(28), 3679–3690.

Depaepe, M., Dams, K., de Vroede, M., Eggermont, B., Lauwers, H., Simon, F., Vandenberghe, R., et al (2000). In *Order in progress: Everyday educational practice in primary schools, Belgium, 1880–1970. Studia paedagogica* (Vol. 29). Leuven: Leuven University Press.

DesJardins, S., Ahlburg, D. A., McCall, B., et al (2006). The effects of interrupted enrolment on graduation from college: Racial, income, and ability differences. *Economics of Education Review, 25*(6), 575–590.

Dorn, S. (1996). *Creating the dropout. An institutional and social history of school failure.* Westport, CT/London: Praeger.

Dustmann, C., & van Soest, A. (2008). Part-time work, school success and school leaving. *Empirical Economics, 32*, 277–299.

Ekstrom, R., Goertz, M. E., Pollack, J. M., & Rock, D. A. (1986). Who drops out of high school and why? Findings from a national study. *Teachers College Records, 87*(3), 356–373.

Entwisle, D. R., Alexander, K. L., & Steffel-Olson, L. (2004). Temporary as compared to permanent high school dropout. *Social Forces, 82*(3), 1181–1205.

Entwisle, D. R., Alexander, K. L., & Steffel-Olson, L. (2005). Urban teenagers work and dropout. *Youth Society, 37*(3), 3–31.

European Commission, Education and Culture (2006). *Detailed Analysis of progress towards the Lisbon Objectives in education and training: Analysis of Benchmarks and indicators?* Retrieved 10/03/2010 from <http://ec.europa.eu/education/policies/2010/doc/progressreport06annexes.pdf>.

Fendler, L. (2006). Why generalizability is not generalizable. In P. Smeyers & M. Depaepe (Eds.), *Educational research: Why 'what works' doesn't work* (pp. 51–64). Dordrecht: Springer.

Fergusson, D. M., Horwood, L. J., Beautrais, A. L., et al (2003). Cannabis and educational achievement. *Addiction, 98*(12), 1681–1692.

Finn, J. D. (1989). Withdrawing from school. *Review of Educational Research, 59*(2), 117–142.

Frank, J. R. (1990). High school dropout: A new look at family variables. *Social Work in Education, 13*(1), 34–47.

Haelermans, C. & De Witte, K. (2013). Does residential social mobility improve educational outcomes? Evidence from the Netherlands. *TIER working paper series.*

Hammack, F. M. (1986). Large school systems' dropout reports: an analysis of definitions, procedures, and findings. *Teachers College Records, 87*(3), 324–341.

Henry, K. L. (2007). Who's skipping school: Characteristics of truants in 8th and 10th grade. *Journal of School Health, 77*(1), 29–35.

Herbert, T. P., & Reis, S. M. (1999). Culturally diverse high-achieving students in an urban high school. *Urban Education, 34*(4), 428–457.

Ishitani, T. T., & Snider, K. G. (2006). Longitudinal effects of college preparation programs on college retention. *IR Applications, 9*, 1–10.

Jarjoura, G. R. (1996). The conditional effect of social class on the dropout–delinquency relationship. *Journal of Research in Crime and Delinquency, 33*(2), 232–255.

Kalmijn, M., & Kraaykamp, G. (2003). Dropout and downward mobility in the educational career: An event-history analysis of ethnic schooling differences in the Netherlands. *Educational Research and Evaluation, 9*(3), 265–287.

Kaufman, P., Alt, M. N., & Chapman, C. D. (2004). *Dropout rates in the United States: 2001 (NCES 2005-046).* Washington, DC: National Center for Education Statistics, US Department of Education.

Koball, H. (2007). Living arrangements and school dropout among minor mothers following welfare reform. *Social Science Quarterly, 88*(5), 1374–1391.

Lamb, S., & Rumberger, R. (1998). *The early work and education experiences of high school dropouts: A comparative Study of the United States and Australia.* Longitudinal Surveys of Australian Youth Research Report, ACER.

Lee, V. E., & Burkam, D. T. (2003). Dropping out of high school: The role of school organization and structure. *American Educational Research Journal, 40*(2), 353–393.

Marks, G. & Fleming, N. (1999). *Early school leaving in Australia: Findings from the 1995 Year LSAY cohort.* Research report No. 11, ACER.

Ministerial Council for Employment, Education, Training and Youth Affairs (MCEETYA) (2000). National Report on Schooling in Australia.

Okpala, C. O., Okpala, A. O., Smith, F. E., et al (2001). Parental involvement, instructional expenditures, family socioeconomic attributes, and student achievement. *The Journal of Educational Research, 95*(2), 110–115.

Olsen, R. J., & Farkas, G. (1989). Endogenous covariates in duration models and the effect of adolescent childbirth on schooling. *Journal of Human Resources, 24*(1), 39–53.

Orthner, D. K., Cook, P. G., Rose, R. A., Randolph, K., et al (2002). Welfare reform, poverty, and children's performance in school: Challenges for the school community. *Children & Schools, 24*(2), 105–121.

Ou, S.-R., & Reynolds, A. J. (2006). Early childhood intervention and educational attainment: Age 22 findings from the Chicago longitudinal study. *Journal of Education for Students Placed at Risk, 11*(2), 175–198.

Perna, L. W., Rowan-Kenyon, H., Bell, A., Thomas, S. L., & Li, C. (2008). A typology of federal and state programs designed to promote college enrolment. *Journal of Higher Education, 79*(3), 244–267.

Pittman, R. B. (1993). *The 21st century and secondary school at-risk students: What's ahead for teachers in rural America?* (Conference Proceedings).

Pittman, R., & Haughwout, P. (1987). Influence of high school size on dropout rate. *Educational Evaluation and Policy Analysis, 9*(4), 337–343.

Plank, S., DeLuca, S., & Estacion A. (2005). Dropping out of high school and the place of career and technical education: a survival analysis of surviving high school. National Research Center for Career and Technical Education, S.P.M.N. & National Dissemination Center for Career and Technical Education, C.O.H.

Reich, C., & Young, V. (1975). Patterns of dropping out. *Interchange, 6*(4), 6–15.

Robinson, L. (1999). *The effects of part-time work on school students. Longitudinal surveys of Australian youth research.* Report No. 9, ACER.

Rumberger, R. W. (1983). Dropping out of high school: The influence of race, sex, and family background. *American Educational Research Journal, 20*(2), 199–220.

Rumberger, R. W., & Lamb, S. P. (2003). The early employment and further education experiences of high school dropouts: A comparative study of the United States and Australia. *Economics of Education Review, 22*, 353–366.

Rumberger, R. W. (2004a). Why students drop out of school? In G. Orfied (Ed.), *Dropouts in America: Confronting the graduation rate crisis, Cambridge* (pp. 131–155). MA: Harvard Education Press.

Rumberger, R. W. (2004b). What can be done to reduce the dropout rate? In G. Orfied (Ed.), *Dropouts in America: Confronting the graduation rate crisis* (pp. 243–254). Cambridge, MA: Harvard Education Press.

Sinclair, M. F., Christenson, S. L., & Thurlow, L. (2005). Promoting school completion of urban secondary youth with emotional or behavioral disabilities. *Exceptional Children, 71*, 465–482.

Smeyers, P., & Depaepe, M. (2006). On the rhetoric of 'what works.' Contextualizing educational research and the picture of performativity. In P. Smeyers & M. Depaepe (Eds.), *Educational research: Why 'what works' doesn't work* (pp. 1–16). Dordrecht: Springer.

Smeyers, P. (2006). The relevance of irrelevant research: The irrelevance of relevant research. In P. Smeyers & M. Depaepe (Eds.), *Educational research: Why 'what works' doesn't work* (pp. 95–108). Dordrecht: Springer.

Smith, J., & Naylor, R. (2005). Schooling effects on subsequent university performance: Evidence for the UK university population. *Economics of Education Review, 24,* 549–562.

Smith, R. (2003). Research and revelation: What really works. In P. Smeyers & M. Depaepe (Eds.), *Beyond Empiricism: On criteria for educational research* (pp. 129–140). Leuven: Leuven University Press.

Spady, W. (1970). Dropouts from higher education: An interdisciplinary review and synthesis. *Interchange, 1,* 64–85.

Spady, W. (1971). Dropouts from higher education: Toward an empirical model. *Interchange, 2,* 38–62.

Suet-Ling, P. (2000). The effects of change in family structure and income on dropping out of middle and high school. *Journal of Family Issues, 21*(2), 147–169.

Swadener, B. B. (1995). Children and families 'at promise': Deconstructing the discourse of risk. In B. B. Swadener & S. Lubeck (Eds.), *Children and families 'at promise': Deconstructing the discourse of risk.* Albany: State University of New York.

te Riele, K. (2006). Schooling practices for marginalized students practice-with-hope. *International Journal of Inclusive Education, 10*(1), 59–74.

Teese, R., & Walstab, A. (2002). *Early leaving in Victoria: Geographical patterns, origins, and strategic issues.* Educational Outcomes Research Unit, University of Melbourne.

Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research, 45,* 89–125.

Tyack, D., & Cuban, L. (1995). *Tinkering toward Utopia. A century of public school reform.* Cambridge/London: Harvard University Press.

Van Klaveren, C., & De Witte, K. (in press). How are teachers teaching? A nonparametric approach. *Education Economics.*

Vizcain, D. C. (2005). *Investigating the hispanic/latino male dropout phenomenon: Using logistic regression and survival analysis* (Unpublished Doctoral Dissertation). Department of Educational Measurement and Research, College of Education, University of South Florida.

Willet, J. B., & Singer, J. D. (1991). From whether to when: New methods for studying student dropout and teacher attrition. *Review of Educational Research, 61*(4), 407–450.

Wilson, S. J., Tanner-Smith, E. E., Lipsey, M. W., Steinka-Fry, K., & Morrison, J. (2011). Dropout prevention and intervention programs: Effects on school completion and dropout among school-aged children and youth. *Campbell Systematic Reviews, 8.* http://dx.doi.org/10.4073/csr.2011.8.