
RAPPORT

DROPPING OUT OF SCHOOL

– a systematic and integrative research review on risk factors and interventions

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Introduction

Previous research and research reviews show that school dropouts are a widespread phenomenon around the world (Rumberger & Lim, 2008; UNICEF, 2013; Chávez Chávez, Belkin, Hornback & Adams, 1991). The failure of students to complete their studies not only means a loss for the individual himself in the form of, for example, poor opportunities and future prospects, but it also means failure for the school and a loss for society at large. Research also shows that young people who drop out of school to a greater extent become unemployed, end up outside the labour market for longer periods, have poor finances, poor physical and mental health, tend to be more vulnerable to criminality, or end up in exclusion. Altogether this not only leads to costs for the individual, but it is also associated with social costs in terms of an increased need for welfare (Owens, 2004). Thus, early school leaving is not only an educational, but also a social problem requiring a broad, interdisciplinary approach that not only takes into account the educational aspects, but also its social, health, psychological and economic consequences.

Furthermore, research and research reviews show that school dropouts are a complex and multifaceted problem, which should be seen as a process rather than as an individual event. The fact that young people choose to drop out of school is often the result of several factors and collaborative processes. Some believe that these processes often start early, why there is a need to study the dropout process from a lifetime perspective, in order to gain knowledge of the factors that gradually cause students to withdraw from school, eventually leading them to drop out (Audas & Willms, 2001). It can be about factors at school, such as lack of interest or achievements, or it can be about factors outside the school, such as early pregnancy, delinquency or being forced to work to contribute to the family economy.

Dropping out of school can be seen as the ultimate consequence of a process where the student's withdrawal from school increases and becomes more and more serious. In a review of school absenteeism and school refusal behaviour Kearney (2008) develops an understanding of the problem regarded as a continuum consisting of extended absences from school, periodic absences from school or missed classes, chronic tardiness, and intense dread about school that precipitates pleas for future nonattendance (see Figure 1).

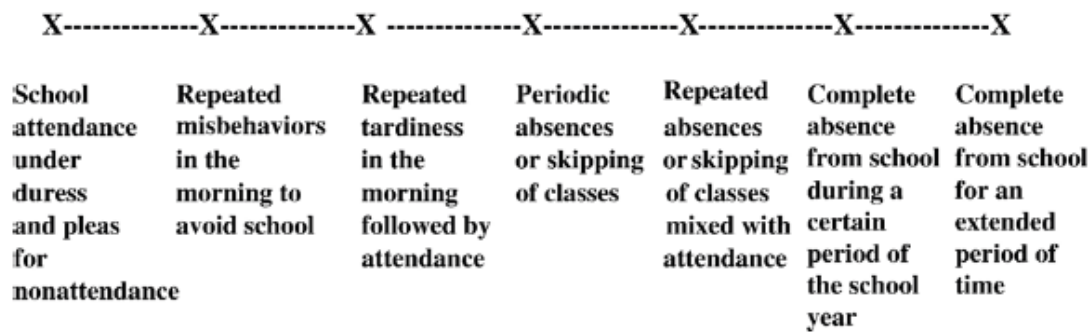


Figure 1. Continuum of school refusal behaviour in youth. Source: Kearney (2008), figure 1. p. 453.

According to Kearney (2008) a key problem is that concepts like absenteeism, truancy, school refusal, and school phobia are used interchangeably or defined inconsistently in the literature. Absenteeism refers to excusable (related to medical illness or injury) or inexcusable (related to environmental, social, psychiatric, or other conditions) absences from school. Truancy generally refers to unexcused, illegal, surreptitious absences, non-anxiety-based absenteeism, absenteeism linked to lack of parental knowledge about the behaviour, absenteeism linked to delinquency or academic problems, or absenteeism linked to social conditions. School refusal generally refers to anxiety-based absenteeism, often from separation, generalized, or social anxiety, and finally school phobia generally refers to fear-based absenteeism. Based on this school dropout can be seen as the ultimate consequence of these mental and social conditions and behaviours.

Based on this, some initiatives and programs to prevent students from dropping out of school have been developed around the world. The design of the initiatives and programs varies depending on the risk factors they are focusing on. Their content also varies with regard to various educational and non-educational efforts. In addition, some programs focus on early prevention, others on prevention and still others on addressing and following up students who have already chosen to drop out of school in order to get them complete their studies.

One reason for the different content and focus of different interventions is that the target group for the drop-out interventions is heterogeneous. Some interventions focus on individual characteristics, attitudes and behaviours, other on the school system. It may concern students with social, emotional, and behavioural concerns. These students exhibit a range of difficulties including internalizing (e.g., depression, anxiety, social withdrawal) and externalizing (e.g., acting out, non-compliance, aggression) problems. In addition to emotional and behavioural

challenges that typically impact academic performance, legal, family, and community challenges are also common among this population (Kern, Evans, Lewis, Talida, Weist & Wills, 2015). The results of intervention initiatives and programs vary. However, studies show that early efforts or interventions to prevent dropouts are cost-effective. The programs studied in an American study were estimated to provide a cost savings of between 2 and 4 dollars per invested dollar (Rumberger & Lim, 2008).

Against this background, previous research reviews in the field have either focused on the effectiveness of different interventions, on risk and protective factors for dropout, or on the content of different interventions, but they have not considered these issues on the basis of a program theoretical perspective, taking into account risk and protective factors, interventions and effects on individual, interpersonal, organisational as well as the societal level.

Aim

The aim of this integrative research review is, firstly, to map the existing research on risk and protective factors related to dropping out of school. Secondly, to identify the consequences of dropping out. Thirdly, to identify interventions available to prevent dropouts, and finally, to identify the effects of these interventions, both in terms of outcomes and cost-effectiveness. In addition, the review also aims to make a program-theoretical summary of the research in which strengths and weaknesses in the previous research are identified taking into account the individual, the interpersonal, the organisational and the societal level.

Method and search procedures

This section describes the search strategies and the databases used, the criteria for inclusion and exclusion applied, and a description of the analytical framework used to compile and analyse the research in the field.

Search strategy

The literature search on *risk factors for dropping out of school (dropouts)* and on *interventions to prevent school dropouts* were made in the databases Primo (The search service Primo contains the University Library's books, articles, journals, dissertations and open access-archives), PsycINFO (American Psychological Association), Sociology Collection (which combines content from the databases Applied Social Sciences Index and Abstracts (ASSIA) and Sociological Abstracts) and Education Collection (which combines content from the database ERIC (ProQuest and EBSCO), on August 5–12 2019. The literature search was carried out primarily on the basis of predetermined limitations on the study population: schoolchildren

(School age, 6–12 years), adolescents (13–17 years) or young adults (young adulthood, 18–29 years) who were in a school context. Only scientific articles (peer-reviewed) written in English were included. No time limit was used for when the studies were published.

Two parallel searches with the following keywords were performed in each database:

- [Dropout] AND [Secondary school] AND [Risk factors]
- [Intervention] AND [Prevent*] AND [School dropout OR Student dropouts]

The searches in *Primo* resulted in a total of 397 hits, distributed as follows:

- [Dropout] AND [Secondary school] AND [Risk factors] (153 hits)
- [Intervention] AND [Prevent*] AND [School dropout OR Student dropouts] (244 hits)

The searches in *PsycINFO* resulted in a total of 195 hits, distributed as follows:

- [Dropout] AND [Secondary school] AND [Risk factors] (90 hits)
- [Intervention] AND [Prevent*] AND [School dropout OR Student dropouts] (105 hits)

The searches in *Sociology Collection* resulted in a total of 149 hits, distributed as follows:

- [Dropout] AND [Secondary school] AND [Risk factors] (38 hits)
- [Intervention] AND [Prevent*] AND [School dropout OR Student dropouts] (111 hits)

The searches in *Education Collection* resulted in a total of 457 hits, distributed as follows:

- [Dropout] AND [Secondary school] AND [Risk factors] (125 hits)
- [Intervention] AND [Prevent*] AND [School dropout OR Student dropouts] AND [Secondary School] resulted in 1856 hits (948 hits concerned the years 2010–2019 and 332 hits concerned studies published over the years 2010–2019 conducted in North America and the EU/Western Europe).

In total, the searches on risk factors for school dropouts included 406 hits and the searches on interventions to prevent school dropouts included 2316 hits in the relevant databases. Based on the research questions of the study, all hits were first reviewed and 2249 hits were excluded. A

large number of studies were excluded because they were published before 2010 or concerned specific national or cultural conditions that were considered to be of less relevance to conditions in Sweden. Regarding the former, some of the central content of these studies is presented in systematic research reviews that are included in the final sample. Other studies were excluded because they were duplicates or because they did not concern the specific populations, the risk factors or interventions. These were, for example, studies that described school dropouts solely related to early pregnancies and marriages among girls in southern India, dropouts related to young girls and boys with HIV or AIDS in Africa (Zimbabwe), or dropouts related to the economic crisis in Indonesia during the early 2000s. The remaining 473 hits from the two searches were read in full text. After reading this sample, an additional 318 studies were excluded. In addition to a large number of duplicates that were excluded as a result of the databases giving the same hits, the other excluded hits primarily concerned things other than school dropouts, such as mental illness in general, functional variations, theoretical and conceptual questions where the question of school dropout only was peripheral, general methodological questions or clinical reports that did not contain results or other relevant information. Other excluded studies were about general interventions and preventive efforts in school or interventions addressing specific problems such as violence or bullying. The excluded studies also include studies on dropouts from university programs, professionals' experience of dropouts from all kinds of education, or about professionals' experience of dropouts without reporting or discussing results, content or effectiveness of interventions. In addition, a number of systematic literature reviews were added through searches in reference lists. In a final sample, 155 studies were judged to be relevant to the purpose and research questions of the report. The studies were either about risk factors, consequences, named interventions or programs, effects or results of interventions aimed at the population in question, or about risk factors and interventions. A summary of the selection process is presented in Figure 2.

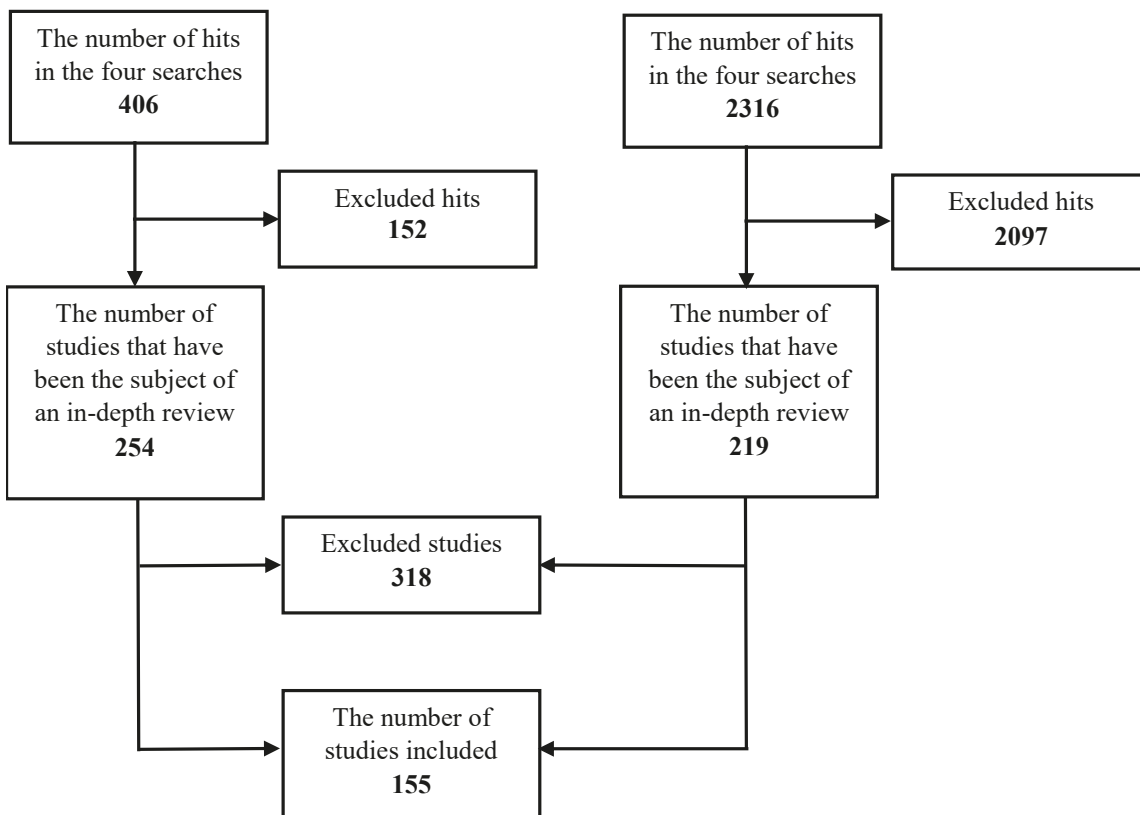


Figure 2: Flow diagram depicting the identification, screening, and inclusion of studies.

Data Extraction

A data extraction sheet was developed to assist with identifying and collecting relevant information from the 155 included studies (see Appendix 1). Information extracted included author(s), year of publication, population, methodology, focus, and findings.

The analytical framework

In addition to summarizing the previous research with regard to methodology, study population, focus and findings, an analytical framework in the form of program theory was used to clarify how risk factors at different levels or in different contexts relate to each other, what interventions research highlights as central regarding risk factors at different levels, and the purpose of the interventions.

The program theoretical approach is used to demonstrate and clarify various assumptions and theories about the problem itself (causes and regularities); how factors on, for example, the individual and organizational levels interact with interpersonal factors, as well as how different unwanted conditions and circumstances can be changed and with which strategies or interventions (Pawson & Tilly, 1997). The approach also facilitates future evaluations and effect studies of how programs and initiatives work, for whom and under what conditions. Thus, the

analytical strategy applied is not only used to highlight the virtues and knowledge gaps that exist, but also to identify what is needed to detect and address different risk factors. Some risk factors are related to the individual and their needs, behaviours or attitudes; others are related to the interpersonal interaction or context, still others are related to the school as an organizational context or to societal structural relationships. The risk factors may be dynamic and easier to treat, while others may be more static, which may require larger and more comprehensive changes. In view of the above, risk factors, interventions and the objective of the interventions will be categorized on the basis of the following analytical framework:

Level	Risk factors	Interventions	Goals/Outcomes/Effects
Societal			
Organisational			
Interpersonal			
Individual			

Figure 3: Analytical framework

This categorization is done in order to clarify which interventions are related to various risk factors and what they aim to achieve or change. The categorization also makes it possible to clarify how the interventions are intended to work and what is required to achieve the expected change.

The characteristics of at-risk students and dropouts

At-risk students or dropouts are characterized of a variety of social, emotional, and behavioural attributes. These students exhibit a range of difficulties including internalizing and externalizing problems. In addition to emotional and behavioural challenges that typically impact academic performance, legal, family, and community challenges are also common among this population (Kern, *et al.*, 2015).

Fortin, Marcotte, Potvin, Royer & Joly (2006) developed a typology based on three main contexts associated with school dropout risk – the personal, family and school contexts. Based on a cluster analysis of variables related to behaviour problems, academic results, level of family functioning, level of emotional support from parents and the classroom climate, the authors’ categorized at-risk students into four subgroups: (1) the Anti-Social Covert behaviour type, (2) the Uninterested in school type, (3) the School and Social Adjustment Difficulties type, and (4) the Depressive type. In light of their multifactorial conceptualization of school dropout risk, Fortin, *et al.* (2006) conclude the existence of several possible developmental pathways leading to potential school dropout

In a Swedish study investigating the reading and writing ability among youngsters at the Youth Centre refraining from applying to the upper secondary school or dropping out in advance Fischbein & Folkander (2000) found that students attending individual programmes at the Youth Centre had lower than average reading and writing abilities in comparison to students at the vocational programmes in upper secondary school. The whole group was characterized by low marks, immigrant background and partial school attendance. A deeper analyses of the interviews conducted with the students' revealed powerlessness as a common category for those with and without reading disabilities. The main differences between the high and low achievers regarding their experiences of school situation were that the former were positive to schooling in the beginning, experienced no difficulties and had strong parental support, but gradually started to think that school was not interesting and had problems with peer relations. They felt bored and powerless concerning their own educational situation. The low achievers, on their part, experienced problems from the beginning, had little parental support and did not think that the help they received at school was adequate. They felt powerless and without a chance in society, so that one solution might be to join destructive peer groups indulging in drug abuse and criminal behaviour. High and low achievers show certain similarities, as well as dissimilarities. They often come from single-parent families, experience low self-confidence and feel powerless concerning their own educational situation. At the same time as high achievers feel bored at school, enjoy reading but occasionally have problematic peer relations, feel different and out of place, low achievers, on their hand, feel depreciated within the society, avoid reading and seem to run a higher risk of engaging in criminal activities.

In a study of Bowers & Sprott (2012) different types of dropouts was revealed; the quiet, the jaded and the involved. The quiet dropouts' left school more often because they did not like school, they thought they couldn't complete courses or pass tests to graduate, and they had missed too many school days. Overall, the quiet subgroup indicated that they got along with teachers and students at nearly the same rates as the involved group and similarly felt that they belonged. The jaded students reported that they left school more often because they could not get along with teachers, students, or both, did not feel that they belonged there, were getting poor grades or failing school, could not complete courses or pass tests, believed that it would be easier to get a GED, and missed too many school days. The involved dropouts, in contrast, reported some of the lowest responses for why they dropped out, from disliking school to getting low grades and missing too many school days. However, the involved students reported at similar levels to those of the jaded students that they left school because they were suspended

or expelled. This demonstrate that the involved type is typified by high levels of engagement with school; they are not disaffected by school, and get comparably higher grades and test scores, but do get in trouble more often. Based on this, Bowers & Sprott (2012) concludes that quiet students may need more academic tutoring and connections to school to help increase their grades and decrease their absences and course failures, but jaded students may need positive ways to connect with school to counteract their negative views of schooling. Involved students may need flexible schedules and alternative routes to graduation. Later in this paper I will discuss the previous research on students perceptions, experiences and own voices of regarding dropping out and on resiliency. In the following I will describe and discuss risk factors on different levels based on the analytical model outlined earlier, starting at the individual level.

Risk and protective factors for dropout

Research on risk factors and consequences is largely characterized by empirically oriented quantitative cross-sectional studies based on community samples or register studies (c.f. Markussen, Froseth & Sandberg, 2011; Suh & Suh, 2011; Winding, Nohr, Labriola, Biering & Andersen, 2013; Winding & Andersen, 2015; Boyes, Berg & Cluver, 2017; Hetlevik, Bøe, & Hysing, 2018).

In recent years, longitudinal studies have become more common. These studies are primarily based on longitudinal panel data or longitudinal registry-based cohort data (c.f. Temple, Reynolds & Miedel, 2000; Van Dorn, Bowen & Blau, 2006; Plank, Deluca & Estacion, 2008; Ream & Rumberger, 2008; Na, 2017; Weybright, Caldwell, Xie, Wegner & Smith, 2017; Wood, Kiperman, Esch, Leroux & Truscott, 2017; Mikkonen, Moustgaard, Remes & Martikainen, 2018).

The proportion of qualitative studies is relatively limited. These studies is mainly based on semi-structured interviews or ethnographic narrative interviews with students, parents, school staff and other professionals, concerning experiences of specific interventions (Ziomek-Daigle, 2010; Iachini, Rogelberg, Terry & Lutz, 2016), perceived causes of dropping out (Meyers & Houssemand, 2011; Baker, 2012; Polat, 2014), the perspective of students' own reflections on dropout (Tanggaard, 2013), why some high risk students persevered and graduated while others ended up dropping out of school (Lessard, Butler-Kisber, Fortin. & Marcotte, 2014; Jóhannesson & Bjarnadóttir, 2016), to investigate and identify key school factors related to dropout (Simić & Krstić, 2017), or concerning teachers' and principals' experiences and views regarding dropout (Ottosen, Goll & Sørlie, 2017).

Only a few studies used mixed methods analysis by combining quantitative and qualitative data in order to examine the processes leading some students to drop out (Bunting & Moshuus, 2016), individuals' reasons of drop out (c.f. Mcdermott, Donlan & Zaff, 2018), or to test the effectiveness of dropout prevention interventions (c.f. Gonzales, Dumka, Deardorff, Carter & McCray, 2004; Balenzano, Moro & Cassibba, 2019).

Previous reviews and syntheses of research and the literature have focused on identifying factors that put students at risk for dropping out of school (c.f. Esch, Bocquet, Pull, Couffignal, Lehnert, Graas, Fond-Harmant & Anseau, 2014; Dupere, Leventhal, Dion, Croscoe, Archambault & Janosz, 2015), non-school correlates of dropout (Rosenthal, 1998), malleable/protective factors that predict graduation (Zaff, Donlan, Gunning, Anderson, Mcdermott, Sedaca, 2017),

evidence on effectiveness of interventions (Liabo, Gray & Mulcahy, 2013), focusing on absence prevention and school attendance (Ekstrand, 2015), or on interventions and efforts to prevent school dropout (Charmaraman, Hall, Lafontan & Orcena, 2011; Freeman & Simonsen, 2015).

There is a well-established literature on factors associated with dropping out. Researchers have examined the relationships between dropping out and different risk factors related to demographic characteristics and family background, school performance, personal or psychological characteristics, adult responsibilities, school or neighbourhood characteristics. Researchers have been in agreement on the factors related to dropping out even though their studies employed different data sources, covered different time periods, and differed in the extent to which they controlled for other factors in measuring these relationships. Although most studies involving risk factors for dropout show similar results, there are researchers who believe that the factors that determine, or contribute to, this phenomenon are still not clear (e.g. Ripamonti, 2018).

Risk and protective factors at the individual level

Research on risk factors related to the individual level is characterised by a focus on a variety of characteristics, such as demographic factors, cognitive and non-cognitive skills, scholastic performance, health conditions, substance abuse, and learning disabilities. While much research shows similar results, there are studies that show conflicting results.

Studies focusing on risk factors associated with demographic characteristics, such as gender, age and ethnicity shows variations both in terms of conceptualizing the risk factors and in terms of results. Regarding gender, some studies show a higher dropout rate among male compared to female students (Kim, Chang, Singh & Allen, 2015) while other studies did not find any gender differences (Boyes, *et al.*, 2017). In some studies gender is used as a control variable when studying associations between other variables and dropout (see, for example Blondal & Adalbjarnardottir, 2009; Garvik, Idsoe & Bru, 2014), in some other gender is conceptualised as an explaining attribute in relation to specific risk factors associated with dropout (see, for example Lessard, Fortin, Joly & Royer, 2005; Greenwood, 2008; Behnke, Gonzalez & Cox, 2010). Thus, gender, as a risk factor for dropout can be conceptualised and used in different ways. In their multivariate statistical analysis on gender disparities Tomás, Solís & Torres (2012) found some differences between female and male students regarding school dropout by gender. For females the academic performance, father's nationality and mother's educational level are the most determining factors in their education demand decisions. For males, father's occupation and labour market conditions are the most significant influences. In the literature

review of Lessard, *et al.*, (2005) on the place given to gender within studies focusing on risk factors associated with school dropout, the results indicate that girls and boys are at risk from different factors. For girls the factors contributing to increasing the odds of dropping out include internalized behaviour problems, parental mental disorders and specific parenting practices. Factors placing boys at risk include externalized behaviour problems, low school performance, adverse family context and parenting practices.

When it comes to age, previous research show that it may be an important factor from a developmental perspective. For example, students' previous experiences and achievements can influence the risk of future dropouts. In Markussen, Froseth & Sandberg's (2011) study on factors predicting early school leaving, non-completion, and completion in upper secondary education in Norway they identified earlier school performance as the far most predictive variable, i.e. that negative experiences in early school age increase the risk of dropout in older age. In Franklin and Trouard's (2016) study examining the effectiveness of dropout predictors across time, using two state-level high school graduation panels they found that age and poverty proved to be the most effective at discriminating between dropouts and graduates within each panel. Age became more effective with time. In their prospective study Winding, *et al.* (2013) show among other things that low grades when completing compulsory school predicted not having completed a secondary education by age 20/21 (odds ratios (OR) between 1.7 and 2.5). Low sense of coherence in childhood was associated with dropping out from a vocational education (OR 2.0). Low general health status was associated with dropping out (OR 2.2) or never attaining a secondary education (OR 2.7) and overweight was associated with never attaining a secondary education (OR 3.5). The results indicate that factors related to the individual in terms of low school performance, low health status, and high vulnerability predict future success in the educational system. Being 'off age' is an important factor that overshadows most other effects (Entwisle, Alexander & Steffel-Olson, 2005), especially when it comes to grade retention (Entwisle, Alexander & Steffel-Olson, 2004). Grade retention significantly increases the likelihood of leaving school permanently, rather than just temporarily. According to the authors, this is related 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.

Ethnicity is considered a risk factor in several studies. However, there is no consensus on how ethnicity should be understood. Some studies considers ethnicity as a moderating or confounding indicator of social class or social inequality (see, for example Van Dorn, *et al.*, 2006; De Witte & Rogge, 2013; Jugovic & Doolan, 2013; Trieu & Jayakody, 2018), others considers

ethnicity/race as an individual (Wood, *et al.*, 2017; Robinson, Jagers, Rhodes, Blackmon & Church, 2017), a school (Traag & Van Der Velden, 2011) or a cultural, group or linguistic characteristic (Baysu & Phalet, 2012). The results also show great variation regarding the importance of ethnicity. In Van Dorn, *et al.* (2006) study examining the impact of neighbourhood diversity and consolidated inequality, in addition to individual, family, and school factors, on the likelihood of dropping out of high school, they hypothesized that racially and ethnically diverse zip code areas would be associated with a decreased likelihood of dropping out of school. However, based on their data they found that the opposite was true. The authors conclude that one of their most interesting findings relate to the impact of race and ethnicity when controlling for other factors. African American students were less likely than White students to drop out of school. Therefore, controlling for individual, family, school, and neighbourhood characteristics not only eliminated the race effect for African American students but in fact it reversed that effect. The study of Kim, *et al.*, (2015) shows opposite results. The results showed, among other things, significantly higher dropout risks for students in the Black, Hispanic, and Hispanic English language learner groups than for students in the White group.

The role of cognitive skills in relation to dropout has been widely investigated. Among studies focusing on risk factors associated with cognitive and non-cognitive skills, motivation (seems to be an important predictors for dropout. Motivation (or the absence thereof) figures strongly among the non-cognitive components, where lower levels of motivation are related to less effort to attain school goals and higher predisposition to dropout (Cabus and De Witte, 2015). Students showing less interest in school activities, and so investing less both in behavioural and emotional terms, are more likely to dropout. Traag & Van Der Velden's (2011) study on early school-leaving in lower secondary education in the Netherlands show that one important mechanism driving early school-leaving is related to individual abilities and preferences. The student's cognitive abilities and school performance affect the cost of further investment in schooling while the student's motivation will affect the willingness to make such investments.

The importance of motivation is also emphasized by Hodis, Meyer, Luanna, McClure, Weir & Walkey's (2011) empirical findings where negative motivation patterns were predictive for future underachievement and the risk of future dropouts. According to Hodis *et al.* (2011) these findings provide empirical support for the use of a simple motivation measure that can enhance identification of risk for school failure and inform interventions for different risk patterns. The importance of motivational factors is also shown in studies on interventions (see, for example Plank, *et al.*, 2008; Andersen, Nissen & Poulsen, 2016), as well as in studies that emphasizes

the importance of motivation when it comes to, for example, dealing with other risk behaviours (Weybright, *et al.*, 2017). Thus, motivational factors is also related to other factors related to students' possibilities to perform in school, such as school engagement, or physical and psychosocial health conditions, such as disabilities and depressive symptoms. This is also supported by research showing that disengagement, increasing behavioural problem, learning disabilities, low school performance, absenteeism, and retention, are significant predictive risk indicators of school dropout (Gleason & Dynarski, 2002; Entwisle, *et al.*, 2004; Pyle & Wexler, 2012; Doren, Murray & Gau, 2014). In Wang & Fredricks' (2014) longitudinal study on school engagement, youth problem behaviour and school dropout they not only found that young people who had decreased behavioural and emotional involvement in school tended to have increased crime and drug use over time. They also found that there were bidirectional associations between behavioural and emotional engagement in school and youth problem behaviours over time and that this predicted a greater likelihood of dropping out of school. However, Entwisle, *et al.* (2005) found that even if engagement is a good estimator of non-graduation, it is not one as powerful as grade retention.

In a systematic review of the bidirectional association between mental health and secondary school dropout with a particular focus on mediating factors Esch, *et al.* (2014) found that mood and anxiety disorders seemed to have a less consequential direct effect on early school leaving than substance use and disruptive behaviour disorders. The association between externalizing disorders and educational attainment was even stronger when the disorder occurred early in life. Esch, *et al.* (2014) also found that internalizing disorders were reported to develop as a consequence of school dropout. Socio-economic background, academic achievement and family support were identified as significant mediating factors of the association between mental disorders and subsequent educational attainment. Their findings suggested a strong association between mental health and education, in both directions.

The fact that different risk factors on the individual level are related to each other is also shown when it comes to how depressive symptoms is related to school engagement (see, for example Garvik *et al.*, 2014), or how depression increase the likelihood of school dropout (Quiroga, Janosz, Lyons & Morin, 2012). Quiroga, *et al.* (2012) found, among other things that depression in seventh grade increased the likelihood of school dropout by 2.75 times, and that experiences of depression at the beginning of secondary school could interfere with school perseverance particularly for students who experienced early academic failure. However, in Brière, Pascal, Dupéré, Castellanos-Ryan, Allard, Yale-Soulière & Janosz's (2017) study examining whether

depressive and anxious symptoms at secondary school entry predict school non-completion the results show that depressive symptoms did not predict school non-completion after adjustment, but moderation analyses revealed an association in students with elevated academic functioning. Brière, *et al.* (2017) conclude that the associations between internalising symptoms and school non-completion are modest and that common school-based interventions targeting internalising symptoms are unlikely to have a major impact on school non-completion.

The associations between different risk factors on the individual level is also shown in studies on how students with Attention deficit and hyperactivity disorder (ADHD) has a higher probability of experiencing school failure (Fried, Petty, Faraone, Hyder, Day & Biederman, 2016), or how different health dimensions increase the risk of school dropout (De Ridder, Pape, Johnsen, Holmen, Westin & Bjørngaard, 2013). Fried, *et al.* (2016) found that for students with ADHD were significantly more likely to have repeated a grade or failed to complete high school compared with participants without ADHD, even after adjusting for social class, IQ, and learning disability. These findings confirmed the study hypothesis that ADHD was an independent significant risk factor for grade retention and early educational termination, stressing that early identification and early intervention of this disorder are critical to averting these harmful outcomes.

When estimating the risks of school dropout in adolescents De Ridder, *et al.* (2013) found that all health dimensions studied (chronic somatic disease, somatic symptoms, psychological distress, concentration difficulties, insomnia and overweight) were strongly associated with high school dropout. In models adjusted for parental socioeconomic status, the risk differences of school dropout according to health exposures varied between 3.6% (95% CI 1.7 to 5.5) for having ≥ 1 somatic disease versus none and 11.7% (6.3 to 17.0) for being obese versus normal weight. In their estimation of the risks of dropout across various physical and mental health conditions using registry-based cohort data from Finland, Mikkonen, *et al.* (2018) found that children with any health condition requiring inpatient or outpatient care at ages 10-16 years were more likely to be dropouts at ages 17 years (risk ratio 1.71, 95% CI 1.61–1.81) and 21 years (1.46, 1.37–1.54) following adjustment for individual and family sociodemographic factors. A total of 30% of school dropout was attributable to health conditions at age 17 years and 21% at age 21 years. Mental disorders alone had an attributable fraction of 11% at age 21 years, compared with 5% for both somatic conditions and injuries. Adjusting for the presence of mental disorders reduced the effects of somatic conditions. Mikkonen, *et al.* (2012) conclude

that more than one fifth of educational dropout is attributable to childhood health conditions and that early-onset mental disorders emerge as key targets in reducing dropout.

Risk and protective factors at the interpersonal level

Research on risk factors related to the interpersonal level is characterised by a focus on risk factors related to interpersonal relationships, such as peer relations, family relations, and teacher-student relations. These factors can constitute risk factors while also being protective factors depending on the manner and form in which they manifest themselves.

The role of peer relations when it comes to school dropout has been extensively investigated in previous research (see, for example Doren, *et al.*, 2014; Frostad, Pijl & Mjaavatn, 2015; Zaff, *et al.*, 2017; Mcdermott, *et al.*, 2018). Ream & Rumberger (2008) found that the characteristics of friends and of friendship networks is important risk factors in determining dropout. In contrast to the tendency of academically disengaged students to develop street-oriented friendships, students who are involved in school tend to befriend others who also make schooling a priority. Thus, at the same time as academically disengaged students tend to develop friendships that constitutes a risk factor for dropout, school-oriented friendship networks have the potential to prevent dropout (c.f. Vitaro, Larocque, Janosz & Tremblay, 2001; Baysu & Phalet, 2012). This is related to the norms that peers set for each other. According to Zaff, *et al.* (2017) the norms that peers set for each other around educational attainment also influence a young person's chances of staying in and graduating from high school.

Peer conflicts and peer rejection (e.g., exclusion from one's peer group) (French & Conrad, 2001; Dupéré, Goulet, Archambault, Dion, Leventhal & Crosnoe, 2019), experiences of bullying and teasing (Mcdermott, *et al.*, 2018; Trieu & Jayakody, 2018) has also been identified as important risk factors of dropout related to peer relations. This is also related to the absence of peer relations, in terms of loneliness in the school context, which has proved to be a strong predictor of intentions to leave school (Frostad, *et al.*, 2014). Finally, Havik, Bru & Ertesvåg (2015b) found a direct association of teachers' classroom management with school refusal-related and truancy-related reasons among secondary school students, suggesting that perceived poor support from teachers could increase the risk of school refusal and truancy. Based on this the authors argues for the importance of efforts to prevent bullying as a measure to reduce school refusal.

Positive relations with friends, on the other hand, may play a protective or preventive role for dropout (Lagana, 2004). For example, effective support from in-school peers can prevent

student from school dropout and promote educational success (Trieu & Jayakody, 2018). This is also evident in the case of students participating in extra-curricular activities together with other peers, where the relations can be a protective factor (Wood, *et al.*, 2017; Vinas-Forcade, Mels, Valcke & Derluyn, 2019).

The importance of family relations when it comes to school dropout has also been extensively investigated in previous research. Risk factors related to family relations can both be understood in relational terms, i.e. the relations between parents and children, and in terms of contextual factors including certain resources. Trieu & Jayakody's (2018) study provided supporting evidence for a positive attitude toward schooling and effective support from their parents, relatives, school and in-school peers can prevent from school dropout and promote educational success for ethnic minority student. According to Zaff *et al.* (2017) parents play an important role in the educational outcomes of their children. Their findings show that parents' involvement in their adolescent children's education and the closeness of the relationships between parents and adolescent children predict whether young people stay in or graduate from high school. This is also supported in other studies (c.f. Martínez-González, Symeou, Álvarez-Blanco, Roussounidou, Iglesias-Muñiz & Cao-Fernández, 2008; Cemalcilar & Göksen, 2014; Simpkins, Price & Garcia, 2015; Browne, 2018). Martínez-González, *et al.* (2008) show that it is important that families of teenagers at risk of dropping out that have an encouraging attitude towards their teenagers to prevent them to dropout. The results of Blondal & Adalbjarnardottir's (2009) study on adolescents' perceptions of parenting style and parental involvement show that adolescents who characterized their parents as authoritative (showing acceptance and supervision) were more likely to have completed upper secondary school than adolescents from non-authoritative families. Parenting style seems to more strongly predict school dropout than parental involvement. Even after controlling for previous academic achievement, adolescents from authoritative families were less likely to drop out than adolescents from authoritarian and neglectful families.

Research also shows that other relational family factors are important. In Lessard, *et al.* (2005) the results show, among other things, that parental mental disorders and specific parenting practices increased the odds of dropping out for girls, and that adverse family context and parenting practices increased the odds of dropping out for boys.

As a context the family include resources, such as different forms of family capital (economic, human and cultural) (Traag & van der Velden, 2011), or a norm system (Zaff, *et al.*, 2017) that may affect the chances of early school-leaving. In a cross country comparison Lundetræ (2011)

found that parents' educational level was a significant predictor of early school leaving in both countries, but explained significantly more of the variance in USA than in Norway. Mothers' educational level predicted early school leaving in USA also when accounting for youth's basic skills, but this was not the case in Norway.

Teachers play a fundamental role in the school system. The quality of teachers' relationship to students can constitute a risk factor as well as a protective factor for dropouts. The relational climate in the classroom, and the attitudes of the teacher or of the student toward teachers may also constitute risk factors as well as protective factors for dropouts.

The importance of the teacher-student relationship cannot be underestimated. The results of Simić & Krstić's (2017) qualitative study on school factors related to dropout show that low quality (individualisation) of teaching, lack of learning and emotional support and lack of positive teacher-student relationships proved to have the greatest influence on student dropout. In their prospective study from Denmark investigating the effect of social relations on the association between parental socioeconomic position and school dropout, Winding & Andersen (2015) found that poor relations with teachers and classmates at age 18 explained a substantial part of the association between income and dropout among both girls and boys. In their systematic review Zaff, *et al.* (2017) found that social connections in schools and peer groups have the potential to build the individual protective factors that predict graduation and continued enrolment. Specifically, the youth-teacher relationship shows consistent, direct predictive effects on graduation and continued enrolment. These relationships could either be more intensive, mentoring-like relationships or more informal but substantive relationships that a teacher nurtures with a student. This is also underpinned by Vinas-Forcade, *et al.*'s (2019) study of dropout prevention summer school programs where the results point at the importance of shaping positive pre-entry expectations of at-risk students. The importance of making the classroom climate more positive and less punitive in order to prevent dropout is also stressed by Mayer, Mitchell, Clementi, Clement-Robertson, Myatt & Bullara (1993). In their study they found that the classroom environment became more positive, more students were doing their assignments, dropouts and suspensions decreased as a result of the changing classroom climate. Classroom engagement can constitute a protective factor if it help students in the identification with academics and to reach their academic potential (Thompson & Gregory, 2011). Cemalcilar & Göksen (2014) shows that school-related social capital, as measured by quality of in-school

teacher-student interactions as well as parental involvement in school, significantly and positively contributes to adolescents' likelihood of staying in school even in the presence of severe social inequalities.

The study of Wahlgren & Mariager-Anderson (2017) also indicates that the educational culture and the teachers' attitudes are important in reducing drop-out rates. Erktin, Okcabol & Ural (2010) identified five factors of school-related attitudes of students associated with increased likelihood of dropout, including attitudes toward learning; toward teachers; toward school and school facilities; and students' perceptions of parent-school relationships.

Research also show that teachers' skills, for coping with children who misbehave (Schiff & BarGil, 2004) or in supporting students to stay in school (Baysu & Phalet, 2012) are important. According to Holen, Waaktaar & Sagatun (2018) is the teacher-student relationship a potential mechanism to reduce the negative associations between mental health problems and later non completion. However, their results show that students with mental health problems seems to experience less supportive teachers, which suggests that interventions targeting teacher-student relationships may be required.

Risk and protective factors at the organisational level

Research on school-related risk and protective factors mainly focuses on factors relating to school characteristics, the school as an organisation, the school climate or the school culture, the collaboration of professionals working in schools (such as teacher, counsellors, etc.).

When examining the relationship between school characteristics (in terms of climate, student composition, and structure) and the likelihood that a student will drop out and how structural and compositional characteristics of schools influence school climate and dropping out of school, Kotok, Ikoma & Bodovski (2016) revealed a complexity of how various aspects of school climate affect each other and interact with school compositional and structural factors. Attending a high school with better disciplinary order and stronger school attachment for the students was associated with a decreased likelihood of dropping out, above and beyond individual characteristics. Their analyses indicates a path between disciplinary order, academic climate, and higher school attachment. Thus, as schools become more orderly, teachers hold higher academic standards and expectations, which translate to higher school attachment, and higher school attachment lowers the likelihood that students drop out. Kotok, *et al.* (2016) found some mixed evidence on the importance of school size and school type. Smaller, more intimate public high schools may facilitate higher graduation rates, but only if these schools use their

smaller size as a means to create safer schools with higher attachment for students and teachers. Smaller school size in itself does not translate to higher attainment, but our findings suggest a link between smaller high schools and more disciplinary order that in turn provide critical safe spaces for students to learn. Wahlgren & Mariager-Anderson (2017) also indicates the importance of educational culture in reducing drop-out rates. The findings from Baker's (2012) qualitative study suggests that although the school as an institution is not responsible or accountable for the family factors that contribute to students' decisions to drop out, the lack of support systems constitute a risk factor for dropout. This suggests that schools can provide systems of support to assist students in overcoming the causes outside of the school walls that contribute to their decision to leave. These findings is in line with Robertson, Smith & Rinka's (2016) results that interventions that showed positive impact included improvements in academic support, school/classroom climate, and transition from middle to high school. Derivois, Guillier-Pasut, Karray, Cénat, Brolles & Matsuhara (2015) argue that collaborative efforts between all actors working in or together with schools are necessary in order to prevent school dropout and to provide intervention as early as possible.

There is evidence that school composition factors have an effect on early school-leaving. The results from Traag & van der Velden (2011) clearly show that schools differ systematically in early school-leaving: schools with high proportions of ethnic minorities show higher dropout rates, while schools that offer higher tracks show lower dropout rates in the low track than schools that only offer the low track. Wood, *et al.* (2017) used an ecological perspective to concurrently explore student- and school-level predictors associated with dropout for the purpose of better understanding how to prevent it. Their results indicate that academic achievement, retention, sex, family socioeconomic status (SES), and extracurricular involvement are significant student-level predictors, and that school SES and school size are significant school-level predictors.

Risk and protective factors at the societal level

Research on school dropout that includes risk and protective factors at the societal level mainly discusses the problem in terms of structural inequality or social exclusion. This includes risk factors such as socioeconomic status, poverty, and migration. However, some studies focus on the importance of legislation, educational or policy reforms.

The level of poverty measured at community level is a key variable in understanding the mechanism of social exclusion, and the importance for students dropping out of school. When examining the effectiveness of dropout predictors across time by using two state-level high

school graduation panels, Franklin & Trouard (2016) found that age and poverty proved to be the most effective at discriminating between dropouts and graduates within each panel. Boyes, *et al.* (2017) examined prospective associations between poverty, gender, and school dropout in a large community sample of South African adolescents. Their results show, as predicted, that higher poverty scores (AOR = 2.01, $p < .001$) were associated with increased odds of school dropout 1 year later. Some studies show that the relationship between poverty (socioeconomic status) and dropout is mediated by other factors, such as familial or personal factors (Suh & Suh, 2011), female gender, and rural location (Wils, Sheehan & Shi, 2019), cultural family background, ethnic minority and migration status (Jugovic & Doolan, 2013), and students' academic achievement (Wood, *et al.*, 2017).

The results from Anisef, Brown, Phythian, Sweet & Walters' (2010) study on early school leaving among immigrants in Toronto show that, the decision to leave school early has been is strongly influenced by socioeconomic status as well as such factors as country of origin, age at arrival, generational status, family structure, and academic performance. Trieu & Jayakody (2018) found that poverty, low educated parents, low parental engagement in child's education, school distance, being bullied, teased, and induced to dropout were challenges to ethnic minority's upper secondary school (c.f. Entwisle, *et al.* 2005). The results from Archambault, Janosz, Dupéré, Brault & McAndrew's (2017) assessment of the differences between first-, second-, and third-generation-plus students in terms of the individual, social, and family factors associated with school dropout show that first- and second-generation students faced more economic adversity than third-generation-plus students and that they differed from each other and with their native peers in terms of individual, social, and family risk factors. Ethnic minorities or children of immigrants tend to have a higher probability of dropping out of education than the majority in general (Van Dorn, *et al.*, 2006) or during the transition to upper secondary school (Kilpi-Jakonen, 2011). Summing up, poverty or socioeconomic status predict school dropout, together with other risk factors, such as ethnicity, migration status, and along different paths and with differing mechanisms at other levels.

The importance of legislation, educational or policy reforms may also affect dropouts. In their qualitative study of teachers' and principals' experiences and views regarding the dropout rate in Norwegian upper-secondary education Ottosen, *et al.* (2017) found that the teacher-student relationships over years had become more complicated since the implementation of a new educational reform, making the syllabus increasingly theoretical and thus reducing the practical value for many students. Societal changes were identified as possible factors underlying the

high dropout rate. The importance of policy reforms is supported by the results of Ream & Rumberger (2008) showing that support policies that combine targeted educational and social reforms can facilitate school completion among minority groups. However, the effect of a reform may not always be the intended one. When exploiting a compulsory education policy reform in the Netherlands, Cabus & De Witte (2011) found that the one year increase in compulsory school-age reduces dropout by 2.5 percentage points. The effect, however, was entirely situated in the group non-liable to the policy reform. Native Dutch vocational students, mostly without retention in grade, but also without a higher secondary diploma at hand, more often left school in the immediate period before the policy reform. Cabus & De Witte (2011) points out that one possible explanation for the result may be associated with labour market opportunities, i.e. other societal conditions.

Concluding remarks

Despite the fact that the overwhelming majority of the studies focus on different risk factors, there are studies that adopt a more critical or salutogenic approach. In their study of the effectiveness of widely used risk factors for identifying potential dropouts Gleason & Dynarski (2002) found that most risk factors were not effective predictors of dropping out, and that dropout prevention programs often serve students who would not have dropped out and do not serve students who did drop out.

Even though an overwhelming majority of the studies focus on risk factors for dropout, some studies focus on factors that promote students to graduate or to complete their school studies (see e.g. Kim, *et al.*, 2015; Zaff, *et al.*, 2017; Trieu & Jayakody, 2018). Zaff, *et al.* (2017) emphasizes the role of parents in the educational outcomes of their children. Their findings show that parents' involvement in their adolescent children's education and the closeness of the relationships between parents and adolescent children predict whether young people stay in or graduate from high school. This is also supported by Cemalcilar & Göksen (2014) who mean that the quality of in-school teacher-student interactions as well as parental involvement in school, significantly and positively contributes to adolescents' likelihood of staying in school even in the presence of severe social inequalities (cf. Simpkins, *et al.*, 2015). The involvement of adults extends beyond the family. Social connections in schools and peer groups have the potential to build the individual promotive or protective factors that predict graduation and continued enrolment. The relationship between the youth and the teacher shows consistent, direct predictive effects on graduation and continued enrolment. These relationships can either be more intensive, mentoring-like relationships or more informal but substantive relationships

that a teacher nurtures with a student. This can, for example, be achieved by making classroom environments less punitive, primarily through consultation and tutoring services (Mayer, *et al.*, 1993) or by school counsellors developing programs that promote academic success for all students, including those at risk for dropping out of school (Dockery, 2012). The norms that peers set for each other around educational attainment can also influence a young person's chances of staying in and graduating from high school (Trieu & Jayakody, 2018).

While risk factors can be seen as empirical indicators that increases the likelihood of dropout, the promotive or protective factors can be seen as empirical indicators that increases the likelihood of graduation or continued attendance. At the same time it is important to emphasize that factors or indicators related to, for example, parental relations can be a risk factor as well as a protective factor depending on the way it manifests itself. For example, adolescents from authoritative families were less likely to drop out than adolescents from authoritarian and neglectful families (Blondal & Adalbjarnardottir, 2009). This means that it is the way in which the parental style manifest itself that is crucial for the outcome.

It should be clear from the text above that there are a number of risk factors for school dropouts. It should also be clear that the research to a greater extent has focused on certain risk factors compared to others. Some risk factors are easier to prevent compared to others, as they often are easier to detect and dynamic in nature, while others are organizational or may be related to societal structural conditions and therefore may be more difficult to change. The next section is therefore devoted to a description and discussion of different types of interventions used to prevent dropout, their content, how these interventions are intended to work, as well as their effects.

Consequences of dropout

Research on consequences of dropout has focused mainly on the social and psychological consequences for the individual, but also on the consequences for society. When it comes to psychological and social consequences, it can be difficult to determine whether the factors discussed are risks or consequences of the dropout. For example, it can be difficult to determine whether a student's depression preceded and contributed to his or her school failure, co-occurred with it, or resulted from dropping out. However, research shows that the consequences of school dropout are devastating to the long-term transition to adulthood (Bloom, 2010) and that the personal and societal consequences of dropping out of school are costly (Rumberger, 1987).

Individual consequences

Research on individual consequences focuses both on social and psychological consequences or experiences of dropouts.

Among the social consequences, in particular, the consequences regarding criminality, the use of alcohol and other intoxicants and the future prospects of the individual to achieve academic success are highlighted. Na (2017) show that school dropout has a stigmatizing and segregating effect on young people who have been criminally active, and that the dropout significantly increases the likelihood of rearrests since it may trigger differential social responses due to the stigmatizing and segregating effects that the termination of education may result in. A study of Maynard, Sala-Wright & Vaughn (2015) revealed, among other things, that dropouts were more likely to meet criteria for nicotine dependence and report daily cigarette use, and more likely to report having attempted suicide in the previous year, been arrested for larceny, assault, drug possession or drug sales relative to their high school graduate counterparts. The social consequences for the individual also include challenges regarding access to resources and social support as well as the future opportunities to complete their studies. In a qualitative study on long-term dropout from school and work and mental health, Ramsdal, Bergvik & Wynn (2018) found that the participants who had dropped out described less access to resources and social support as important to their dropout processes. Anisef, *et al.* (2010), for example, show that dropouts are likely to face greater obstacles to academic success.

Regarding psychological consequences of dropout research has mainly focused on different short and long-term mental health consequences, in terms of internalizing disorders, depression, anxiety, and self-esteem. When examining the mental health consequences of dropping out of high school, Liem, O'Neill Dillon & Gore, S. (2001) found that young people who dropped out of high school were more likely to be depressed than high school graduates during their early

adult years. They also found that dropouts were more anxious than graduates two years after their expected graduation date. According to Liem *et al.* (2001) the difference in anxiety occurred because graduates reported less anxiety than they did during their senior year. Similar results were shown in a study on the associations between delayed completion of high school and educational attainment and symptom levels of anxiety and depression in adulthood (Melkevik, Hauge, Bendtsen, Reneflot, Mykletun & Aarø, 2016). According to Melkevik, *et al.* (2016) the results showed that each additional year of delay in High School was associated with higher symptom levels for both anxiety and depression. The mean symptom levels of both anxiety and depression were significantly lower among individuals who completed High School within a normative timeframe compared to those who were substantially delayed in their completion. This is also in line with studies reporting that internalizing disorders develop as a consequence of school dropout. (See, for example, Esch, *et al.*, 2014). In their analysis Ramsdal, *et al.* (2018) revealed that students who had dropped out described a larger number of mental health problems and problems of a more serious nature than college students did. The clinical interviews showed that former students who had dropped out were more burdened by mental disorders than the college students. The former students who were unemployed and who had dropped out described internalizing mental health problems. Dropping out can also have long-term health consequences (Fergusson, D. M., McLeod, G. F. H. & Horwood, L. J., 2015). However, in their longitudinal study on the associations between leaving school without qualifications and subsequent mental health to age 30, Fergusson, *et al.* (2015) that there was no direct causal association between leaving school without qualifications and subsequent mental health problems, such as major depression, anxiety disorder, suicidal ideation/attempt, alcohol abuse/dependence and illicit substance abuse/dependence. The associations found were explained by the linkages between leaving school without qualifications, child and family social background, and mental health around the point of school leaving.

Societal consequences

In addition to the consequences for the individual presented above, dropout is also associated with substantial negative consequences for society. These consequences include economic, social and democratic consequences. According to Rumberg (1987) dropouts experience higher levels of unemployment and receive lower earnings than high school graduates. Thurlow & Johnson (2011) found that dropouts were more likely to experience diminished lifetime earnings due to under-employment and higher rates of unemployment, to achieve only limited

access to postsecondary education programs, to engage in criminal activity and become incarcerated, and to become dependent on social welfare systems and family for financial assistance and support. The economic consequences of dropouts are also revealed in a study on the wage consequences of leaving high school prior to graduation (Blakemore & Low, 1984). The authors found that wages for dropouts progressively declined in subsequent years relative to high-school graduates (c.f. Campbell, 2014).

Dropping out also have long-term negative effects for society as a whole. According to Levin, Belfield, Hollands, Bowden, Cheng, Shand, Pan & Hanisch-Cerda (2012) the cost of lost economic opportunities as well as fiscal costs from foregone tax revenues, and additional public costs such as crime and higher public health and welfare costs was estimated to \$258,240 per youth, over a lifetime in present value. The cost to society was estimated to \$755,900. I will return to the question of cost-effectiveness of different interventions and the societal costs later in the text.

Dropouts are also more likely than graduates to become dependent on welfare, engage in illegal activities, and experience health and affective problems which poses a challenge to society and the welfare system (Rumberger, 1987). In addition, dropping out negatively affects the opportunities in the labour market and the involvement in some political processes (McCaul, Donaldson Jr, Coladarci & Davis, 1992). In their study McCaul, *et al.* (1992) found that dropouts experienced more periods of unemployment than graduates. Moreover, dropouts were less likely to vote or to participate in political discussions, which may result in an alienation from society at large and, ultimately, have deleterious effects on later citizenship practices and participation in democratic society.

Interventions to prevent and remedy dropouts

Research shows that the design of programs or interventions varies depending on what type of school drop-out and what risk factors that the programs focus on. The content also varies regarding the degree of educational and non-educational content. Additionally, some programs focus on early prevention, others on prevention, and still others on how to address and follow up students who have already chosen to leave school in order to get them to complete their studies and graduate. Against this background, it seems central that interventions or programs meet different needs and conditions of the target group:

A comprehensive strategy will need to address all of these factors, providing programs for different children with different needs (Rumberger, 1987: 116).

In addition, it is important to keep in mind that the opportunities to influence, change and prevent school dropouts through programs or interventions vary depending on the fact that some risks or needs are more dynamic, i.e. easier to change and meet, and others more static, i.e. requires major, sometimes structural, changes.

Research shows that one of the most important factor in successful and effective programs is the ability to identify and detect students at risk of dropping out, especially since students who decide to drop out often do not discuss it with others before making the decision. For this reason, it is also important with early prevention, that prevention programs are initiated at an early age in order to draw attention to the problem and to prevent dropouts among students in particularly vulnerable groups. In addition, effective programs often include a combination of academic and professional elements, clear individual instructions, and taking student's academic needs into consideration, by adapting, for example, the curriculum, the education, schedules or facilities (Rumberger, 1987). In addition to the academic needs, research shows that effective programs also take other forms of individual needs (often psychosocial ones) into account, for example through counselling and therapy. Thus, strategies and interventions that focus on students' individual needs or meet the needs of risk groups seems to be essential components of effective interventions or programs.

Other key prerequisites for the interventions or programs to work and to be effective is that there is *a strong and supportive school culture with a focus on continuous improvement*. In this case, this relates to contextual condition in school in terms of leadership and an organizational school culture characterized by a focus on improvement for all. Furthermore, it is important that there are school-wide support strategies, i.e. that the school adopts methods or approaches that include all students with the aim of improving the engagement and preventing students from

dropping out. In this context, we can speak in terms of general or whole-school approaches aimed at all students and not just the students who are at risk of dropping out.

Ideally, a strong school-wide commitment to improving student outcomes and school offerings will combine with both school-wide strategies and student-focused strategies to provide at-risk students with the best possible chance of remaining in education (Lamb & Rice, 2008:9).

Moreover, it seems to require *multifaceted approaches* that take into account and address different issues and challenges related to the problem and the target group. Furthermore, it is important with sustainability, i.e. the interventions must last and continue for a long time otherwise its effects tend to diminish. Research also shows that *context sensitivity* is crucial for the interventions or programs to work or to effective. In this case, it is important that the interventions is adapted to conditions of the target group.

In the following, a number of interventions, programs or initiatives that have been discussed and analysed in various studies are reported. The interventions are categorized or classified taking into account the levels and risk factors they aim to counteract. Interventions can be categorized or classified in different ways.

One way to categorize different interventions is to classify them according to what they address. Freeman & Simonsen (2015) classify interventions with regard to what the components of the intervention aim to address or change. In their systematic review they found five different strategies: *academic strategies*, *behavioural strategies*, *attendance strategies*, *study skill strategies* and *school organizational or structural changes*. Academic strategies refers to interventions that directly addresses academic knowledge (e.g., tutoring in reading or math). Behavioural strategies refers to interventions that directly addresses student behaviour skills (e.g., social skill groups or direct teaching and reinforcing school expectations). Attendance strategies refers to intervention that directly addresses student attendance (e.g., transportation to or from school, parent contact related to attendance, incentives for attendance). Study skill strategies refers to interventions that directly addresses student study taking strategies, homework organization, or completion strategies), and, finally school organizational or structural changes refers to interventions that directly changes a school-wide organizational feature (e.g., schools within schools, 9th-grade academies or teams). All strategies except the last one are aimed at changing the behaviour and attitudes of the student.

Another way to classify or categorize interventions is to categorize them according to focus. In their integrative review of 45 prevention and intervention studies addressing dropout or school

completion, Lehr, Hansen, Sinclair, Christenson (2003) categorized five intervention types: interventions with a *personal/affective*, an *academic*, a *family outreach*, a *school structure* and a *work related* focus. Based on this categorization Lehr, *et al.* (2003) identified similarities among interventions, including their focus on changing the student, beginning with a personal-affective focus (e.g., individual counselling, participation in an interpersonal-relations class) and then shifting to an academic focus (e.g., specialized courses or tutoring), and their efforts to address alterable variables (e.g., poor grades, attendance, and attitude toward school). Since every intervention designed to prevent or remedy a problem is based on different conceptions of the problem it is important to identify what risk or protective factors the intervention highlights and how the intervention in itself is organized, what the assumptions are, and how the desired goals of the intervention can be achieved. The review of interventions related to different risk factors will, like in the section on risk factors, be based on the analytical model presented earlier. This means that the interventions will be categorized according to risk factors at different levels.

Interventions at the individual level

Interventions targeting risk factors related to the individual's characteristics, behaviour and mental health, such as low self-esteem, negative attitudes towards school, anxiety and depression or truancy includes student case management (Cabus & Witte, 2015), school counselling (Wells, Miller & Clanton, 1999; Blount, 2012; Dockery, 2012), art therapy (Rosal, McCulloch-Vislislis & Neece, 1997), academic support and skills training for low-performing students (Pyle & Wexler, 2012; Robertson, *et al.*, 2016), combined academic and personal counselling initiative on student performance and emotional well-being aimed at academic struggles, mental health distress, or both (Blount, 2012; Bilodeau & Meissner, 2018; Biolcati, Palareti & Mameli, 2018), different forms of mentoring (e.g. Einolf, 1995; Rogers, 2014), individual study and vocational guidance or "second-chance" programs, a combination of education, training, employment, counselling, and social services (e.g. Bloom, 2010; Ottosen, *et al.*, 2017), efforts on social/emotional health (Malloy, Sundar, Hagner, Pierias, & Viet, 2010; Rumsey & Milsom, 2018), providing access to an adult advocate who can implement academic and behavioural support (Pyle & Wexler, 2012), or to prevent mental illness (Gonzales, *et al.*, 2004), for example through school-based cognitive-behavioural prevention programs (Poirier, Marcotte, Joly & Fortin, 2013). The interventions aimed at truancy are more extensive. They include different interventions aimed at preventing school refusal, truancy and absenteeism, or to promote attendance (Maynard, Kjellstrand & Thompson, 2014; Rogers, 2014; Cabus & Witte,

2015). It involves, for example different psychosocial efforts, such as different variants of cognitive-behavioural therapy (Maynard, Brendel, Bulanda, Heyne, Thompson & Pigott, 2015) or The Early Truancy Prevention Project (ETPP) designed to improve attendance by facilitating communication between teachers and parents and giving the teachers the lead role in intervening with students when attendance problems emerge (Cook, Dodge, Gifford & Schulting, 2017).

Most of these individual-oriented interventions are designed to be combined with other interventions aimed at risk factors at different levels. An example of this is found in Robertson, Smith & Rinka (2016) study. Robertson, *et al.* (2016) show that the main interventions that had positive impact on graduation rates were improvements in academic support, school/classroom climate, and transition from middle to high school. They also found that teachers having engaging lessons and high expectations, close monitoring of students, giving students more chances to succeed, and improved individual/family support was contributors to students improved graduation rates. Another example is the intervention Bridges to High School Program, a multi-component, universal intervention designed to prevent school disengagement and negative mental health trajectories during the transition to junior high school (Gonzales, *et al.*, 2004). The program consists of nine group sessions on three intervention components: (i) an adolescent coping skills intervention aimed at adolescent skills to cope with stress, (ii) a parenting skills intervention to increase parents' use of effective parenting skills in terms of appropriate discipline, adequate monitoring, and support, and (iii) a combined parent-child family strengthening component aimed at increasing family cohesion. An individualized home visit during the fourth week of the program is also included. Overall, these mediators is assumed to influence later mental health and school dropout by increasing school engagement and reduce the association with deviant peers during the transitional period.

Interventions at the interpersonal level

Interventions targeting risk factors at the interpersonal level, such as family circumstances and lack of relationships with other students or teachers in school include, for example family support services (Temple, *et al.*, 2000), family strengthening interventions (Gonzales, *et al.*, 2004), parental education and support (Blondal & Adalbjarnardottir, 2009; Simpkins, *et al.*, 2015), and programs that emphasize family interactions and provide skills to adults in order to supervise and train the child (Greenwood, 2008). Interventions targeting students' relationships with other students or teachers in school include consultation and tutoring services aimed at making classroom environments less punitive (Mayer, *et al.*, 1993), programs like Effective

Learning Program (ELP) aimed at improving students' skills in building relationships with peers and adults, and increase graduation rates among students who are at high risk for dropping out of high school. It also includes mentoring or mentoring-like teacher-student relationships that includes guidance on schoolwork, and social and emotional support to reduce nonattendance and drop-out rates (Zaff, *et al.*, 2017) by improving teachers' competences in order to improve students' relational competences (Wahlgren & Mariager-Anderson, 2017) or to reduce the negative associations between mental health problems and later non-completion (Holen, *et al.*, 2018).

Interventions at the organisational level

Interventions targeting risk factors at the organisational level are mainly aimed at preventing and addressing risks related to the climate or culture prevailing at school, such as high dropout rates, a school climate characterized by a lack of study discipline, high levels of violence and bullying, lack of school-wide routines on student attendance, low teacher-student ratio. For this reason, efforts at the organizational level are mainly focused on changing or strengthening the school climate and school culture, for example through school-wide strategies. It involves strategies designed to develop support policies (Ream & Rumberger, 2008), implementing systemic interventions, targeted interventions, and collaborative partnerships (Zammit & Anderson-Ketchmark, 2011; Rumsey & Milsom, 2018). It also involves increasing parental and family involvement in order to encourage and facilitate school completion, for example through specific school/family/community strategies (graduation team) (Ziomek-Daigle, 2010). This also applies to issues such as creating a climate that challenges and stimulates learning, where the quality of teaching contributes to a sense of belonging and satisfaction among the students (Magen-Nagar & Shachar, 2017), by creating a school climate characterized by staff engagement and high expectations on the students through an effective leadership, instructional pedagogy, and a cultural shift of the education system from learning to testing (Zammit & Anderson-Ketchmark, 2011) or by adopting and developing learning strategies and learning styles and encouraging student accountability and independence in learning and behaviour by coaching and training support provided to school staff (Malloy, Bohanon & Francoeur, 2018), improvements in academic support, school/classroom climate (Robertson, *et al.*, 2016) or meeting different needs (social, personal or emotional) among the students (Pyle & Wexler, 2012; Doren, *et al.*, 2014; Wils, *et al.*, 2019). It is also important to create common approaches by whole school policies or school-wide strategies on students' rights (Jóhannesson & Bjarnadóttir, 2016), clear and fair rules (disciplinary strategies) (Kotok, Ikoma & Bodovski, 2016)

and on attendance and follow-up strategies on absenteeism and truancy (Dockery, 2012) in order to identify students who are at risk to drop out or early detection of problems that can lead to dropouts. The importance of a positive school climate cannot be underestimated since it is associated with positive child and youth development, effective risk prevention and health promotion efforts, student learning and academic achievement, increased student graduation rates, and teacher retention (Dockery, 2012; Thapa, Cohen, Guffey & Higgins-D'Alessandro, 2013).

Examples of coherent programs or interventions addressing risk factors at different levels

As mentioned earlier, interventions rarely contain single intervention components, but a combination of different interventions. In the following I will give three examples of coherent programs or interventions with different content and organization, addressing different risk factors. The first example is the program Reconnecting Youth (Dougherty & Sharkey, 2017). The program consists of a semester-long class (composed of 10-12 students) with goals of improving academic achievement, reducing substance use, and improving mood management. The program seeks to develop a positive social network for students while at the same time teaching them life skills. Individual and ecological resources in terms of social support and emotional competence is supposed to mediate the relation between the participation in the Reconnecting Youth program in order to improve the academic achievement. The curriculum contains of five units. The initial unit introduces students to the Reconnecting Youth model; the next four units are on self-esteem, decision-making, personal control, and inter-personal decision-making. The program includes 79 lessons in total. Each lesson follows a basic structure with 60% of the class devoted to skill-building, 20% to monitoring progress, and 20% to student support and group development.

Another example is the FUTURES Program described by Lever, Sander, Lombardo, Randall, Axelrod, Rubenstein & Weist, (2004). The FUTURES Program is a multicomponent program that involve a collaborative partnership between the business community, employment training system, and mental health and public school systems. The initiative is aimed at ninth graders who have been identified as being at high risk for dropping out of school. Students are eligible for the program if they meet any of the following criteria: (a) failure of at least one grade in elementary or middle school, (b) attendance rates less than 85% in the seventh grade, or absent for 20 days or more in the first quarter of the eighth grade, or (c) scores at least one grade level behind in either math or reading on a standardized test of basic skills. The program incorporates

different components into a comprehensive 5-year program. Key components of the program include mentoring, attendance monitoring, smaller classes, tutoring, life skills training, leadership development, career preparation and work experience, incentives for positive achievement, family involvement, and counselling. Students receive ongoing support that begins as they transition from middle school to high school. Support includes academic tutoring, social skills instruction and character development, leadership training, work experience, incentives for attendance, smaller class sizes, and access to mental health support. As part of the program, there is a paid 4-week “transition to high school” program, in the summer, where students are oriented with the program, staff, and school in a more casual and less threatening atmosphere. During this time they attend classes targeted at improving math, writing, reading, and computer skills and are given the opportunity to take state-wide functional tests that are required for graduation. With the assistance of advocates, students participate in a number of activities, including life skills, career development, and cultural enrichment workshops; field trips; and daily recreational time. A mental health clinician also is available to the students. The clinician assists the staff with daily activities, conducts educational workshops, completes mental health screenings for all students and identify areas of unmet needs in order to make referrals to community resources. The screenings assist in the identification of students who are in need of more intensive services during the school year. During the regular school year, students attend smaller classes; receive extra support from trained advocates, counsellors, and teachers; earn incentives for positive achievement; and participate in cultural enrichment, character development, and career preparation activities. Teachers who have an interest, desire, and commitment to work with high-risk students are given special training in educational computer activities and receive teaching materials, support, and guidance from the program. The team of teachers meets regularly with advocates and the clinician to discuss students’ progress and to develop plans for individualized intervention. As the interventions progress the students are integrated into the large school environment, but the students may still have classes with the trained teachers for their main subjects. One of the most important components is the use of advocates. Advocates serve in a case management role. The student are assigned an advocate who will remain with them throughout their enrolment in the program. Advocates perform numerous tasks, including encouraging attendance and academic improvement, monitoring attendance, assisting the student with negotiating problems with teachers and peers, arranging tutoring, promoting participation in school and extracurricular activities, encouraging family involvement, offering counselling and support, exploring personal goals and career options, and conducting life skills workshops. In addition, a transition advocate works with the students to help them learn about

college and career options and discover their own career-related strengths and interests. All students in the program have access to a school-based mental health clinician. The clinician is responsible for completing assessment measures, therapeutic interventions, and for consulting with advocates, teachers, and other school staff. Participation in the mental health treatment is voluntary and any involvement in clinical sessions requires written parental or guardian consent and student verbal assent. The mental health clinicians also coordinate and collaborate treatment with the advocates, teachers, and families. The intervention strategies used by mental health clinicians include enhancing strengths, encouraging involvement in extracurricular activities and with caring adults, helping develop better problem-solving abilities, coping skills and conflict resolution skills, and helping develop a positive, goal-oriented view of their future. These services are designed to strengthen the services that are usually offered in the school environment and are intended to reach students who otherwise would not receive any mental health services.

Yet another example is taken from a multi-approach intervention for high school-age students with serious emotional and behavioural difficulties developed and evaluated by the Center for Adolescent Research in the Schools (CARS) (Kern, *et al.*, 2015). This multi-component intervention incorporated evidence-based practices with adaptations for high school-age students by developing a logic model that guided development and implementation of interventions. Throughout the development phase, Kern, *et al.* (2015) created a comprehensive and multi-component intervention package along with an assessment process that provided for intervention customization based on the needs of each individual student.

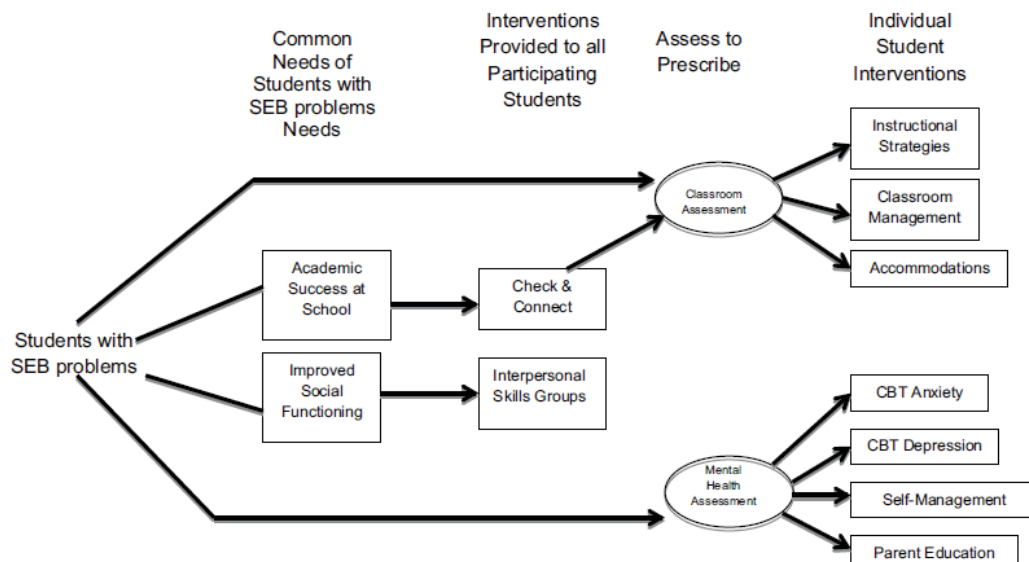


Figure 4: Application of logic model to intervention identification: The Center for Adolescent Research in Schools Intervention Logic Model. *Note.* SEB = social, emotional, and behavioural; CBT = cognitive behavioural therapy. Source: Kern, *et al.* (2015:197).

The CARS intervention process was guided by a logic model (see figure 3) that resulted in (a) two evidence-based interventions provided to all students and (b) data-decision rules linked to a “prescribing” process to identify additional supports based on individual student need. The interventions provided to all students with social, emotional and behavioural (SEB) problems, included mentoring and general support and social functioning support. The mentoring and general support is provided through Check & Connect, an empirically supported intervention for reducing risk factors in students who are disengaged from school and learning. The meetings provide a structure for mentors to develop a supportive relationship with students and to use a problem-solving process to address concerns identified through the monitored risk variables or those identified by the student. The Check & Connect intervention provides a basis to address several classroom-related problems and to identify the need for additional classroom support. The social functioning support is provided to students by a weekly Interpersonal Skills Group (ISG). The aim is to help students with social interaction challenges and social interaction skills, and involves teaching adolescents to establish goals for how they wish to be perceived by others. It also involves identifying behaviours that are likely to promote those perceptions, consider verbal and nonverbal feedback from others, recognize that goals may vary by context, and modify their behaviour in relation to their goals and the feedback of others. The interventions that were implemented for students based on individual student need include individualized classroom interventions and individual mental health interventions. Since students with SEB bring a unique combination of social/emotional and academic challenges to the classroom it is important that the individual classroom interventions provide specific classroom supports based on the social and/or academic challenges identified (e.g., missing assignments, disciplinary referrals, poor grades, etc.) and targeted for specific assessment. Based on interviews with teachers and observations a targeted classroom assessment is conducted. The interviews focus on the teachers’ classroom expectations and routines, how they respond to problem behaviour, what strategies they use to increase student response rate and engagement, and what they view as the target student’s strengths and areas most in need of improvement. The observations are conducted to ascertain student engagement, student-teacher interactions, student disruptive behaviour, and to ascertain if class-wide interventions are needed or not. The individual mental health interventions start with an assessment (based on interviews and rating scales) that addressed the core aspects of the most common disorders of adolescents including

depression, anxiety, attention deficit hyperactivity disorder (ADHD), and conduct and oppositional defiant disorders. The goal is not to determine mental health diagnoses, but simply to ascertain if the students exhibited distress or impairment suggestive of any of the most common constructs related to the aforementioned disorders and would benefit from prevention/intervention. Based on this the CARS interventions include several mental health interventions available to the school mental health professionals (SMHPs); a customized CBT manual where the core components of evidence-based CBT for problems with mood and anxiety were maintained; self-management (used to help students learn to accurately monitor their own behaviour and improve selected actions to enhance school performance), and parent education.

Based on evidence from previous research Dynarski, Clarke, Cobb, Finn, Rumberger & Smink (2008) published a practice guide including specific six recommendations for reducing dropout rates even though some interventions have a low level of empirical evidence. These recommendations are divided into three categories regarding diagnostic processes for identifying student-level and school wide dropout problems; targeted interventions for a subset of middle and high school students who are identified as at risk of dropping out; and school wide reforms designed to enhance engagement for all students and prevent dropout more generally. The recommendations advises schools and districts to utilize data systems that support a realistic diagnosis of the number of students who drop out and that help identify individual students at high risk of dropping out, in order to diagnose the extent to which schools need to implement strategies to address dropping out. They also suggest that it is important to target students who are at risk of dropping out by intensively intervene in their academic, social, and personal lives. And, finally, they suggest comprehensive, school wide reform strategies aimed at increasing engagement of all students in school. Since dropping out is not always or entirely a function of the attitudes, behaviours, and external environment of the students, but can be a consequence of a dysfunctional school context, the authors propose ambitious efforts to change the environment, curriculum, and culture of the school. The recommendations are summarized in the following table:

Recommendation	Level of evidence
Diagnostic	
1. <i>Utilize data systems that support a realistic diagnosis of the number of students who dropout and that help identify individual students at high risk of dropping out.</i> States, districts and schools should develop comprehensive, longitudinal, student level databases with unique IDs that, at a minimum, include data on student absences, grade retention, and low academic achievement. Data should be reviewed regularly, with a particular emphasis before the transitions to middle school and high school.	Low
Targeted interventions	
2. <i>Assign adult advocates to students at risk of dropping out.</i> Adult advocates should have an appropriate background and low caseloads, and be purposefully matched with students. Adequate training and support should be provided for advocates.	Moderate
3. <i>Provide academic support and enrichment to improve academic performance.</i> Help students to improve academic performance and reengage in school. This should be implemented in conjunction with other recommendations.	Moderate
4. <i>Implement programs to improve students' classroom behavior and social skills.</i> Students should establish attainable academic and behavioral goals and be recognized when they accomplish them. Schools can teach strategies to strengthen problem-solving and decision-making skills, and partner with community-based agencies to provide students with supports to address external factors affecting social and behavioral interactions.	Low
Schoolwide interventions	
5. <i>Personalize the learning environment and instructional process.</i> A personalized learning environment creates a sense of belonging and fosters a school climate where students and teachers get to know one another and can provide academic, social, and behavioral encouragement.	Moderate
6. <i>Provide rigorous and relevant instruction to better engage students in learning and provide the skills needed to graduate and to serve them after they leave school.</i> Engagement can be increased by providing students with the necessary skills to complete high school and by introducing students to postsecondary options.	Moderate

Table 1: Recommendations and corresponding levels of evidence to support each.

Source: Dynarski, *et al.* (2008), p. 6.

Dynarski, *et al.* (2008) view increasing student engagement as the critical core element of the preventive work. Based on this they believes that the greatest success in reducing dropout rates

will be achieved where multiple approaches are adopted as part of a comprehensive strategy to increase student engagement. Engagement involves active participation in learning and schoolwork as well as in the social life of school. Attendance, class participation, effort in doing schoolwork, and avoidance of disciplinary actions is seen as behavioural indicators of engagement, while interest and enthusiasm, a sense of belonging, and identification with the school constitutes psychological engagement. Thus, engagement includes both behavioural and psychological components.

Concluding remarks

To sum up, the majority of the reviews and studies point to the need to include various components in interventions in order to support school engagement, reduce the risk of dropping out and increase completion. This includes, among other things, combining efforts or interventions aimed at providing opportunities for success in schoolwork, creating a caring and supportive environment, communicating the relevance of education to future endeavours, and to help students with their personal problems. Thus, there is a need to incorporate efforts or components directed at the individual, the individual's relationships with others, as well as the school's organization. Ekstrand (2015) points to the need for an outspoken and elaborate shift in perspective from a focus on individual characteristics and individually related factors to the responsibility of the school and the community, in order to find out what success in school requires in terms of children's strengths, a positive school climate, bonding with adults, and the development of core competencies.

Nevertheless, in their review Freeman & Simonsen (2004) concludes that academic and behaviour interventions were the most frequently included components for practice studies, and school structure interventions were included most frequently in policy studies, and that it was unusual that programs or interventions contained all the components identified.

However, most interventions focus on mediating risk factors, e.g. socio-demographic characteristics such as socio-economic status, which could not be targeted by intervention programs (Esch, *et al.*, 2014). Characteristics including cognitive ability, family composition, socio-economic situation or school location provide a valuable epidemiological input to early detection strategies of students at risk of dropout, but they cannot be targeted by intervention programs aimed to reduce early school leaving. For this reason, Esch, *et al.* (2014) argues that future research should consider these observations and focus on alterable mediating factors such as school climate, family functioning or individual coping styles in order to support the

development and implementation of effective policies covering all three levels of action: prevention, intervention and compensation.

There is a surprising lack of emphasis in the intervention literature on developing interventions that address larger community characteristics such as poverty or the effects of racial, ethnical or cultural differences. These variables are studied and controlled for, but they are often considered difficult to change (e.g., Gleason & Dynarski, 2002). Societal, community and family factors such as poverty have real and significant effects on students' ability to succeed in and complete school. Because of this, effective programs or efforts must incorporate multi-tiered interventions or multiple components incorporated by a partnership of agents from the family, the school, community agencies, community mental health supports, and other public health initiatives.

A reasonable explanation for the lack of interventions addressing larger community characteristics is that interventions targeted on risk factors related to mental health problems, such as anxiety and depression is easier to prevent and remedy with evidence based interventions and methods used for such problems in other contexts. The same applies to risk factors related to the learning environment or the relations in the family. In the first case, the interventions are aimed at developing and strengthening regular strategies and methods used in the school, such as educational and disciplinary strategies, classroom management, tutoring and counselling. In the latter case interventions are aimed at, for example, developing and changing parental style, family involvement or family support. However structural problems are more difficult to change as they often require more fundamental changes. As a consequence, the interventions aimed at structural inequalities and problems are usually focused on symptomatic relief rather than on the causes. At the same time, this has led to the development of school-wide strategies, in order to be able, among other things, to take into account human rights and equal rights (primarily with regard to issues of gender, ethnicity and disabilities) or to change the social climate or the culture at school.

Outcomes and effectiveness of programs and other interventions

The previous research regarding outcomes or effectiveness of programs and different interventions on dropout show mixed results. Some studies has focused on general outcomes of certain intervention components, programs, or on types of interventions, other has focused on the effectiveness. Another distinguishing feature in the area is that studies on outcomes or effects consist of both primary studies and systematic reviews. Even in terms of the outcomes

or the effects studied, there is great variety. Some studies focus on the effects of mediating or moderating factors for dropout, others on the target behaviour in terms of the dropout rate.

Among studies focusing on certain intervention components we find unclear as well as mixed results. Several of these studies studied the outcomes or effects on dropout of various interventions aimed at the learning environment or teacher competencies. In their longitudinal study Hakkarainen, Holopainen & Savolainen (2015) investigated the effects of educational support (on word reading and mathematical difficulties) to prevent dropout. The results show that mathematical difficulties directly predicted dropout from upper secondary education, and difficulties in both word reading and mathematics had an indirect effect through school achievement in Grades 9 and 11 on dropout. Furthermore, showed Hakkarainen *et al.* (2015) that support given cannot effectively enough break the negative educational trend that leads to dropping out from upper secondary education. Of all dropouts, 43% had academic learning difficulties, which implies that other kinds of support besides educational support are needed for those with academic difficulties, and also for other students. The results highlight the fact that academic learning difficulties have alarmingly far-reaching consequences, both direct and indirect, on adolescents' lives.

In a systematic review of interventions to support looked-after children in school including interventions aimed to improve attainment, or prevent drop-out or exclusions, and those that aimed to reduce absenteeism in the care population (Liabo, *et al.*, 2013) no study was found robust enough to provide evidence on effectiveness, but some promising interventions were identified. The results indicated that interventions such as partnership working was beneficial but required ongoing commitment and that high-level support in a residential school might be a solution for children who cannot be placed in foster care. Tutoring, creative-writing support and free books were popular interventions and that achievement awards and acknowledgements were highly appreciated intervention elements.

Magen-Nagar & Shachar (2017) examined how the quality of teaching contributes to a sense of belonging and satisfaction, while considering students' personal and socioeconomic variables, in explaining the risk of dropping out of school. The findings showed the effect of the type of school (traditional vs. experimental) on the connections between quality of teaching and dropout risk and that these connections were stronger in traditional compared to experimental schools. Based on these findings Magen-Nagar & Shachar (2017) concluded that quality of teaching plays an important role in decreasing the risk of dropout, since it has a significant

effect on students' satisfaction and their sense of belonging, thereby affecting the risk of dropout.

In a study on an intervention project aimed at reducing nonattendance and drop-out rates in the Danish adult educational system by improving teachers' relational competences, Wahlgren & Mariager-Anderson (2017) found that these focused training programs had an effect on the educational culture at the colleges and on the teachers' attitudes toward the importance of reducing drop-out rates. As a consequence, the teachers acted more consistently and purposefully to prevent dropout, and that a positive effect of the intervention on drop-out rates could be seen.

Other studies focused on effects of different support efforts or programs. Some of these efforts or programs are targeted on strengthening abilities and competencies or to reduce problem behaviour in order to counteract dropout. In an integrative review of interventions for school completion Lehr, *et al.* (2003) found mixed results regarding effects. Slightly more than half of the publications reports statistically significant findings supporting the effectiveness of the intervention on one or more dependent variables. The further examination of the effect sizes revealed that interventions providing early reading programs, tutoring, counselling, mentoring, an emphasis on creating caring environments and relationships, use of block scheduling, and service learning activities yielded moderate to large effects on at least one of the five broad categories used to cluster the indicators of effectiveness (dependent variables): academic-cognitive (e.g. grade point average (GPA), standardized math scores, study habits), physical presence (e.g. attendance, enrolment status), psychological (e.g. students attitudes towards learning, self-esteem, depression), social behavioural (e.g. problem behaviour, social competence, drug use) and support for learning (e.g. student attitude toward teachers, school climate).

Biolcati, *et al.* (2018) investigates the effectiveness of a counselling service as part of a multi-faceted school-based prevention program on a large sample of secondary school students (N=2235). The findings reveal the capacity of individual counselling to serve the most vulnerable adolescents, with the exception of students who might be at risk of school drop-out.

In a study by Bilodeau & Meissner (2018), investigating the effectiveness of a combined academic and personal counselling initiative on student performance, emotional well-being outcomes and retention, the results showed significant overall increases in student grade point average (GPA), academic functioning, and mental health well-being, demonstrating the program's effectiveness in addressing the differential needs of students.

Yet other studies focus on the outcomes, effects or the effectiveness of certain name given prevention programs on dropout or strengthening abilities and competencies or to reduce problem behaviour in order to counteract dropout. The study of Temple, *et al.* (2000) investigated the effects of participation in the Chicago Child-Parent Center and Expansion Program from ages 3 to 9 on school dropout by age 18. The program provides child education and family support services from preschool through second or third grade in 20 sites in Chicago's poorest neighbourhoods. After comparing children in 20 program sites with children who attended schools in similarly poor neighbourhoods without the intervention, Temple, *et al.* (2000) found that preschool participation was associated with a 24% reduction in the rate of school dropout and that participation for 5 or 6 years was associated with a 27% reduction in the rate of early school dropout relative to less extensive participation.

An outcome evaluation of Pare-Chocs, a school-based cognitive-behavioural (CB) prevention program for adolescent depression (Poirier, *et al.*, 2013), show promising results on school dropout prevention programs linked with at-risk students' characteristics. Experimental-group students presented less cognitive distortions and better problem-solving strategies at post-treatment and follow-up. Greater participation intensity predicted less cognitive distortions and better problem-solving strategies at follow-up. Moreover, less cognitive distortions at post-treatment and follow-up are linked to less depressive symptoms. Poirier, *et al.* (2013) conclude that the implementation of a CB prevention program for depressive symptoms in school settings could lead to decrease depression risk factors and improve protective factors among youth at risk of school dropout.

Maynard, *et al.* (2014) examined the effects of the intervention Check & Connect (C&C). In a field-based effectiveness trial using a multisite randomized block design they examined the effects of C&C on the attendance, behaviour, and academic outcomes of at-risk youth. The social service organization Communities in Schools implemented C&C in each of the schools, and the effects were compared to those of typical Communities in Schools services. The results show that C&C was significantly related to improvements in academic performance and reductions in disciplinary referrals, after controlling for pre-test performance and all relevant student- and school-level characteristics, but no significant effects were found for attendance. Maynard, *et al.* (2014) conclude that C&C is a promising intervention to improve outcomes for at-risk youth in school settings.

A quite different intervention is the Norwegian folk high schools, which provide a non-academic education in an intimate and nurturing environment where interpersonal and social skills are emphasised, and where individuals grow in sense of self-esteem and sense of coping. By using high-quality Norwegian administrative data Borgen & Borgen (2015) investigate whether a folk high school education raises the probability of dropouts completing upper secondary school. The results show that dropouts are significantly more likely to complete an academic course if they have attended a folk high school. However, a folk high school education makes dropouts less likely to complete a vocational course. The non-academic education has the surprising tendency of redirecting vocational students to academic paths.

Cabus & Witte (2015) evaluates the effectiveness of an active school attendance intervention tackling school dropout in Dutch secondary education by a difference-in-differences analysis in combination with matching estimation techniques. The intervention consists of increased care for, and interaction with, at-risk students by, for example, visits at home. The intervention relies on professional mentors, teachers, case managers, social workers, and compulsory education age consultants. The results indicate that the intervention schools significantly reduced school dropout with 0.54% points in the school year 2009–2010 compared to the control schools and the school year 2008–2009. The highest impact of the intervention was estimated for the least able students where the intervention significantly reduced school dropout with 1.4% points.

Eslami, Ghofranipour, Bonad, Zadeh, Shokravi & Tabatabaie (2015) evaluated the effectiveness of the social skills training program (SST) by using a pre-post-test design with randomized control group, where the follow-up assessment of outcomes took place 5 months post baseline. The SST-program is a school-based educational prevention program administered over a course of 10 weeks (10 sessions of 1 h), aiming to reduce problem behaviours in male adolescents. The results show that the intervention group reported lower levels of multiple problem behaviours at post-test and follow-up compared to the control group, suggesting that SST was effective in improving social competence and preventing problem behaviours.

In a study of Cuellar & Dhaval (2016) it is assessed whether mental health interventions in terms of Multi-Systemic Therapy (MST), Family Functional Therapy (FFT) and Aggression Replacement Training (ART) can improve academic outcomes for justice-involved youth. Based on rich administrative data and unique program rules under which youth are assigned to these treatment interventions, the analyses suggest that intensive behavioural interventions, such as FFT and MST, can have positive impacts on academic achievement for troubled teens.

The results show that FFT reduces drop-out by about 10 percentage points, and MST reduces drop out by about 24%. The evidence is consistent with improvements in school completion rates for justice-involved youth. The results also suggest that the effects may be larger for girls and for youth who are believed to have worse education prospects. The evidence to support ART, a less intensive intervention, is not as strong. Thus, there is heterogeneity in the treatment effects.

In the evaluation of the Youth Development Program (YDP), Dooley & Schreckhise (2016) examined whether the YDP reduced dropout rates among youth in secondary schools in seven school districts in the impoverished Mississippi River Delta in southeast Arkansas. Initially, the program seem to have an impact. Students who participated in the program were less likely to drop out of school than students in a comparison group. However, when other factors, such as whether the student was “over-age” for their grade (and thus likely had been “held back”), were taken into consideration, the effect on the likelihood of dropping out disappeared. The results showed that no statistically significant relationship existed between program participation and dropout rates.

Wang, Chu, Loyalka, Xin, Shi, Qu & Yang (2016) examined the impacts of a social-emotional learning (SEL) program on the dropout behaviour and learning anxiety of students in the first two years of junior high. The results show that after eight months, the SEL program reduces dropout by 1.6 percentage points and decreases learning anxiety by 2.3 percentage points. After 15 month the effects were no longer statistically different from zero. A conceivable reason is assumed to be the decreasing student interest in the program. However, a deeper analysis revealed that the program reduced the dropout among students at high risk of dropping out (older students and students with friends who have already dropped out), both after eight and 15 months of exposure to the SEL program.

The Early Truancy Prevention Project (ETPP) was designed to improve attendance of primary-grade children by counteracting school disengagement, academic failure, and eventual dropout, and by promoting communication between teachers and parents and giving the teachers the lead role in intervening with students when attendance problems emerge. In 2013–14, the ETPP was implemented in 20 classrooms in five high poverty public elementary schools, with 21 other classrooms in the same schools serving as controls in order to study the effects on absence. The analysis of attendance data indicated that ETPP significantly reduced the prevalence of absenteeism without excessively burdening teachers. The teachers reported improved communication

between parents and teachers and had a positive assessment of the effects of specific program elements.

In an evaluation of Balenzano, Moro & Cassibba (2019) they test the effectiveness of “Storie in gioco” project (Stories in Play), a dropout prevention intervention aimed to prevent early school leaving in at risk students. The results show that even if the intervention appears to have impact on scholastic self-esteem and peer relationships, no effect was found when a comparison group matched for baseline measures was used.

Maynard, *et al.*'s (2015) systematic review of psychosocial interventions for school refusal with primary and secondary school students include eight studies examining effects of interventions on anxiety or attendance. Six of the included studies were randomized controlled trials (RCT) and two were quasi-experimental design studies. Five of the interventions took place in a clinic setting, one in the school, one in the school and home and one in an undisclosed setting. All but one of the six psychosocial intervention studies in this review assessed the effects of a variant of cognitive-behavioural therapy (CBT) compared to no treatment control, an unspecified control or alternative treatment control group. The results show no significant effect at post-test on anxiety. The effects on attendance were significant. Maynard, *et al.* (2015) found relatively few rigorous studies of interventions for school refusal. Since seven of the eight included studies assessed effects of a variant of cognitive behavioural therapy, there appears to be a lack of rigorous evidence of non-CBT interventions for school refusal. The findings of the review were mixed. While both the CBT only and CBT plus medication interventions found positive and significant effects on attendance compared to control, effects on anxiety at post-test were not significantly different from zero. The study provides tentative support for CBT in the treatment of school refusal, but there is an overall lack of sufficient evidence to draw firm conclusions of the efficacy of CBT as the treatment of choice for school refusal. Furthermore, most studies only measured immediate effects of interventions which makes it difficult to determine whether or not treatment effects sustain, and whether or not anxiety might further decrease over time with continued exposure to school.

In a study of The Boys Academy, a three-week summer school program targeted at marginalized boys at risk of dropping out of high school, Andersen, *et al.* (2016) examined the effects of the program. The program aims to put seven character strengths (self-control, commitment, perseverance, social intelligence, curiosity, gratitude and optimism) into action along with academic education. The results show that all the boys improved substantially in reading, spelling, math, as well as in wellbeing and school motivation during the intervention.

Dougherty & Sharkey (2017) examined the effectiveness of Reconnecting Youth, a targeted dropout prevention program, at improving academic achievement and investigated whether improved social support and emotional competencies partially mediated the association between intervention participation and student outcomes. The results revealed that students who participated in the program had higher academic achievement compared to the control group. Prior levels of academic achievement moderated the effectiveness of the program with students with low initial levels of academic achievement benefiting more. Emotional competencies and social support did not mediate the relation between participation and achievement. Given the evidence that the program was more effective for some students than others, targeting interventions to meet specific needs of students may be advantageous.

Professionals and students own experiences of dropout, resilience and interventions

Among the studies in the review some focus on professionals' experiences of dropout, others on the perceptions, experiences and voices of students who dropped out, or on resiliency, i.e. students in danger of dropping out and are able to recover or adapt.

One study focusing on professional associates' perception is Berc, Majdak & Bezovan's (2015) on the circumstances and risks that lead to students dropping out of secondary education and to find out the possibilities of students reintegration into the education system or in one of the existing forms of education and employment possibilities, as well as to encourage consideration of drop-out prevention strategies and re-inclusion of drop-out students in the education system. According to the professionals' perception, the three most common causes of drop-out of students are related to negative ratings, frequent truancy and behavioural problems. The professional associates report that options for re-inclusion in the educational system are very weak among the drop-out students, and that the possibilities of their entry into the labour market are weak as well. Against this background, drop-out preventive activities should be more focused on individual work with students, a better collaboration with students' families and centres for social welfare. The professional associates emphasizes in particular the importance of timely detection of the risks of dropping-out, team work as well as improved cooperation with the ministry to prevent students from dropping out.

Also in Szabó (2018) the focus is on professionals perceptions on causes of dropping out. The purpose of the study was to find the main causes of early school leaving – according to teachers' opinion. Five categories that may contribute to dropout were identified: students' features, family, peers, teachers, and institution. Teachers stated that students' deviant behaviour (truancy, drinking, drug taking, and aggression) had an essential effect on early school leaving. Although

peers' influence was considered the most significant, in adolescence and the role of friends is extremely important in copying deviant behavioural patterns, the effect of teachers must not be ignored. If students have a good relationship with their teachers, if they trust teachers and could turn to them in case of problems, students are less likely to behave in a deviant way and more likely to have positive attitude towards school – unless they rely on only their peers' opinion and regard them as references. According to the teachers opinions, teachers and schools have a very important role in reducing school dropout. Teachers' responsibility is to build and maintain a good teacher-student relationship, to prioritise rather educational task to the teaching ones, to apply cooperative techniques instead of frontal work, and to intend to increase their resilience. According to the teachers, schools have a significant role too. Schools should emphasise organizing extracurricular programs and involving students into them. The result also indicates that there are some system problems which restricts the opportunities to obtain a good outcome. Due to the rigidity and inflexibility of the current system (vocational education in Hungary), students that have enrolled to a vocational training, have no chance to change it during their training, which in turn leads many students to drop out.

The studies focusing on students' perceptions and experiences of dropout or resilience show some variety. McMillan & Reed (1994) examined resiliency among students at danger of dropping out. The findings show that the resilient at-risk students have a set of personality characteristics, dispositions, and beliefs that promote their academic success regardless of their backgrounds or current circumstances. Among the characteristics they have an internal locus of control and healthy internal attributions, take personal responsibility for their success and failures and show a strong sense of self-efficacy, feel they have been successful because they have chosen to, and they put forth needed effort. Furthermore, they welcome and appreciate the efforts of significant adults, and have a strong sense of hope, in the form that they credit themselves, have positive expectations about their abilities and the future, and have an optimistic perspective with realistic long-range goals. Finally, they are mature in their outlook and attitudes, and have a belief that doing well in school is necessary to doing well in life. According to McMillan & Reed (1994) it is important that students have a psychological support system in order to develop these characteristics. Involvement in both academic and extracurricular activities maintains positive engagement in school. Trusting relationships with adults are important as these adults have high expectations and provide support and encouragement. Based on these findings McMillan & Reed (1994) develop a model to explain the resiliency that can be used to better understand the successful recovery.

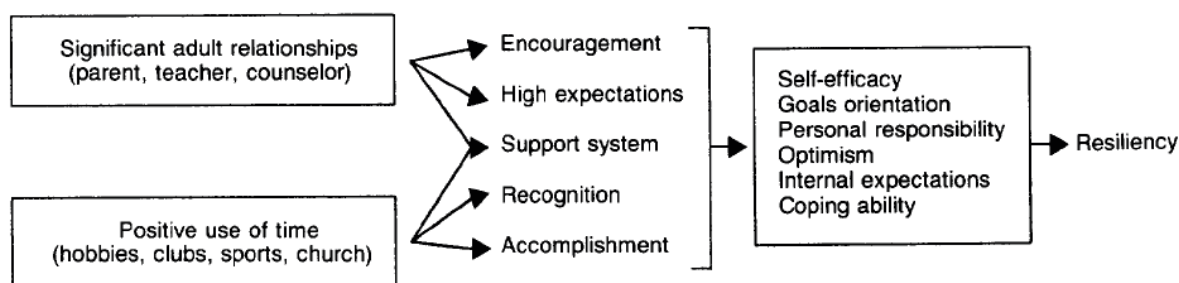


Figure 5: A Conceptual Model of Factors Influencing Resilient At-Risk Students.

Source: McMillan & Reed (1994: 140).

The model shows how significant relationships with adults and positive use of time provide encouragement, high expectations, a psychological support system, recognition and accomplishment, so the students can develop self-efficacy, goals, personal responsibility, optimism, and so forth, which creates conditions for resiliency. The model can also be seen as a model of protective factors at the individual and interpersonal (relationship) levels.

In a qualitative study investigating the perceptions of Afro American and Hispanic students who dropped out of high school, Baker (2012) tried to capture the voices and the meanings they held about the experience of dropping out. The analysis revealed three major themes that influenced their decisions to drop out. The first theme – challenging home situations – was associated with contributing factors emerging from the home life, home environment, or circumstances related to home and family life. Challenging home situations was divided into two sub themes related to financial challenges, and family and personal problems that did not allow the student to concentrate at school (death, divorce, and family fights, among others). The second theme – personal realities – was associated with themselves as students; loss of hope that led them to give up and stop trying, frustration or embarrassment for being too old to be in school, emotional and physical health, and juggling teenage parental and student roles. The third theme – school-related factors – reflected a lack of support systems and included school-related factors associated with their decision to drop out of school and how these factors impacted them as students. It was related to academic difficulties, teachers, grade retention, attendance issues, law enforcement and discipline, social issues at school, and school administrators' attitudes and actions. The findings suggest that the school as an institution can provide systems of support to assist students in overcoming the causes outside of the school walls that contribute to their decision to leave.

In another study of students' own perspective and reflections on dropout in Denmark, Tanggaard (2013) found that that dropout was considered in terms of two very different, but intersecting broad explanations voiced by students themselves: (1) as something created in educational institutions in various situations, such as when teachers spend more time and resources on the more affluent, quick-witted and clever students or when there is a lack of trainee places and (2) an act resulting from individual initiative and or a lack of perseverance. The empirical results indicate a significant interplay between these sets of descriptions, where students seems to engage with individual explanations of dropout, relating them to lack of individual motivation or absenteeism, while the students also indicate that dropout is created within an educational context and is a result of a lack of the necessary educational resources, time and capacity for everyone. Based on this Tanggaard (2013) argues that it is important to realise that changing and shifting educational paths among students is more the norm than not, but also the need to experiment more intensively with the current educational environments and listen more to the students, taking into account their knowledge of the system and their understanding of what constitutes 'good' teaching and learning.

The qualitative study of Lessard, *et al.* (2014) focus on high school students who were at risk of dropping out and examined why some of these students persevered and graduated while others ended up dropping out of school. More specifically, they looked at how dropouts differ from resilient students. The results indicate that although learning difficulties were shared by participants, 4 types of abilities set the resilient students apart from dropouts: (a) in reach (using their own resources); (b) outreach (asking for help when needed); (c) establishing and maintaining positive relationships with teachers and friends while setting limits when necessary; and (d) planning, making choices and following through on decisions. Both dropouts and resilient students reported that a good relationship with a teacher was fundamental and that this relationship was nurtured when the teacher was available, and showed a genuine interest in his or her students, and was warm and understanding. Furthermore, they recognized teachers who enjoyed their jobs and their students. They appreciated teaching approaches that were dynamic, motivating, and fostered student autonomy. Finally, they outlined the importance of providing structure and support, particularly in grade levels that followed a school transition (elementary–secondary).

In a qualitative longitudinal study based on ethnographic narrative interviews Bunting & Moshuus (2016) explores schooling experiences through young people's own accounts. Instead of seeing dropout as an accumulation of risk factors they focus on the processes leading some

students to drop out, taking into account how interaction frames and silences those young people. The study reveals issues of young people having a voice or being silenced, staying, and completing school or being excluded from school as silenced individuals or as outspoken dissidents. Young people who employ negative frames to describe their interactions both at home and at school are the most vulnerable to dropping out. These results are consistent with the study of Bowers & Sprott (2012).

Drawing on interviews Jóhannesson & Bjarnadóttir (2016) examined how upper secondary school students, who had left one or more schools and returned to another school, perceived the ways in which their current school met their needs in an academic program, and whether they benefited from a pedagogical approach that relied on an online learning platform and formative assessment. The interviewees expressed their pleasure with the school, reporting three main assets of its pedagogy: a supportive school ethos and student-teacher relationships, an online learning platform, used by all teachers, which the students could use to structure their studies, and the use of formative assessment and no final end-of-term examinations. According to the perceptions of students, the faculty and staff seem to have developed a comfortable and constructive school ethos, which helped to make education meaningful and ambitious. The interviewees described the teachers in a positive way and their good qualities identified as being supportive, warm, and friendly. The online learning platform and formative assessment, approved of by the students, who had re-entered after studying in other schools, seem to work well as technical procedures in support of a whole school approach where teachers develop good working relationships with students. This arrangement was apparently beneficial to the students, since they might not otherwise have been able to attend an academic program that re-engaged them in education they found meaningful and useful. This form of schooling opens ‘access for all’ to a wider extent and in some instances provides training in decision-making, for instance regarding the organization of course material. Jóhannesson & Bjarnadóttir (2016) concludes that a school culture and practice that enables teenagers and young adults to exercise their right to re-enter academic upper secondary education, which prepares for college, rather than directing them to an industry vocational or practical study program they take little or no interest in is optional.

In Browne (2018) a qualitative phenomenological approach is used to examine the experiences of males who dropped out of high school. The results reveal seven important themes based on the experiences: grade retention, disengagement with school officials, adequate intake, stress,

socioeconomic factors, parental disengagement, and low effort. These findings show some similarities with results from other studies presented (c.f. Baker, 2012)

Cost-effectiveness evaluations of dropout programs

All interventions include costs. The idea is that the costs will lead to future short- or long-term cost savings. For this reason it is important that interventions and programs are not only effective in preventing and intervening in the undesirable behaviours and consequences, they must also be cost-effective in order to justify the use of these interventions. At the same time as the research emphasizes the societal costs of school dropouts, previous research shows that cost-effectiveness evaluations of dropout programs is rare, and that cost-effectiveness analysis can be problematic for several reasons (see Hollands, Bowden, Belfield, Levin, Cheng, Shand, Plan & Hanisch-Cerda (2014) for further discussion).

In the initial search three studies that had conducted cost benefits analysis related to school dropout was found. An extended search resulted in two more studies on that cost-effectiveness evaluations of dropout programs, in addition to previous reviews and overviews that contained references to previous cost-benefit analysis or cost-effectiveness analysis (c.f. Rumberger & Lim, 2008). These studies differs in terms of focus and purpose. Some focus on estimated costs and savings, others on actual costs and savings. Some focus on specific interventions or programs, others on specific ones.

In their retrospective cost benefit analysis of an education dropout program, Brent & Maschi (2018) estimates the external benefits that accrue to society as a whole, in terms of the savings from specific crimes no longer taking place and the criminal justice system not having to be used, as well as the private benefits that are experienced by the prisoner, whose earnings stream can continue and who does not have to endure the loss of quality of life that being confined to prison generates. Their findings reveal that early childhood education leads to very large net benefits with benefit–cost ratios well in excess of 1. The best estimate for some college education is 5.998 and it is 1.426 for high school graduation on its own. Their findings strongly support the main results in the literature that show that early education can have large net-benefits in terms of crime prevention.

The purpose of Wils, *et al.*'s (2019) article was to identify effective interventions to reduce secondary school dropout rates, increase the quality of learning in secondary schools, and to estimate the cost and educational impact of a sustained program to implement a selection of these interventions in 44 countries. The model developed is used to project secondary school

outcomes for each of the 44 countries to 2030 and beyond, for both a base case and for an intervention case, and to estimate the cost of the interventions. The results show that the net present value of the total costs to 2030 (at a 3% discount rate) is estimated at US\$223 billion, divided across the dropout interventions (US\$43 billion), the quality interventions¹ (US\$156 billion), and the incremental schooling costs of (US\$24 billion). These latter are the costs of educating the additional number of students staying on at school, at basic costing levels. Although these intervention costs are large, they represent only US\$10.5 per capita per annum across the population of the countries concerned of about 1.3 billion persons. Systematic implementation of nine quality interventions in the 44 countries, 1 costing US\$10.5 per capita per annum, would increase secondary completion rates by about 25% and more than double the index of learning achieved by 2030, with the effects being more pronounced in low-income countries. (Wils, *et al.*, 2019).

In the evaluation of The Big Brothers Big Sisters (BBBS) program, Moodie & Fisher (2009) a threshold analysis was undertaken in order to determine whether investment in the program was a worthwhile use of limited public funds. The BBBS-program matches vulnerable young people with a trained, supervised adult volunteer as mentor. The intervention is modelled for children aged 10–14 years. Similar to Brent & Maschi (2018) the potential cost savings were based on estimates of life-time costs associated with high-risk youth who drop out-of-school and become adult criminals. The results show that if the program serviced 2208 of the most vulnerable young people, it would cost AUD 39.5 M. Assuming 50% were high-risk, the associated costs of their adult criminality would be AUD 3.3 billion. The results show that to break even, the program would need to avert high-risk behaviours in only 1.3% (14/1104) of participants, suggesting that the BBBS-program represents excellent 'value for money'. (Moodie & Fisher, 2009).

The studies from the extended search is somewhat different and has a clearer focus on specific programs or efforts. The paper from Stern, Dayton, Paik & Weisberg (1989) results from an evaluation of 11 academy programs in California high schools. Academies are schools within schools, combining academic and vocational courses in a program designed to reduce dropout rates. In the evaluation Stern *et al.* (1989) used a matched comparison group for each cohort of

¹ The quality interventions include new community schools, cash transfers, user fee reductions, improved school infrastructure, teacher training, pedagogical changes, bi-lingual or mother tongue instruction, remedial education, malaria prevention and control and information to parents and community (Wils, *et al.*, 2019, table 2, p. 29).

academy students at each site, in order to calculate the economic benefit from dropout prevention, based on the difference in average lifetime earnings between graduates and dropouts as a measure. The components of cost included additional teacher time (because academies use extra time of teachers because classes are smaller), aides, administration, facilities and equipment and local employers' representatives. Results for in-school outcomes were generally positive. On average, the cost per dropout saved was estimated to be substantially less than the economic benefit. The estimated net benefit from dropout prevention among this cohort of 327 students is between \$1.0 and \$1.3 million.

Hollands, Bowden, Belfield, Levin, Cheng, Shand, Plan & Hanisch-Cerda (2014) performed a cost-effectiveness analysis on interventions that improved the rate of high school completion. By using the What Works Clearinghouse to select effective interventions, they calculate cost-effectiveness ratios for five youth interventions with positive or potentially positive effects on high school completion based on three different outcomes: completing school, which constitutes graduating from high school or earning a high school equivalency credential ("GED"); progressing in school, which means moving up a grade; and staying in school. Holland, *et al.* (2014) focused on the first of these three outcomes, completing school, as it was considered the strongest outcome in terms of educational attainment and accords with a general understanding of what dropout prevention programs should accomplish. The five identified interventions were: Talent Search, JOBSTART, New Chance, National Guard Youth Challenge (NGYC), and Job Corps. The results indicated that the costs to produce extra high school graduates from a population of dropouts through non-school-based programs, above and beyond those expected to graduate without program participation, range from around \$70,000 to \$195,000 per extra graduate. According to Holland, *et al.* (2014) it is apparent that remedial programs aiming to help dropouts obtain a GED or high school diploma are very expensive relative to preventive programs such as Talent Search that target students still in school. While the benefits of the extensive services offered by remedial programs such as Job Corps, JOBSTART, NGYC, and New Chance may extend beyond academic attainment to include higher earnings and better life outcomes, these cannot be captured in a cost-effectiveness analysis that compares programs with respect to high school completion. However, given the substantial returns to individuals and society of high school graduation, the costs of remedial programs are probably worthwhile, that is, the total long-term economic benefits are likely to exceed the total costs.

In their assessment of the mental health interventions, Cuellar & Dhaval (2016) they calculated the cost and earnings using the interventions. According to the Blueprints Initiative, FFT costs

\$2800 and MST costs \$7068 per youth. Cuellar & Dhaval's (2016) estimates suggest that actual FFT take-up reduces drop-out by about 10 percentage points, and MST take-up reduces drop out by about 24%. The average high-school dropout earns \$20,241 (U.S. Census) annually. The return to an extra year of education, even if this person does not finish high school is 7–8%. Hence, an extra year of schooling is predicted to raise earnings by about \$1500. FFT participation will therefore, on average, raise earnings by about \$150/year ($\$1500 * 0.10$) and MST participation will raise earnings by about \$375 ($\$1500 * 0.24$). Based on this Cuellar & Dhaval (2016) conclude that the life-time increase would more than compensate for the cost of both FFT and MST, even at the conservative benefit levels of just reducing dropout (not even counting high school completion).

In summary, all analyses showed positive or promising results concerning costs related to economic benefit. The cost per dropout saved was estimated to be substantially less than the economic benefit, whether it was about the economic benefits for individual students or cost savings for society.

A program theoretical summary of the results

The problem of school dropout cannot be understood in isolation from contextual factors. School withdrawal or dropout reflects a complex interplay among individual, interpersonal (relational), organisational (school), and societal circumstances, as well as risk and protective factors. Therefore, a schematic summary of what the research in the field raises regarding conditions, risk factors, interventions and the goals that the interventions aim to meet at the social, organizational, interpersonal and individual levels is presented. These levels are related to each other, while, at the same time, possessing some relative autonomy in relation to each other. *Prerequisites* refer to contextual factors in the form of societal, organizational and interpersonal or personal conditions or characteristics that can counteract risk factors, or which must be present for interventions to work ideally. *Risk factors* refer to factors that in various ways constitute obstacles or in different ways increase the likelihood or risk of dropout. It can, for example, relate to personal characteristics, attitudes, behaviours, family and school conditions or about other circumstances that affect the process in a negative direction. *Interventions* refer to programs, efforts and initiatives used to prevent and remedy dropout. *Goals/outcomes/effects* refer to the goals, outcomes or the effects that the programs, initiatives and initiatives intend to achieve.

Level	Prerequisites (protective factors)	Risk factors	Interventions	Goals/Outcomes/Effects
Societal	<ul style="list-style-type: none"> - Legislation that respects human rights - Financial resources 	<ul style="list-style-type: none"> - Social exclusion - Socioeconomic status/Poverty - Migration 	<ul style="list-style-type: none"> - Strategies and funding that enable everyone to have access to and the ability to complete schooling. - Educational efforts on human rights, diversity and non-discrimination. - Overall coordination and support for children and young people at risk of dropping out or who do not have prerequisites to complete schooling. 	<ul style="list-style-type: none"> - Equality, social inclusion and non-discrimination. - Equal access to education. - Respect for human rights and diversity. - Cost savings for society
Organisational	<ul style="list-style-type: none"> - A strong and supportive school culture focused on continuous improvement - School-wide support strategies - A whole-school approach - Resources (human and financial) 	<ul style="list-style-type: none"> - Large proportion of students who drop out or who do not meet the study objectives - A school climate characterized by a lack of study discipline - High levels of violence and bullying - Poor parental involvement and poor contact between home and school - Lack of routines for student attendance - Lack of support for low-performing students - Low school engagement due to lack of incentive and lack of challenges - Class size - Low teacher-student ratio - Low teaching quality 	<ul style="list-style-type: none"> - Efforts to strengthen school culture and a supportive school climate by: <ul style="list-style-type: none"> - creating a climate that challenges and stimulates learning - adopt, develop and adapt learning strategies and learning styles for especially students at risk (Commitment to success for all). - meet the varying needs in the student group (social, personal or emotional) - through an effective leadership, create a climate characterized by staff engagement and high expectations on the students - create a common approach in terms of goals and values - create clear and fair rules (disciplinary strategies) in order to create safety - encourage student accountability and independence in learning and behaviour - clear guidelines and policies regarding attendance and follow-up strategies on absenteeism and truancy - School-wide strategies: <ul style="list-style-type: none"> - create opportunities to mix practical (vocational) and academic subjects and elements of education - adjust the number of subjects read - offer stimulating and challenging elements of education - early efforts to detect reading and writing difficulties - help students with difficulties or in need of support in the form of, for example, homework assistance, mathematics support, teaching aid or out-of-school-time programs - study and vocational guidance 	<ul style="list-style-type: none"> - Increased student engagement and increased likelihood for students to complete schooling as a result of: <ul style="list-style-type: none"> - students' interest in school is increasing - students' ability to take advantage of learning is increasing - improved teacher-student relationships - increased responsiveness from school staff to the needs of all students - improved and clearer instructions - a more welcoming and personal environment

Level	Prerequisites (protective factors)	Risk factors	Interventions	Goals/Outcomes/Effects
Organisational (continued)	<ul style="list-style-type: none"> - Family structure (Parents / guardians living in a functioning and stable relationship). - Family resources (Parents with a good education, professional status and income). - Parenting style in the form of high educational aspirations, interest in the child's development, good contact and communication with the school and knowledge of the children's social interaction. 	<ul style="list-style-type: none"> - The absence or lack of relationships with other students or staff - Vulnerability and bullying - Family circumstances (poverty, low socio-economic status, large number of children, low educational level, single parent, siblings who dropped out of school, divorce, ethnic minority, social vulnerability, conflicts). 	<ul style="list-style-type: none"> - strategies to motivate students who are tired of school - support lifelong learning - strategic use of teachers and teacher resources (The most experienced and qualified teachers for the youngest and most needy students) - smaller classes - increased teacher-student ratio - adapted study groups (mini-schools or school-within-a-school organization) for children with special needs - collegiate teams working on learning and the learning environment - prioritizing the professional development of the staff, particularly with regard to relationship-building, to make teaching more student-centred and to improve the work in the classroom (classroom management) - collaboration between school, social services and other external actors (e.g. creative and cultural organizations) 	<ul style="list-style-type: none"> - improved teacher-student relationships - increased attendance and commitment - improved ability to take advantage of learning - improved ability to plan and identify subjects or skills that need to be strengthened - improved parenting style (authoritative, showing acceptance and supervision) and parental involvement - improved opportunities for participation in activities linked to school
Interpersonal	<ul style="list-style-type: none"> - Family structure (Parents / guardians living in a functioning and stable relationship). - Family resources (Parents with a good education, professional status and income). - Parenting style in the form of high educational aspirations, interest in the child's development, good contact and communication with the school and knowledge of the children's social interaction. 	<ul style="list-style-type: none"> - The absence or lack of relationships with other students or staff - Vulnerability and bullying - Family circumstances (poverty, low socio-economic status, large number of children, low educational level, single parent, siblings who dropped out of school, divorce, ethnic minority, social vulnerability, conflicts). 	<ul style="list-style-type: none"> - Mentoring that includes guidance on the studies, schoolwork, homework assistance, and social and emotional support (teaching staff, school counsellors or social services). - Intense monitoring of attendance and follow-up of absence and truancy (Absence reporting) - Parental education - Social support measures addressing needs in the family (social workers, school counsellor, school nurse, family therapy). - Group-oriented educational and vocational guidance - Directed financial support for students and families 	<ul style="list-style-type: none"> - improved teacher-student relationships - increased attendance and commitment - improved ability to take advantage of learning - improved ability to plan and identify subjects or skills that need to be strengthened - improved parenting style (authoritative, showing acceptance and supervision) and parental involvement - improved opportunities for participation in activities linked to school

Level	Prerequisites (protective factors)	Risk factors	Interventions	Goals/Outcomes/Effects
Individual	<ul style="list-style-type: none"> - Resilience in the form of abilities of using their own resources, asking for help when needed, establishing and maintaining positive relationships with teachers and friends while setting limits when necessary; and planning, making choices and following through on decisions. - Individual motivation 	<ul style="list-style-type: none"> - Lack of personal resources and resilience - Being silent - Low self-esteem - Anxiety and depression - Poverty - Drug/substance use/abuse - Gender - Teenage pregnancy - Homelessness - Language difficulties - Poor grades and poor school performance in early age - Grade retention/repetition - Suspension - Repeated school changes - Truancy and absenteeism - Problem behaviour - Attention deficit and hyperactivity disorder (ADHD) - Disabilities - Special education needs 	<ul style="list-style-type: none"> - Identify and assess the student's needs as early as possible (student case management) - Social interventions and support regarding needs related to personal problems and needs (school counsellor, school nurse) - Support and skills training for low-performing students (individually or group), especially concerning the ability to read and count. - Mentoring and peer-mentoring - Individual study and vocational guidance - Interventions to prevent mental illness (sadness, anxiety, depression etc.) 	<ul style="list-style-type: none"> - Increased self-esteem - Increased motivation - Improved learning strategies - get students to stay in school and complete their studies - increase student engagement - increased creativity - more positive attitude towards school and learning - improved ability to plan and identify subject areas or abilities that need to be strengthened - Mental well-being

Figure 6: A program theoretical model

Concluding remarks

The purpose of this systematic and integrative research review was to examine the current state of knowledge about risk and protective factors related to dropping out of school and to identify interventions used to prevent dropouts, the outcomes and effectiveness of the interventions, as well as their cost-effectiveness.

The research on dropout is largely characterized by quantitatively oriented cross-sectional studies focusing on covariates or correlations between various risk and protective factors and dropout (see, for example Traag & Van Der Velden, 2011; De Witte & Rogge, 2013; Frostad, *et al.*, 2015), as well as on consequences of dropout (Anisef, *et al.*, 2010; Na, 2017; Mikkonen, *et al.*, 2018).

Many studies focusing on risk factors tend to focus on individual characteristics or structural properties (e.g. Elffers, 2012; Winding, *et al.*, 2013) rather than processes (e.g. Dupere, *et al.*, 2015). In addition, a large part of the research studies in the field are descriptive in nature or consist of replication studies using newer data (e.g. Goulding, Chien & Compton, 2010). The research is to a lesser extent characterized by longitudinal studies or qualitative studies. The longitudinal studies that have been carried out, have often been conducted for shorter periods of time (e.g. Franklin & Trouard, 2016), which may limit the possibilities of studying processes leading to dropout or the long-term consequences of dropout (e.g. Winding & Andersen, 2015). The qualitative studies has mainly focused on professionals experiences of dropout interventions (e.g. Wells, *et al.*, 1999; Iachini, *et al.*, 2016; Malloy, *et al.*, 2018), or on students own experiences (e.g. Bunting & Moshuus, 2016; Mcdermott, *et al.*, 2018).

Research on interventions or programs used to prevent school dropouts contains of studies focusing on specific components, programs or general interventions or initiatives. Regarding the content and scope of the interventions or the programs, some are more extensive while others focus on specific problems. Some interventions or programs focus on changing mediating (e.g. Gonzales, *et al.*, 2004; Dougherty & Sharkey, 2017; Holen, *et al.*, 2018) or moderating factors (e.g. Garvik, *et al.*, 2014) for dropout. Others focus on the target behaviour – dropout – as such (e.g. Borgen & Borgen, 2015; Dooley & Schreckhise, 2016). At the same time, some of the interventions and programs are more multifaceted and include organizational, relationship-oriented (interpersonal), as well as individual-oriented interventions (e.g. Lever, *et al.*, 2004; see also, for example Freeman & Simonsen, 2015, for a review), while others are more relationship-oriented (e.g. Blondal & Adalbjarnardottir, 2009; Behnke, *et al.*, 2010; Baysu & Phalet 2012; Magen-Nagar & Shachar, 2017), individual-oriented (e.g. Einolf, 1995; Cuellar &

Dhaval, 2016;) or have a clearer organizational focus (e.g. Zammitt & Anderson-Ketchmark, 2011).

Regarding outcomes or effects of interventions used to prevent dropout, some show weak or modest effects (e.g. Hakkarainen *et al.*, 2015), while others seem to be more promising (e.g. Poirier, *et al.*, 2013; Liabo, *et al.*, 2013; Maynard, *et al.*, 2014; Wahlgren & Mariager-Anderson, 2017; Bilodeau & Meissner, 2018) or show moderate to large effects (Lehr, *et al.*, 2003; Magen-Nagar & Shachar, 2017).

The results show that many of the most effective programs or strategies contain common principles or characteristics. Several efforts or interventions, such as *student case management* and *smaller classes* (see e.g. Lever, *et al.*, 2004), *consultation, tutoring and support* (see e.g. Somers, & Piliawsky, 2004; Mayer, *et al.*, 1993; Lagana, 2004), *mentoring* (Einolf, 1995; Moodie & Fischer, 2009; Behnke, *et al.*, 2010; Charmaraman, *et al.*, 2011; Rogers, 2014; Zaff, *et al.*, 2017), *interventions and efforts from the social services and counsellors* (Wells, *et al.*, 1999; Ziomek-Daigle, 2010; Blount, 2012; Dockery, 2012; Simić & Krstić, 2017; Bilodeau & Meissner, 2018; Biolcati, Palareti & Marnelli, 2018; Rumsey & Milsom, 2018), aims to *promote attachment* by identifying potential dropouts, breaking or reducing students social isolation and strengthening their relationships with other students, parents and school staff, in order to promote academic success, including those at risk for dropping out of school.

Students who are at risk of dropping out have often experienced problems related to not being able to handle tasks or that teachers and other school staff lack confidence in the student's ability to manage school. Against this background, many efforts are aimed at *strengthening students' confidence in their own skills and abilities and the school membership*, through e.g. *strengthening positive intergroup relations with peers and teacher* (Baysu & Phalet, 2012; Doren, *et al.*, 2014), *by modifying the instructional environment, strengthening school membership, and creating alternative schools* (Erktin, Okcabol & Ural, 2010), *by providing at-risk students with access to an adult advocate who can implement academic and behavioural support in a school climate that promotes personalized and relevant instruction* (Pyle & Wexler, 2012) or *by preventing school disengagement and negative mental health by adolescent coping skills intervention* (Gonzales, Dumka, Deardorff, Carter & McCray, 2004; Bloom, 2010).

The problem can also relate to students who do not see the point of some school assignments because they do not see immediate results. By offering practical and problem-based tasks, e.g. through practical elements in the form of Vocational Education (VET programs) (Borgen &

Borgen, 2015), or problem solving by Arts-based or Out-of-School-Time programs (Charmaraman, *et al.*, 2011), that engages youth behaviourally, emotionally, and academically where the students also can experience the tangible and immediate results.

Another common theme is *flexibility in meeting students' varying needs*, for example through efforts in and outside the school, e.g. summer school or other out-of-school programs (Vinas-Forcade, Mels, Valcke & Derluyn, 2019), adaptations of curricula and facilities (Plank, *et al.*, 2008; Erktin, *et al.*, 2010; Zaff, *et al.*, 2017) combined academic and personal counselling initiative on student performance and emotional well-being (Bilodeau & Meissner, 2018), targeting interventions to meet specific needs of students (Dougherty & Sharkey, 2017), interventions that addresses students' universal and common needs through the use of empirically validated strategies as well a process to make ongoing data-based decisions to tailor additional supplemental supports to address unique student needs (Kern, *et al.*, 2015), offering school-wide strategies that may help school counsellors to better meet the needs of potential dropouts (Dockery, 2012), or mentoring and other interventions to prevent truancy or absenteeism (Schoeneberger, 2012; Rogers, 2014; Havik, Bru & Ertesvåg, 2015a; Cook, *et al.*, 2017).

In addition, the ability to *pay attention to at-risk or high-risk students who are performing poorly*, as well as *the responsiveness and ability to handle practical or personal problems* seems to be important in terms of students' ability to complete the education. This can be done through improvements in academic support and school/classroom climate, close monitoring of students, giving students more chances to succeed, and improved individual/family support (Temple, *et al.*, 2000; Robertson, *et al.*, 2016). It can also, involve interventions, such as the FUTURES Program, designed to address the needs of high-risk youth through character development, career preparation, case management/mentoring, positive incentives, and access to mental health services, among other things (Lever, *et al.*, 2004).

Some of the study's most important findings are:

At-risk students or dropouts is a heterogeneous population characterized of a variety of social, emotional, and behavioural attributes, exhibiting a range of difficulties including internalizing and externalizing problems (Fortin, *et al.*, 2006). Some of them are high achievers, some are low achievers. Some has lower than average reading and writing abilities, some not (Fischbein & Folkander, 2000; Bowers & Sprott, 2012). The main differences between the high and low achievers regarding their experiences of school situation tend to be that the former are more positive to schooling in the beginning, but gradually starts to get bored, thinking that school is

not interesting and that they have problems with peer relations. The low achievers, on the other hand, experience problems from the beginning and do not think that the help they receive at school is adequate (Fischbein & Folkander, 2000). Bowers & Sprott (2012) argues that students need different interventions with respect to which problem the individual student has. Quiet students may need more academic tutoring and connections to school to help increase their grades and decrease their absences, jaded students may need positive ways to connect with school to counteract their negative views of schooling, and involved students may need flexible schedules and alternative routes to graduation.

Most research focusing on identifying risk and protective factors or describing prevention or intervention programs, has relied on correlational statistics or descriptive case studies. Studies using longitudinal data to identify risk and protective factors, or studying the effectiveness of programs, certain interventions or components are often limited in time, which makes it hard to study long-term consequences.

In addition to risk factors related to individual background factors or demographic characteristics (i.e. gender, ethnicity, and age), the research shows that cognitive abilities, individual abilities and preferences, motivation, school engagement or physical, psychosocial or mental health, such as disabilities and depression are important risk factors for dropout at the individual level. Interventions targeting the individual level include case management, school counselling, academic support and skills training, mentoring, individual study and vocational guidance, school-based cognitive-behavioural prevention, interventions aimed at preventing school refusal, truancy and absenteeism. Research on interpersonal risk factors stresses conditions related to interpersonal relationships such as peer relations, family relations and teacher-student relations. These include, for example, destructive peer relationships characterized by crime, drug abuse, conflicts, rejection and bullying, poor support from teachers, poor teaching skills to cope with children, non-authoritative parenting style and non-involvement. Among the interventions targeting these risk factors we find family support services, family strengthening interventions, parental education and support, class room management, mentoring, and mentoring-like teacher-student relationships. Research on school-related risk factors stresses risk factors relating to school characteristics, the school as an organisation, the school climate or school culture and the collaboration of professionals in school. These include, for example, lack of disciplinary order, poor academic climate and low school attachment, poor school climate characterized by conflicts, and school composition factors, such as schools with high proportions of ethnic minorities. Efforts at the organizational level are mainly focused on

changing or strengthening the school climate and school culture, for example through school-wide strategies on policies and routines, developing and implementing common approaches and strategies on learning, discipline and attendance.

It is an overweight of interventions targeting risk factors related to mental health problems, the learning environment, student-teacher relations, family relations and on school climate. The fact that the dropout problem is regarded as a multifactorial phenomenon has led to emphasis on and development of school-wide multi-component interventions and strategies, especially based on research on school climate. A reasonable explanation for the lack of interventions addressing risk factors related to the larger community or society is that these concern structural inequalities and problems that are more difficult to change as they often require more fundamental changes in the society. As a consequence, interventions aimed at structural inequalities and problems usually focus on symptomatic relief rather than on the causes.

This review shows that studies on online interventions to prevent school drop-outs are largely lacking. In the studies that involve online or internet-based interventions, the question of school dropouts is often regarded as a secondary consequence of other factors that the interventions aim to address. These interventions are often school-based cognitive-behavioural (CB) prevention program for adolescent depression (c.f. Poirier, *et al.*, 2013). It may also be about developing early warning systems for dropout prevention, that can be used to identify youth at risk for dropout and then appropriately target interventions (c.f. Henry, Knight & Thornberry, 2012). These warning systems often use a set of indicators based on official school records to identify needs.

The previous research regarding outcomes, efficacy or effectiveness of programs and different interventions on dropout show mixed results. Some interventions or program show weak or modest effects (see, for example Hakkarainen *et al.*, 2015). Several other interventions or programs seems to be more promising (see, for example Poirier, *et al.*, 2013; Wahlgren & Mariager-Anderson, 2017; Bilodeau & Meissner, 2018), or show moderate to large effects (Lehr, *et al.*, 2003).

Research on students' perceptions and experiences of dropout or resilience show some variety. The findings from studies on students' experiences of dropout show that grade retention, disengagement with school officials, adequate intake, stress, socioeconomic factors, parental disengagement, and low effort are important regarding the decision to drop out of school (Entwisle, *et al.* 2004; Browne, 2018; Bunting & Moshuus, 2016; Bhaker, 2012; Bowers & Sprott, 2012).

Findings from studies examining resiliency among students at danger of dropping out reveal, among other things, that the resilient at-risk students have a set of personality characteristics, dispositions, and beliefs that promote their academic success regardless of their backgrounds or current circumstances. Among the characteristics they have an internal locus of control and healthy internal attributions, take personal responsibility for their success and failures and show a strong sense of self-efficacy, feel they have been successful because they have chosen to, and they put forth needed effort. Furthermore, they welcome and appreciate the efforts of significant adults, and have a strong sense of hope, in the form that they credit themselves, have positive expectations about their abilities and the future, and have an optimistic perspective with realistic long-range goals. According to McMillan & Reed (1994) it is important that students have a psychological support system in order to develop these characteristics. Involvement in both academic and extracurricular activities maintains positive engagement in school. Trusting relationships with adults are important as these adults have high expectations and provide support and encouragement.

Previous research on the cost-effectiveness of dropout programs is rare. Nevertheless, all included analyses showed positive or promising results concerning costs related to economic benefit. The cost per dropout saved was estimated to be substantially less than the economic benefit, whether it was about the economic benefits for individual students or cost savings for society (see, for example Wils, *et al.*, 2019; Cuellar & Dhaval, 2016).

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Appendix 1: Includes Studies

Author(s)	Year	Population	Methodology	Focus	Findings
Unsworth, J. M.	1990	Adolescence (13-17 yrs), USA.	Overview	Intervention	The article argues that a major factor for student dropouts is lack of self-esteem, and shows the therapeutic value of art activities. Describes a self-portrait lesson with 15- and 16-year-old juveniles in a detention center. Describes the lack of attention to art in the schools. Suggests allowing students to practice right-brain drawing can improve self-concept.
Mayer, G., Mitchell, L., Clementi, T., Clement-Robertson, E., Myatt, R. & Bullara, D.	1993	Adolescence (13-17 yrs), USA.	Overview	Intervention	The results show that after 1 year, dropout rates for at-risk ninth-grade students who participated were lower than the overall district's dropout rate. As a function of consultation, an increased % of students working on assigned tasks and an increase in teachers' rates of providing approving statements, with corresponding decreases in their disapproving statements, were obtained. In addition, a 35.5% decrease in suspensions occurred. Thus, the classroom environment became more positive, more students were doing their assignments, dropouts and suspensions decreased.
McMillan, J. H., & Reed, D. F.	1994	Adolescence (13-17 yrs), USA.	Empirical Study	Risk factors	Integrates existing literature with the authors' research that examines resiliency (students in danger of dropping out of school who are able to develop stable, healthy personas and are able to recover from or adapt to life's stresses or problems). Suggests a model to explain resiliency that can be used to better understand why these students have been successful.
Einolf, L.	1995	Adolescence (13-17 yrs), USA.	Overview	Intervention	The successes and limitations for mentoring programs in these two schools depended on policy, implementation, school governance, and support from central office.
Rosal, M. L., McCulloch-Vislisei, S. & Neece, S.	1997	Adolescence (13-17 yrs), USA.	Overview	Intervention	Discusses a pilot study in which art therapy was integrated into the ninth-grade English classroom (N=50) of an urban high school. Data from three measures (to reduce dropout rates, decrease school failure, and improve students' attitudes about school, family, and self) indicate that the program was a success.

Rosenthal, B. S.	1998	Childhood (birth-12 yrs), School Age (6-12 yrs), Adolescence (13-17 yrs).	Empirical study, Integrative review	Risk factors and intervention	This study reviews the empirical research on nonschool correlates of dropout, integrating the separate independent findings and organizing them into a few conceptually meaningful categories based on Bronfenbrenner's (1979) ecological approach to human development. These categories are further classified into different levels of analysis which are useful in developing potential interventions to prevent dropout.
Brooks-Harris, C., Mori, V. G. & Higa, L. M.	1999	Young Adulthood (18-29 yrs), USA.	Overview	Intervention	Describes a workshop at the University of Hawaii at Manoa targeted at students overcoming academic difficulties and readmitted after a one-semester suspension. Participants are encouraged to use campus resources, make better decisions, and connect with other students and the institution. Preliminary evaluation suggests the workshop is an efficient intervention to increase student retention.
Wells, D., Miller, M. J. & Clanton, R. C.	1999	Adolescence (13-17 yrs), USA.	Empirical Study, Qualitative Study, Quantitative Study	Risk factors and intervention	Results indicate that the counselors accurately identified potential dropouts.
Fischbein, S. & Folkander, M. E.	2000	Adolescence (13-17 yrs), Young Adulthood (18-29 yrs), Sweden.	Empirical Study, Qualitative Study, Quantitative Study	Risk factors	The results reveal that students attending individual programmes at the Youth Centre had lower than average reading and writing abilities in comparison to students at the vocational programmes in upper secondary school. The whole group was characterized by low marks, immigrant background and partial school attendance. The analyses of interview statements reveal a common category – powerlessness – for those with and without reading disabilities. Separate categories were for high achievers – boredom – and for low achievers – lack of opportunity.
Temple, J. A., Reynolds, A. J. & Miedel, W. T.	2000	Childhood (birth-12 yrs), Preschool Age (2-5 yrs), School Age (6-12 yrs), Adulthood (18 yrs & older), USA.	Empirical Study, Longitudinal Study, Prospective Study, Quantitative Study	Risk factors and intervention	Preschool participation in the program was associated with a 24% reduction in the rate of school dropout and that participation for 5 or 6 years was associated with a 27% reduction in the rate of early school dropout relative to less extensive participation.

Alexander, K. L., Entwisle, D. R., & Kabbani, N.	2001	Adolescence (13-17 yrs), USA.	Empirical Study, Quantitative Study	Risk factors	There were significant differences across sociodemographic lines involving academic, parental, and personal resources. These resources also added onto one another to moderate dropout risk.
French, D. C. & Conrad, J.	2001	Adolescence (13-17 yrs), USA.	Empirical Study, Quantitative Study	Risk factors	The results show that social preference does not uniquely predict school dropout. The possibility exists, however, that youth who are both antisocial and rejected may be at heightened risk for school dropout.
Jahnukainen, M.	2001	Adolescence (13-17 yrs), Adulthood (18 yrs & older), Young Adulthood (18-29 yrs), Finland.	Empirical Study	Intervention	The results show that the participants' own experiences of the benefits of the models are extremely positive. However, there are statistically significant differences between the post-intervention status of young people from the Creating Your Own Career project and the 10th-form students, and between males and females, when transition to further education and working life is used as the criterion.
Gleason, P., & Dynarski, M.	2002	Adolescence (13-17 yrs), USA.	Empirical Study, Quantitative Study	Risk factors and intervention	Findings indicate that most risk factors are not effective predictors of dropping out, and that dropout prevention programs often serve students who would not have dropped out and do not serve students who did drop out.
Christenson, S. L. & Thurlow, M. L.	2004	School Age (6-12 yrs), Adolescence (13-17 yrs), USA.	Review	Intervention	The most effective intervention programs identify and track youth at risk for school failure, maintain a focus on students' progress toward educational standards across the school years, and are designed to address indicators of student engagement and to impact enrollment status—not just the predictors of dropout. To leave no child behind, educators must address issues related to student mobility, alternate routes to school completion, and alternate time lines for school completion, as well as engage in rigorous evaluation of school-completion programs.

Gonzales, N. A., Dumka, L. E., Deardorff, J., Carter, S. J. & McCray, A.	2004	Childhood (birth-12 yrs), School Age (6-12 yrs), Adolescence (13-17 yrs), Adulthood (18 yrs & older), USA.	Empirical Study, Qualitative Study, Quantitative Study	Intervention	The results show that adolescents reported increased use of active and distraction coping strategies, and decreased depressive symptoms for themselves from pretest to posttest. They also reported significant changes in their mothers' parenting skills, including increased monitoring and a decrease in inconsistent discipline. Maternal caregivers reported an increase in supportive parenting and a decrease in inconsistent discipline for themselves and fewer adolescent problem behaviors.
Lagana, M. T.	2004	Adolescence (13-17 yrs), USA.	Empirical Study, Quantitative Study	Risk factors	Results indicated that family cohesion, adult support, and peer support were predictors of group membership. The model greatly increased correct prediction of membership in each group over that of chance.
Lever, N., Sander, M. A., Lombardo, S., Randall, C., Axelrod, J., Rubenstein, M., & Weist, M.	2004	Adolescence (13-17 yrs), Adulthood (18 yrs & older), Young Adulthood (18-29 yrs) in Baltimore, USA.	Empirical Study, Quantitative Study	Risk factors and intervention	The FUTURES Program is a school-based drop-out prevention program that address the needs of high-risk youth through smaller classes, character development, career preparation, case management/mentoring, positive incentives, and access to mental health services.
Nowicki, S., Duke, M. P., Sisney, S., Stricker, B. & Tyler, M. A.	2004	Adolescence (13-17 yrs), USA	Empirical Study, Quantitative Study	Intervention	A significantly greater percentage of ELP students graduated, became more internally controlled, achieved more as shown by standardized tests, and developed greater social skills and better relationships than their ELP-eligible but nonparticipating peers.

Schiff, M. & BarGil, B.	2004	Adulthood (18 yrs & older), Israel.	Empirical Study, Quantitative Study	Risk factors and intervention	This intervention contains two workshops for elementary school teachers aimed at improving their skills for coping with the behavior problems in children by behavior modification skills and experiential work on feelings that the misbehaved child evokes in teachers. The hypothesis, that the workshops would improve teachers' skills for coping with the children who misbehave was fully supported by the results, both in terms of subjective and objective measures.
Somers, C. L. & Piliawsky, M.	2004	Adolescence (13-17 yrs), Young Adulthood (18-29 yrs),	Empirical Study, Quantitative Study	Intervention	The findings indicated that students appeared to benefit from the opportunity to develop close relations with adult tutors who cared about their success. The dropout rate for students in this program was much lower than that of 9th graders in that high school who were not in the program, as well as for 9th graders in the entire school district.
Lessard, A., Fortin, L., Joly, J. & Royer, E.	2005	Adolescence (13-17 yrs).	Literature Review	Risk factors	This literature review focuses on the place given to gender within studies focusing on risk factors associated with school dropout. Results indicate that girls and boys are at risk from different factors. Those contributing to increasing the odds of dropping out for girls include internalized behavior problems, parental mental disorders and specific parenting practices. Factors placing boys at risk include externalized behavior problems, low school performance, adverse family context and parenting practices.
Kemp, S. E.	2006	Adolescence (13-17 yrs), USA.	Empirical Study, Quantitative Study	Risk factors	This study examined methods secondary school principals used to calculate dropout rates, reasons they believed students dropped out of school, and what prevention programs were being used for students with and without disabilities. Results indicated that school districts used calculation methods that minimized dropout rates, students with and without disabilities dropped out for similar reasons, and few empirically validated prevention programs were being implemented.
Van Dorn, R., Bowen, G. & Blau, J.	2006	Adolescence (13-17 yrs), Young Adulthood (18-29 yrs), USA.	Empirical Study, Longitudinal Study, Quantitative Study	Risk factors	Results indicate that while the effects for diversity and consolidated inequality did not support the stated hypotheses, main effects for family risk and prior academic achievement were significant and in the stated direction. Also, when controlling for individual, family, school, and neighborhood characteristics, African Americans were less likely than White students to drop out of school.

Suh, S., & Suh, J.	2007	Adolescence (13-17 yrs), USA.	Empirical Study, Quantitative Study	Risk factors	As students accumulate these risks, they became more likely to drop out and prevention programs become less effective. Additionally, it was found that factors influencing the decision to drop out vary for different sources of risk, and thus there should be a range of prevention strategies offered to accommodate for this variance.
Greenwood, P.	2008		Overview	Intervention	The most successful programs are those that prevent youth from engaging in delinquent behaviors in the first place. The author specifically cites home-visiting programs that target pregnant teens and their at-risk infants and preschool education for at-risk children that includes home visits or work with parents. Successful school-based programs can prevent drug use, delinquency, anti-social behavior, and early school drop-out. The most successful community programs emphasize family interactions and provide skills to the adults who supervise and train the child.
Jozełowicz-Simbeni, & Hernandez, D. M.	2008	Adolescence (13-17 yrs),	Empirical Study, Quantitative Study	Risk factors and intervention	To highlight the ways that school social workers are needed and can be involved in dropout prevention in the middle schools, this article examines student and ecological risk factors associated with school dropout, the early adolescent life stage, dropout prevention approaches, and the role school social workers can play in multilevel dropout prevention efforts aimed at the middle school years.
Knesting, K.	2008	Adolescence (13-17 yrs), USA.	Empirical Study, Qualitative Study	Risk factors	In this article, the author summarizes the findings of a qualitative case study of a group of high school students at risk for dropping out but still attending school. Analysis focused on understanding the students' persistence within the context of their school. Four factors emerged as critical to supporting student persistence: (a) listening to students, (b) communicating caring, (c) the school's role in dropout prevention, and (d) students' role in dropout prevention.
Martínez-González, R-A., Symeou, L., Álvarez-Blanco, L., Roussomidou, E., Iglesias-Muñiz, J. & Cao-Fernández, M-A.	2008	Adolescence (13-17 yrs), Cyprus and Spain.	Empirical Study, Quantitative Study	Intervention	Results show that these families have an encouraging attitude towards their teenagers. Nonetheless, significant statistical differences between Spanish and Cypriot parents suggest that the Spanish families have a more protective parenting style than the Cypriot families. The study points to the lack of support for these families as regards advice and stimulation for their children at home, and to the need to promote school-family partnerships.

Plank, S. B, Deluca, S. & Estacion, A.	2008	Adolescence (13-17 yrs), USA.	Empirical Study, Quantitative Study	Risk factors and intervention	This article uses data from the National Longitudinal Survey of Youth 1997 to investigate high school dropout and its association with the high school curriculum. In particular, it examines how combinations of career and technical education (CTE) and core academic courses influence the likelihood of leaving school. Hazards models indicate a significant curvilinear association between the CTE-to-academic course-taking ratio and the risk of dropping out for youths who were aged 14 and younger when they entered the ninth grade (not old for grade). This finding suggests that a middle-range mix of exposure to CTE and an academic curriculum can strengthen a student's attachment to or motivation while in school.
Ream, R. K. & Rumberger, R. W.	2008	Adolescence (13-17 yrs), USA.	Empirical Study, Longitudinal Study, Quantitative Study	Risk factors	The results show that in contrast to the tendency of academically disengaged students to develop street-oriented friendships, students who are involved in school tend to befriend others who also make schooling a priority. Thus, student engagement influences competing friendship networks in a manner that contributes to the completion of school. Furthermore, engagement behaviors and school-oriented friendship networks have the potential to reduce dropout rates.
Blondal, K. S. & Adalbjarnardottir, S.	2009	Adolescence (13-17 yrs), Adulthood (18 yrs & older), Young Adulthood (18-29 yrs), Iceland.	Empirical Study, Longitudinal Study, Quantitative Study	Risk factors and intervention	Results indicated that adolescents who, at age 14, characterized their parents as authoritative (showing acceptance and supervision) were more likely to have completed upper secondary school by age 22 than adolescents from non-authoritative families, controlling for adolescents' gender, socioeconomic status (SES), temperament, and parental involvement. Parenting style seems to more strongly predict school dropout than parental involvement. Further, parenting style may moderate the relationship between parental involvement and dropout, but not in all groups; only in authoritative families does parental involvement decrease the likelihood of school dropout. Furthermore, even after controlling for previous academic achievement, adolescents from authoritative families were less likely to drop out than adolescents from authoritarian and neglectful families.
Moodie, M. L. & Fisher, J.	2009	School Age (6-12 yrs), Adolescence (13-17 yrs), Australia.	Empirical Study	Intervention	The results show that if the program serviced 2,208 of the most vulnerable young people, it would cost AUD 39.5 M. Assuming 50% were high-risk, the associated costs of their adult criminality would be AUD 3.3 billion. To break even, the program would need to avert high-risk behaviours in only 1.3% (14/1,104) of participants. This indicative evaluation suggests that the BBBS program represents excellent 'value for money'.

Anisef, P., Brown, R., Phythian, K., Sweet, R., & Walters, D.	2010	Adolescence (13-17 yrs), Canada.	Empirical Study; Longitudinal Study; Quantitative Study	Risk factors	The results show that among newcomer youth, the decision to leave school early has been reported to be strongly influenced by socioeconomic status as well as such factors as country of origin, age at arrival, generational status, family structure, and academic performance. While living in low-income conditions is thought to place both foreign-born and Canadian-born youth at risk of poor school performance and early school withdrawal, their substantially higher incidence of poverty suggests that today's immigrant youth are likely to face greater obstacles to academic success that may in turn have detrimental, long-term consequences.
Behnke, A. O., Gonzalez, L. M., & Cox, R. B.	2010	Childhood (birth-2 yrs), School Age (6-12 yrs), Adolescence (13-17 yrs), USA.	Empirical Study, Quantitative Study	Risk factors and intervention	Findings suggest that Latino youth drop out because of the difficulty of their school work, personal problems (e.g., pregnancy or problems at home), the need to work to support their family economically, and peer pressure. Students suggest improved academic and personal support in the form of tutoring, mentoring, after-school programs; improved English as a second language classes; and more Spanish-speaking staff/teachers.
Bloom, D.	2010	Adolescence (13-17 yrs).	Overview	Intervention	Some programs, especially those that offered paid work opportunities, generated significant increases in employment or earnings in the short term, but none of the studies that followed participants for more than a couple of years found lasting improvements in economic outcomes. Nevertheless, the findings provide an important foundation on which to build. Because of the high individual and social costs of ignoring high school dropouts, the argument for investing more public funds in services, systems, and research for these young people is strong. The paucity of conclusive evidence, however, makes it hard to know how to direct resources and magnifies the importance of ensuring that all new initiatives provide for rigorous evaluation of their impacts. Bloom stresses the importance of identifying and disseminating strategies to engage young people who are more seriously disconnected and unlikely to join programs. A recurring theme is that providing young people with opportunities for paid work may be useful both as an engagement tool and as a strategy for improving long-term labor market outcomes.
Bowers, A. J.	2010	Adolescence (13-17 yrs), USA.	Empirical Study, Quantitative Study	Risk factors	The risk of dropout began in Grade 7, with the most hazardous years at Grades 8 and 11. A novel calculation of teacher-assigned grades, noncumulative GPA, is identified as a strong predictor of student dropout.

Erktin, E., Okcabol, R. & Ural, O.	2010	Adolescence (13-17 yrs), Turkey.	Empirical Study, Quantitative Study	Risk factors	The results indicated five factors of school-related attitudes, including attitudes toward learning, toward teachers; toward school and school facilities; and students' perceptions of parent-school relationships.
Goulding, S. M. Chien, V. H. & Compton, M. T.	2010	Adolescence (13-17 yrs) USA.	Empirical Study, Quantitative Study	Risk factors	The findings indicate that school drop-out is a marker of diverse detrimental social problems in first-episode psychosis, and that further research is required to fully characterize the most appropriate interventions for such individuals. The authors conclude that future research might seek to intervene through an integrated treatment approach that incorporates supported education, symptom reduction and management, and comorbid substance use treatment in first-episode patients.
Malloy, J. M., Sundar, V., Hagner, D., Pierias, L., & Viet, T.	2010	Adolescence (13-17 yrs), USA.	Empirical Study, Quantitative Study	Intervention	This article describes the results of a research project designed to assess the efficacy of a secondary transition model, RENEW (Rehabilitation, Empowerment, Natural supports, Education and Work), on the social and emotional functioning of 20 youth at risk of dropping out of high school using the Child and Adolescent Functional Assessment Scale (CAFAS) supplemented by a case study to illustrate one student's experience. The study indicates that youth who engaged in the RENEW process had significant improvements in functioning in school and at home, and overall positive gains in several behavioral health domains.
Vilhjálmsdóttir, G.	2010	Adolescence (13-17 yrs), Iceland.	Empirical Study, Quantitative Study	Risk factors	Results show effects on dropping out from gender and grades. A comparison between the groups that graduated and dropped out showed that gains in organized occupational thinking at age 15—16 predict graduation from vocational education, controlling for effects of social factors and grades.
Ziomek-Daigle, J.	2010		Qualitative Study, Overview	Intervention	Research has shown that collaboration among schools, families, and communities in the academic progression of students can decrease their drop out probability. This article presents findings related to a qualitative study conducted in which interventions were used, which increased parental and family involvement. A specific school/family/community strategy, also known as a graduation team, involved families and communities as an integral component in encouraging and facilitating school completion. Implications for counselors who work with children, families, and the schools are discussed.

Cabus, S. & De Witte, K.	2011	Adolescence (13-17 yrs), Young Adulthood (18-29 yrs), Netherlands.	Empirical Study, Quantitative Study	Intervention	This paper examines the impact of a one-year increase in compulsory school-age on dropping out of secondary education by a difference-in-differences analysis. For this, we exploit a recent compulsory education policy reform in the Netherlands. After controlling for confounding factors and observable covariates, we find that the one year increase in compulsory school-age reduces dropout by 2.5 percentage points. The effect, however, is entirely situated in the group non-liable to the policy reform. We observe that native Dutch vocational students, mostly without retention in grade, but also without a higher secondary diploma at hand, more often left school in the immediate period before the policy reform. Given the economic revival at that time, this may reflect anticipation of labor market opportunities.
Charmaraman, L., Hall, G., Lafontan, V. D. & Orcena, A. G.	2011	Adolescence (13-17 yrs).	Review	Intervention	This research review suggests the following approaches for arts-based programs: (1) recruitment and retention of target populations with multiple risk factors; (2) long-term skill development that engages youth behaviorally, emotionally, and academically rather than a drop-in culture; (3) an emphasis on the critical ingredient of real-world applications through performance; (4) staff development and mentoring; (5) a strategic community-level plan for dropout prevention; (6) and program content reframed toward competencies that underlie better school performance and prosocial behavior, such as communication, initiative, problem solving, motivation, and self-efficacy.
Hodis, F. A., Meyer, Luanna H., McClure, J., Weir, K. F. & Walkey, F. H.	2011	Adolescence (13-17 yrs), New Zealand.	Empirical Study, Longitudinal Study, Quantitative Study	Risk factors	Growth mixture modeling identified 2 classes of longitudinal achievement patterns representing different trajectories toward leaving school either with or without qualifications. Negative motivation patterns on the factors Doing My Best and Doing Just Enough combined with initial student achievement were predictive of underachievement across the final 3 years of senior secondary school.
Kilpi-Jakonen, E.	2011	Adolescence (13-17 yrs), Finland.	Empirical Study, Quantitative Study	Risk factors	Results suggest that children of immigrants tend to have a higher probability of dropping out of education at this transition than the majority. This result is largely explained by prior school achievement and family resources.

Lundetræ, K.	2011	Adolescence (13-17 yrs), Norway and USA.	Empirical Study, Quantitative Study	Risk factors	The results show that parents' educational level was a significant predictor of early school leaving in both countries, but explained significantly more of the variance in USA than in Norway. Mothers' educational level predicted early school leaving in USA also when accounting for youth's basic skills, but this was not the case in Norway.
Markussen, E., Froseth, M. W. & Sandberg, N.	2011	Adolescence (13-17 yrs), Young Adulthood (18-29 yrs), Norway.	Empirical Study, Quantitative Study	Risk factors and intervention	The analyses identified three major groups of variables predicting early school leaving, non-completion, and completion: social background, earlier school performance, and academic and social identification, and engagement with the school and its content. The far most predictive variable was earlier school performance, as measured by grades from last year of compulsory education. On this basis the study suggests that measures to prevent early school leaving and non-completion must build upon the fact that the students enter upper secondary education with very different prerequisites to master the demands that meet them.
Meyers, R. & Houssemand, C.	2011		Empirical Study, Quantitative Study	Risk factors	Specific characteristics of the Luxembourgish educational system (high proportion of immigrants, over-emphasis on foreign language education, lack of coordination between guidance services, insufficient work placement opportunities and school traps) were found to be perceived as related to dropping out.
Suh, S. & Suh, J.	2011	Adolescence (13-17 yrs), USA.	Empirical Study, Quantitative Study	Risk factors	Results of the research suggest that the common explanations for the characteristic of school dropout account for little of the decline of the rate. Relatively unnoticeable factors such as location and regions contributed to the decline of the dropout rate while socioeconomic, personal, familial factors contributed to increase the dropout rate.
Thompson, A & Gregory, A.	2011	Adolescence (13-17 yrs), USA.	Empirical Study, Quantitative Study	Risk factors	Findings showed that over and above the negative influence of discrimination and levels of ninth-grade classroom engagement, students' identification with academics in the ninth grade was a strong predictor of tenth-grade classroom engagement. This finding points to the promise of identification with academics as a protective factor which could help adolescents reach their academic potential.

Traag, T., & Van Der Velden, R. K. W.	2011	Adolescence (13-17 yrs), Netherlands	Empirical Study, Quantitative Study	Risk factors	<p>The results show that one important mechanism driving early school-leaving is related to individual abilities and preferences. The student's cognitive abilities and school performance affect the cost of further investment in schooling while the student's motivation will affect the willingness to make such investments. The family resources constitute a second major mechanism. The study found clear evidence that the different forms of family capital (economic, human, social and cultural) affect the chances of early school-leaving. While a part of these effects can be interpreted as affecting the costs of investing in education (more resources lower the costs), another part must be interpreted as affecting the relative benefits of investment in education (the returns to education are perceived to be higher for students from higher social classes). Finally, there is evidence that school composition factors have an effect on early school-leaving. Although only a limited number of school characteristics have been taken up in the analysis, the results clearly show that schools differ systematically in early school-leaving: schools with high proportions of ethnic minorities show higher dropout rates, while schools that offer higher tracks show lower dropout rates in the low track than schools that only offer the low track.</p>
Zammitt, K. & Anderson-Ketchmark, C.	2011		Review, Column	Intervention	<p>Implementing a successful dropout recovery program requires a collaborative partnership among schools, communities, and organizations. School social workers are positioned to take a leadership role in facilitating the collaborative partnerships to develop programs that will reconnect students to completing their education. Truly addressing the problem of dropout and, subsequently, dropout recovery requires an examination of current educational policies and programs, instructional pedagogy, and the cultural shift of the education system from learning to testing.</p>
Baker, W. L.	2012	Adolescence (13-17 yrs), USA.	Empirical Study, Qualitative Study	Risk factors	<p>Data analysis generated three major themes that influenced their decisions: (a) challenging home situations, (b) personal realities, and (c) school-related factors that reflected a lack of support systems. The findings suggest that although the school as an institution is not responsible or accountable for the family factors that contribute to students' decisions to drop out, it can provide systems of support to assist students in overcoming the causes outside of the school walls that contribute to their decision to leave.</p>

Barrat, V. X., Berliner, B., & Fong, A. B.	2012	Adolescence (13-17 yrs), USA.	Empirical Study, Quantitative Study	Intervention	The results show that dropouts return primarily because of limited employment opportunities and efforts of school leaders to facilitate their return. Yet reenrollment created district challenges related to funding, accountability, and getting students who had dropped out on track to graduate.
Baysu, G., & Phalet, K.	2012	Adolescence (13-17 yrs), Belgium.	Empirical Study, Quantitative Study	Intervention	The results indicate a persistent and widening attainment gap between minority and nonminority school careers in the hierarchical structure of the Belgian school system. Minority students who had started in academic tracks were less likely to continue in academic and higher education and more likely to leave school at each stage than similar nonminority students. Intergroup friendship (for minority students) and perceived support from teachers (for all) significantly increased staying-on rates and reduced the attainment gap. The findings demonstrate the key role of positive intergroup relations with peers and teachers in enabling students, especially minority students, to stay on in school.
Blount, T.	2012	Adolescence (13-17 yrs), USA.	Overview	Intervention	School counselors are charged to identify potential dropouts and they work closely with students to help them stay in school or find alternative means of completing their education. Ninth grade students transitioning to high school experience insurmountable challenges as they shift from middle school to high school. Students who lack the academic preparedness for high school often repeat the ninth grade or drop out of high school. This literature review explored the reasons why students drop out of school, identified predictive risk factors, and highlighted social indicators associated with students who drop out of high school. The school counselor role is to provide intervention strategies and programs to strengthen students desire to remain in school. This article provides school counselors with recommended strategies to decrease students from dropping out of school.
Bowers, A. J. & Sproff, R.	2012	Adolescence (13-17 yrs), USA.	Empirical Study, Quantitative Study	Risk factors	The analyses revealed three significantly different types of dropouts; Quiet, Jaded, and Involved.

Dockery, D. J.	2012		Overview	Risk factors and intervention	<p>School counselors are expected to develop programs that promote academic success for all students, including those at risk for dropping out of school. Knowledge of key indicators of potential dropouts and current trends in dropout prevention research may assist school counselors in better understanding this complex issue. Implementing recommended intervention strategies including longitudinal tracking systems to more clearly identify students who may later drop out of school, targeted programs for use with individual and groups of students at risk of dropping out, and offering school-wide strategies may help school counselors better meet the needs of potential dropouts.</p>
Eiffers, L.	2012	Adolescence (13-17 yrs), Adulthood (18 yrs & older), Young Adulthood (18-29 yrs), Netherlands.	Empirical Study, Quantitative Study	Risk factors	<p>The results indicate that most sociodemographic risk indicators relate to less access to supportive resources for school, whereas personal circumstances outside school that are associated with an increased risk for dropout correlate with negative school experiences. Students from lower educated or poor families and students who use drugs, have debts, or are delinquent score negative in both domains, suggesting that those students make the transition with one foot out the school door.</p>
Eiffers, L., Oort, F. J. & Karsten, S.	2012	Young Adulthood (18-29 yrs), Netherlands.	Empirical Study, Quantitative Study	Risk factors	<p>At-risk students do not report lower levels of emotional engagement, except for students using (soft)drugs. The results do not show a significant role of perceived support from school staff in students' sense of belonging. A good relationship with classmates is more important to engage students in post-secondary vocational education. Perceiving an academic fit is most prominently related to the emotional engagement of vocational students, indicating that a sense of belonging should not only be defined in social, but also in academic terms.</p>
Gasper, J., Deluca, S. & Estacion, A.	2012	Adolescence (13-17 yrs), USA.	Empirical Study, Quantitative Study	Risk factors	<p>The results show that while over half the association between switching schools and dropout is explained by observed characteristics prior to ninth grade, switching schools is still associated with dropout. Moreover, the relationship between switching schools and dropout varies depending on a youth's propensity for switching schools.</p>

Pyle, N. & Wexler, J.	2012		Overview	Intervention	<p>The results show that research on evidence-based components of drop-out prevention suggests that schools can prevent students from dropping out, including students with LD and emotional disabilities, by using data to identify which students are most at risk for dropping out and then providing these students with access to an adult advocate who can implement academic and behavioral support in a school climate that promotes personalized and relevant instruction. It is possible to identify, monitor, and intervene based on students' risk indicators to maximize student engagement, thereby increasing students' ability to progress in school, stay in school, and complete school.</p>
Quiroga, C. V., Janosz, M. Lyons, J. S. & Morin, A. J. S.	2012	Adolescence (13-17 yrs), Canada.	Empirical Study, Longitudinal Study, Interview, Quantitative Study	Risk factors	<p>Findings indicated that students with grade retention were 5.54 times more likely to drop out of school. Depression in seventh grade increased by 2.75 times the likelihood of school dropout. The probability of dropping out for adolescents combining both grade retention and seventh-grade depression was 7.26 times higher than it was for those reporting grade retention only. The moderating effect of depression was similar for boys and girls. Depression is a significant vulnerability factor of low educational attainment aggravating the risk associated with grade retention. Experiencing depression at the beginning of secondary school can interfere with school perseverance particularly for students who experienced early academic failure.</p>
Schoenberger, J. A.	2012	Adolescence (13-17 yrs), USA.	Empirical Study, Longitudinal Study, Quantitative Study	Risk factors	<p>The results presented suggest that longitudinal patterns of student absenteeism can be categorized into distinct groups that are predictive of eventual high school dropout. The majority of students in our sample were classified into a group exhibiting a good attendance pattern (Constant Attendees) that we typically would not be concerned about while students classified as Early Truants, despite improved attendance in late elementary and middle grades, exhibited a relatively high dropout rate. An additional group exhibited reasonable levels of attendance in the early elementary school years, but then showed an increased propensity to miss more than 10 percent of their registered school days during their middle school years.</p>
Tomás, A. C., Solís, J. S., & Torres, A. A.	2012	Adolescence (13-17 yrs), Spain and EU.	Empirical Study, Quantitative Study	Risk factors	<p>The multivariate statistical analysis shows that for females the academic performance, father's nationality and mother's educational level are the most determining factors in their education demand decisions. For males, father's occupation and labour market conditions are the most significant influences.</p>

Abrantes, P., Roldao, C. Amaral, P. & Mauritti, R.	2013	Adolescence (13-17 yrs), Portugal.	Empirical Study	Intervention	The results show that programme succeeded in reducing violence patterns and drop-out rates. On the other hand, an improvement in academic outcomes is slow and the links to local communities and the labour market are variable and, in both cases, highly dependent of local variables.
De Ridder, K. A. A., Pape, K., Johnsen, R., Holmen, T. L., Westin, S. & Bjørngaard, J. H.	2013	Adolescence (13-17 yrs), Young Adulthood (18-29 yrs), Norway.	Empirical Study, Quantitative Study	Risk factors	The results from the logistic regression shows that all explored health dimensions were strongly associated with high school dropout. In models adjusted for parental socioeconomic status, the risk differences of school dropout according to health exposures varied between 3.6% (95% CI 1.7 to 5.5) for having ≥ 1 somatic disease versus none and 11.7% (6.3 to 17.0) for being obese versus normal weight. The results from the analyses comparing differentially exposed siblings, confirmed these results with the exception of weaker associations for somatic diseases and psychological distress. School dropout was strongly clustered within families (family level conditional intraclass correlation 0.42). The authors conclude that adolescent health problems are markers for high school dropout, independent of parental socioeconomic status. Although school dropout it strongly related to family-level factors, also siblings with poor health have reduced opportunity to complete high school compared to healthy siblings. Public health policy should focus on ensuring young people with poor health the best attainable education.
De Witte, K. & Rogge, N.	2013	Adolescence (13-17 yrs), Netherland.	Empirical Study, Quantitative Study	Risk factors	The results of the multinomial logit model reveal a significant influence of motivational factors on the individual decision to leave school without a diploma. When relating both individual variables (e.g. motivation, background, parents) and class variables (e.g. mean abilities, standard deviation abilities, class size, and ethnicity) to the number of students who dropped out, it turned out that, controlled for individual characteristics of the students, parents and school, and for the individual motivation, first year class characteristics have a great impact on the number of students dropping out.

Jugović, I. & Doolan, K.	2013	Adolescence (13-17 yrs), Bosnia and Herzegovina, Croatia, Montenegro, Serbia, Slovenia.	Empirical Study, Review	Risk factors	<p>The results show that Croatia and Slovenia are among the countries which have the lowest ESL rates in Europe. The findings of the reviewed research studies correspond to international research papers in terms of the following frequent risk factors for ESL: low economic and cultural family background, ethnic minority and migration status, type of school enrolled and motivation and academic achievement. There is a strong focus on Roma children early school leavers in all of the countries examined and Bosnia and Herzegovina stands out in the broader European context with the finding that girls from large, low socio-economic status families, who live more than three kilometres away from school, are at particular risk of ESL. In discussing ESL, the reviewed studies tend to emphasise individual and family characteristics rather than also broader social constraints as ESL determinants, a practice also reflected in policy documents which do not mention the role of broader social and economic conditions shaping early school leaving.</p>
Kim, H. & Page, T.	2013	School Age (6-12 yrs), USA.	Empirical Study	Risk factors and intervention	<p>The results show that parents' reports of their children's emotion regulation predicted behavior problems as reported by teachers. Children's own reports of their emotional bonds with parents were somewhat less predictive of emotion regulation and behavior problems. The results implicate that truancy intervention programs for high-risk elementary school children must be more focused on the importance of children's developing capacities for emotion regulation and the childparent bond.</p>

Lamote, C., Speybroeck, S., Van Den Noortgate, W. & Van Damme, J.	2013	School Age (6-12 yrs), Adolescence (13-17 yrs), Netherlands.	Empirical Study, Longitudinal Study, Quantitative Study	Risk factors	The results show that for emotional engagement, results point to a model with two different subgroups: one group starting at a high level of engagement and following a (relatively) stable pattern and the other group starting at a lower level of engagement and following a decreasing trend. For behavioural engagement, the results indicate that a three-class model showed the best fit: a high and (relatively) stable group, a high and decreasing group and a low and stable group. In terms of dropout, the unstable and low groups demonstrate a significantly higher probability of dropping out, as evidenced in the steep, declining survival curves. Different background variables are included to gain more insight into engagement and dropout, and to predict membership in the low and decreasing class.
Liabo, K., Gray, K. & Mulcahy, D.	2013		Literature Review, Systematic Review	Intervention	No study was found robust enough to provide evidence on effectiveness, but promising interventions were identified. The review highlights that future evaluations need to be underpinned by lessons learned from existing evaluations, clearly defined theories and definitions, and by the views of professionals, researchers, policy-makers and young people in care.
Poirier, M., Marcotte, D., Joly, J. & Fortin, L.	2013	Adolescence (13-17 yrs), Canada.	Empirical Study, Followup Study, Quantitative Study, Scientific Simulation	Risk factors	The results show a significant relationship between the intervention and proximal variables: Experimental-group students presented less cognitive distortions and better problem-solving strategies at post-treatment and follow-up. Greater participation intensity predicts less cognitive distortions and better problem-solving strategies at follow-up. Moreover, less cognitive distortions at posttreatment and follow-up are linked to less depressive symptoms. Based on the promising results the authors encourage future evaluative research on school dropout prevention programs linked with at-risk students' characteristics and that the implementation of a CB prevention program for depressive symptoms in school settings could lead to decrease depression risk factors and improve protective factors among youth at risk of school dropout.

Tanggaard, L.	2013	Adolescence (13-17 yrs), Denmark.	Empirical Study, Qualitative Study	Risk factors	The empirical findings indicate that dropout is considered in terms of two very different, but intersecting broad explanations voiced by students themselves: (1) as something created in educational institutions in various situations, such as when teachers spend more time and resources on the more affluent, quick-witted and clever students or when there is a lack of trainee places and (2) an act resulting from individual initiative and or a lack of perseverance. Secondly, and as a result of analysing the possible interplay between and differences related to the above two broad explanations, the empirical material reveals alternatives to the dropout concept in order to create a potentially creative resource for educational institutions concerned with learning and change.
Winding, T. N., Nohr, E. A., Labriola, M., Biering, K., & Andersen, J. H.	2013	Childhood (birth-12 yrs), School Age (6-12 yrs), Adolescence (13-17 yrs), Denmark.	Empirical Study, Followup Study, Longitudinal Study, Prospective Study, Quantitative Study	Risk factors	The results show that low grades when completing compulsory school predicted not having completed a secondary education by age 20/21 (odds ratios (OR) between 1.7 and 2.5). Low sense of coherence in childhood was associated with dropping out from a vocational education (OR 2.0). Low general health status was associated with dropping out (OR 2.2) or never attaining a secondary education (OR 2.7) and overweight was associated with never attaining a secondary education (OR 3.5). Furthermore, the results indicate that factors related to the individual in terms of low school performance, low health status, and high vulnerability predict future success in the educational system. It is recommended that these high-risk groups are recognised and targeted when designing guidance and supervision programmes for youth at secondary education.
Blondal, K. S. & Adalbjarnardottir, S.	2014	Adolescence (13-17 yrs), Young Adulthood (18-29 yrs), Iceland.	Empirical Study, Longitudinal Study, Quantitative Study	Risk factors	The analyses using structural equation modeling revealed that adolescents (age 14) with more authoritative parents (high acceptance, supervision, and psychological autonomy granting) were more likely to have graduated at age 22 compared to adolescents with less authoritative parents. Moreover, the level of student engagement at age 15 partly mediated the relationship between authoritative parenting and educational status.

Cemalcilar, Z. & Gökseken, F.	2014	Adolescence (13-17 yrs), Turkey.	Empirical Study, Quantitative Study	Risk factors	The results show that drop-outs are exposed to higher number of social risk factors the study shows that school-related social capital, as measured by quality of in-school teacher-student interactions as well as parental involvement in school, significantly and positively contributes to adolescents' likelihood of staying in school even in the presence of severe social inequalities.
Doren, B., Murray, C. & Gau, J. M.	2014	Adolescence (13-17 yrs), Adulthood (18 yrs & older), Young Adulthood (18-29 yrs), USA.	Empirical Study, Longitudinal Study, Interview, Quantitative Study	Risk factors and intervention	Results indicated that the most salient predictors of school dropout included a set of malleable individual (grades, and engagement in high-risk behaviors), family (parent expectations), and school (quality of students' relationship with teachers and peers) factors. The findings validate multicomponent dropout prevention and intervention models for this population while at the same time illuminating specific key components that appear to be of particular importance in school dropout among students with LD.
Esch, P., Bocquet, V., Pull, C., Couffignal, S., Lehnert, T., Graas, M., Fond-Hammant, L. & Anseau, M.	2014	Adolescence (13-17 yrs), France.	Literature Review, Systematic Review	Risk factors	The results show that mood and anxiety disorders seemed to have a less consequential direct effect on early school leaving than substance use and disruptive behaviour disorders. The association between externalizing disorders and educational attainment was even stronger when the disorder occurred early in life. On the other hand, internalizing disorders were reported to develop as a consequence of school dropout. Only few studies had addressed gender differences, with discrepant results. Socio-economic background, academic achievement and family support were identified as significant mediating factors of the association between mental disorders and subsequent educational attainment.
Frostdad, P., Pijl, S. J. & Mjåvatn, P. E.	2014	Adolescence (13-17 yrs), Norway.	Empirical Study, Quantitative Study	Risk factors	In this study, data from 2,045 students aged 16 from upper secondary schools in Norway were analyzed using a hierarchical regression model. The results show that teacher support and loneliness in the school context were strong predictors of such intension. The effects of peer acceptance and friendship were minimal.

Garvik, M., Idsoe, T., & Bru, E.	2014	Adolescence (13-17 yrs), Norway.	Empirical Study, Quantitative Study	Risk factors and intervention	The results indicated that symptoms of depression could be a risk factor for school disengagement, and particularly for intentions to quit school. However, as only moderate associations were found, it appears that many depressed students manage to keep up their school engagement. This applied to both genders. However, the findings underline the importance of developing effective methods to identify and help depressed students who do have difficulty keeping up school engagement.
Grant, K. E., Farahmand, F., Meyerson, D. A., Dubois, D. L., Tolan, P. H., Gaylord-Harden, N. K., Barnett, A., Horwath, J., Doxie, J., Tyler, D., Harrison, A., Johnson, S., Duffy, S.	2014	Adolescence (13-17 yrs), USA.	Overview	Intervention	This manuscript summarizes an iterative process used to develop a new intervention for low-income urban youth at risk for negative academic outcomes (e.g., disengagement, failure, drop-out). A series of seven steps, building incrementally one upon the other, are described: 1) identify targets of the intervention; 2) develop logic model; 3) identify effective elements of targets; 4) vet intervention with stakeholders; 5) develop models for sustaining the intervention; 6) develop measures of relevant constructs currently missing from the literature; 7) assess feasibility and usability of the intervention. Methods used to accomplish these steps include basic research studies, literature reviews, meta-analyses, focus groups, community advisory meetings, consultations with scholarly consultants, and piloting. The resulting intervention provides early adolescents in low-income urban communities with a) training in contextually relevant coping, b) connection to mentors who support youth's developing coping strategies, and c) connection to youth-serving community organizations, where youth receive additional support.
Lessard, A., Butler-Kisber, L., Fortin, L., & Marcotte, D.	2014	Adolescence (13-17 yrs), Canada.	Empirical Study, Qualitative Study.	Risk factors	The results indicate that although learning difficulties were shared by participants, 4 types of abilities set the resilient students apart from dropouts: (a) outreach (using their own resources); (b) outreach (asking for help when needed); (c) establishing and maintaining positive relationships with teachers and friends while setting limits when necessary; and (d) planning, making choices and following through on decisions. It was also found that resilient students could count on lifelines, people they knew they could always rely on when they had difficulties.

Maynard, B. R., Kjellstrand, E. K., & Thompson, A. M.	2014	Adolescence (13-17 yrs), USA.	Empirical Study, Quantitative Study	Intervention	Controlling for pretest performance and all relevant student- and school-level characteristics, C&C was significantly related to improvements in academic performance and reductions in disciplinary referrals. No significant effects were found for attendance. C&C is a promising intervention to improve outcomes for at-risk youth in school settings.
Polat, S.	2014	Adolescence (13-17 yrs), Turkey.	Empirical Study, Qualitative Study	Risk factors	The results revealed that the school dropout was mainly based on institutional (academic failure and discontinuity), social (friends), economic (economic insufficiency) and individual (not favoring the school) ground. Especially students, who continue vocational high schools due to the fact that they do not have any other option, rather than their actual choice to do so, will always run the risk of discontinuity in education.
Rogers, L. T.	2014	Adolescence (13-17 yrs), Denver, USA.	Overview	Risk factors and intervention	The mentoring programs funded by the office of juvenile justice for issues related to absenteeism and truancy can help increase daily school attendance, reduce dropout rates, prevent acts of violence, build students' self-esteem, foster better student academic performance, promote accountability, reduce criminal delinquent acts within the community, and keep students engaged in their local schools.
Wang, M-T. & Fredricks, J. A.	2014	Adolescence (13-17 yrs), USA.	Empirical Study, Quantitative Study	Risk factors	The results indicated that adolescents who had declines in behavioral and emotional engagement with school tended to have increased delinquency and substance use over time. There were bidirectional associations between behavioral and emotional engagement in school and youth problem behaviors over time. Finally, lower behavioral and emotional engagement and greater problem behaviors predicted greater likelihood of dropping out of school.
Wilcox, K. C., Angelis, J. I., Baker, L., & Lawson, H. A.	2014	Adolescence (13-17 yrs), USA.	Empirical Study, Interview, Quantitative Study	Intervention	Using cross-case analytic procedures, they found several important contrasts between the two sets of sample schools. Differences in graduation outcomes in these rural schools were associated with (1) the qualities of academic goals, expectations, and learning opportunities; (2) the nature of individual and collective educator efficacy; (3) the strategies educators used to develop and maintain family relationships and engage community members; and (4) mechanisms for adapting instruction and employing interventions for students at risk of dropping out.

Wilkins, J., Ruddle, K., Patsel, S., Duffield, K., Minch, A., Hesson, C., Baker, S., Harper, S. & Jennings, R. L.	2014	Adolescence (13-17 yrs), USA.	Overview	Intervention	In 2010, the National Dropout Prevention Center for Students with Disabilities (NDPC-SD) partnered with the West Virginia Department of Education Office of Special Programs to provide intensive technical assistance to 12 school districts to help them design and implement evidence-based programs to increase the graduation rates of students with disabilities. This article describes the initiative and interventions implemented in five districts that successfully decreased dropout and increased graduation among students with disabilities. By providing graduation data from the 2008–2009 school year along with graduation data from 2012–2013 the authors demonstrate the gains made in these rural school districts.
Berc, G., Majdak, M. & Bezovan, G.	2015	Adolescence (13-17 yrs), Young Adulthood (18-29 yrs), Croatia.	Empirical Study, Interview, Quantitative Study	Risk factors and intervention	According to professional associates' perception, the results show that the three most common causes of drop-out of students are: negative ratings, frequent truancy and behavioral problems. Professional associates report that options of drop-out students for re-inclusion in the educational system are very weak, and the possibilities of their entry into the labor market are also weak. In the opinion of professional associates, drop-out preventive activities should be more focused on individual work with a student, a better collaboration with students' families and centers for social welfare.
Borgen, S. T. & Borgen, N. T.	2015	Adolescence (13-17 yrs), Young Adulthood (18-29 yrs), Norway.	Empirical Study, Quantitative Study	Risk factors and intervention	The results show that dropouts are significantly more likely to complete an academic course if they have attended a folk high school. However, a folk high school education makes dropouts less likely to complete a vocational course. The non-academic education has the surprising tendency of redirecting vocational students to academic paths.
Cabus, S. & De Witte, K.	2015	Young Adulthood (18-29 yrs), Netherlands.	Empirical Study, Quantitative Study	Risk factors and intervention	The results indicate that the intervention schools significantly reduced school dropout with $-\$-0.54\-0.54% points in the school year 2009–2010 compared to the control schools and the school year 2008–2009. The highest impact ($-\$-1.4\-1.4% points) of the intervention was estimated for the least able students.

Derivois, D., Guillier-Pasut, N., Karay, A., Cénat, J.-M., Brolles, L., & Matsuhara, H	2015	Childhood (birth-12 yrs), Preschool Age (2-5 yrs), School Age (6-12 yrs), Adolescence (13-17 yrs), France.	Empirical Study; Quantitative Study	Risk factors and intervention	The results show that the older these children get, the more they see their academic problems as revolving around themselves. The youngest amongst them attribute their problems to the quality of approach adopted in the environment while the older children tend to view themselves as the reason for their failure. Collaborative efforts are therefore necessary between all actors in order to prevent school dropout and to provide intervention as early as possible.
Dupéré, V., Leventhal, T., Dion, E., Crosnoe, R., Archambault, I., & Janosz, M.	2015	Adolescence (13-17 yrs), USA.	Empirical Study	Risk factors	High school dropout is commonly seen as the result of a long-term process of failure and disengagement. As useful as it is, this view has obscured the heterogeneity of pathways leading to dropout. Research suggests, for instance, that some students leave school not as a result of protracted difficulties but in response to situations that emerge late in their schooling careers, such as health problems or severe peer victimization. Conversely, others with a history of early difficulties persevere when their circumstances improve during high school. Thus, an adequate understanding of why and when students drop out requires a consideration of both long-term vulnerabilities and proximal disruptive events and contingencies. The goal of this review is to integrate long-term and immediate determinants of dropout by proposing a stress process, life course model of dropout. This model is also helpful for understanding how the determinants of dropout vary across socioeconomic conditions and geographical and historical contexts.
Ekstrand, B.	2015		Literature Review, Systematic Review	Intervention	This article presents a review of the results and recommendations of 155 research reports focusing on absence prevention and school attendance. The review points to the need for an outspoken and elaborate shift in perspective from a focus on individual characteristics and individually related factors to the responsibility of the school and the community. Forces that draw students to school are a feeling of school success reached by strengthening core competencies, the possibility of bonding with adults, and a school climate that students deem positive.
Eslami, A. A., Ghofranipour, F., Bonad, B. G. Zadeh, D. S. Shokravi, F. A. & Tabatabaie, M. G.	2015	Adolescence (13-17 yrs).	Empirical Study, Quantitative Study	Intervention	The results show that the intervention group reported Lower levels of multiple problem behaviors index (MPBI) at posttest and follow-up compared to the control group. The results suggest that SST was effective in improving social competence and preventing problem behaviors among male adolescent.

Freeman, J. & Simonsen, B.	2015	Childhood (birth-12 yrs), School Age (6-12 yrs), Adolescence (13-17 yrs), Adulthood (18 yrs & older), Young Adulthood (18-29 yrs).	Literature Review, Systematic Review	Intervention	The results from this review indicate that despite research highlighting the need to address multiple risk factors and the need for early intervention, the bulk of current empirical research is focused on single-component, individual, or small group interventions delivered at the high school level. Therefore, further research is needed to provide guidance to schools regarding the integration of dropout efforts with other school initiatives. Multitiered frameworks of support are suggested as a structure for accomplishing this effectively and efficiently.
Hakkarainen, A. M., Holopainen, L. K. & Savolainen, H. K.	2015	Adolescence (13-17 yrs), Finland.	Empirical Study, Followup Study, Longitudinal Study, Mathematical Model, Quantitative Study	Intervention	The results show that students with academic learning difficulties received educational support for learning particularly in the 11th grade. Second, academic learning difficulties directly affected school achievement in the 9th grade, but no longer in the 11th grade. Third, mathematical difficulties directly predicted dropout from upper secondary education, and difficulties in both word reading and mathematics had an indirect effect through school achievement in Grades 9 and 11 on dropout.
Havik, T., Bru, E., & Ertesvåg, S. K.	2015	Adolescence (13-17 yrs), Norway.	Empirical Study, Quantitative Study		Subjective health complaints emerged as the most commonly reported reason for school non-attendance, whereas 6.2% of students reported that their non-attendance "quite often" was due to truancy- or school refusal-related reasons. There was a tendency for students who report special educational needs to report more truancy reasons and for females to report more school refusal reasons.
Kern, L., Evans, S. W., Lewis, T. J., Talida, M., Weist, M. D. & Wills, H. P.	2015	Adolescence (13-17 yrs), USA.	Overview	Intervention	This article provide a summary of the iterative development process the Center for Adolescent Research in Schools (CARS) undertook to develop a logic model that guided development and implementation of a multi-component intervention incorporating evidence-based practices with adaptations for high school-age students. In addition, the authors provide an overview of a national randomized control trial, including a review and decision structure to identify multiple outcome measures, which was designed to examine the efficacy of the developed intervention logic model. Based on their logic model and the preliminary findings from CARS, they recommend a dual intervention approach that addresses students' universal and common needs through the use of empirically validated strategies as well a process to make ongoing data-based decisions to tailor additional supplemental supports to address unique student needs.

Kim, S., Chang, M., Singh, K., & Allen, K. R.	2015	Adolescence (13-17 yrs), USA.	Empirical Study, Quantitative Study	Risk factors	<p>The results showed that the 3 minority groups displayed significantly higher dropout risks than the White group. The overall pattern of dropout risks increased over time, with the dropout rates of the Black students high in the 1st and 2nd years of high school and the highest dropout rates for Hispanic ELL students in their senior year. A gender difference was found among the students, with male students having higher dropout risks than female students. It was also found that students' positive relationships with their teachers were associated with lower dropout risks.</p>
Maynard, B. R., Brendel, K., Bulanda, J. J., Heyne, D., Thompson, A., & Pigott, T.	2015	Adolescence (13-17 yrs).	Systematic Review	Risk factors and intervention	<p>The present review found relatively few rigorous studies of interventions for school refusal. Seven of the eight included studies assessed effects of a variant of cognitive behavioral therapy (CBT), thus there appears to be a lack of rigorous evidence of non-CBT interventions for school refusal. Findings of the current review were mixed. While both the CBT only and CBT plus medication interventions found, on average, positive and significant effects on attendance compared to control, effects on anxiety at post-test across both sets of studies were not significantly different from zero. Moreover, the magnitude of treatment effects on anxiety varied across the psychosocial only studies, and thus current estimates of treatment effects should be evaluated with caution. The current evidence provides tentative support for CBT in the treatment of school refusal, but there is an overall lack of sufficient evidence to draw firm conclusions of the efficacy of CBT as the treatment of choice for school refusal. Most of the studies in this review compared effects against other, and sometimes very similar, interventions that could mask larger effects if compared to wait list control or other disparate interventions. Furthermore, most studies only measured immediate effects of interventions; only one study reported comparative longer-term effects on both attendance and anxiety. Thus, there is insufficient evidence to indicate whether or not treatment effects sustain, and whether or not anxiety might further decrease over time with continued exposure to school.</p>
Simpkins, S. D. Price, C. D. & Garcia, K.	2015	Adolescents (13-17 yrs), USA.	Empirical Study, Quantitative Study	Risk factors	<p>The findings suggest that, as early as the beginning of high school, students hold different motivational beliefs for biology, chemistry, and physics. Parents' positivity, co-activity and school-focused behaviors predicted higher adolescent ability self-concepts and importance values in all three sciences for all adolescents in this study. Parents can support adolescents in science through a variety of behaviors at home.</p>

Simson, K.	2015	Young Adulthood (18-29 yrs), Norway.	Empirical Study, Quantitative Study	Risk factors	The results show that local labor market conditions play a substantial role in individual dropout decisions in Norway, with elasticities ranging from 0.1 to 0.3. The opportunity cost of schooling seems to weigh more in the dropout decision for Norwegian youth than the expected returns. However, the results are highly sensitive to the choice of local labor market indicator. When including the unemployment rate, which is the standard indicator used in empirical applications of schooling decisions, instead of the outflow rate, the estimates become smaller and in most cases insignificant.
Theunissen, M.-J., Bosma, H., Verdonk, P. & Feron, F.	2015	Young Adulthood (18-29 yrs), Netherlands.	Empirical Study, Quantitative Study	Risk factors and intervention	The results show that one parent families and families with a non-Western background less often attended the health examinations of the PPPC and such less attendance was related to school dropout. The birth of a sibling (OR 0.63, 95% CI 0.43–0.93) in infancy and self-efficacy (OR 0.53, 95% CI 0.38–0.74) in adolescence decreased the odds of school dropout; externalizing behavior (OR 2.81, 95% CI 1.53–5.14) in middle childhood and (sickness) absence (OR 5.62, 95% CI 2.18–14.52) in adolescence increased the risks.
Winding, T. N. & Andersen, J. H.	2015	Adolescence (13-17 yrs), Young Adulthood (18-29 yrs), Denmark.	Empirical Study, Longitudinal Study, Quantitative Study	Risk factors	The results reveal that a large proportion of young people were having problems with social relations at age 15 and 18. In general, social relations were strongly related to not completing a secondary education, especially among girls. Poor relations with teachers and classmates at age 18 explained a substantial part of the association between income and dropout among both girls and boys. The study confirmed a social gradient in completion of secondary education. Despite the fact that poor social relations at age 15 and 18 were related to dropout at age 21, social relations with family and friends only explained a minor part of the socioeconomic differences in dropout. However, poor social relations with teachers and classmates at age 18 explain a substantial part of the socioeconomic difference in dropout from secondary education.

Andersen, F. Ø., Nissen, P., & Poulsen, L.	2016	Adolescence (13-17 yrs), Denmark.	Empirical Study, Quantitative Study	Intervention	Marginalized boys at risk of dropping out of high school have for a long time been a problem in the Western world. 100 such Danish 14-16 year old boys were in the summers of 2013, 2014 and 2015 exposed to a new school program, "The Boys Academy," inspired by Seligman and the American KIPP schools suggesting seven character strengths to be put into action along with academic education: "self-control," "commitment," "perseverance," "social intelligence," "curiosity," "gratitude," and "optimism." The results of the study show that all the boys improved substantially in reading, spelling, math, well-being and school motivation during the three week summer school.
Auerbach, R., Alonso, J., Axinn, W., Cuijpers, P., Ebert, D., Green, J., Hwang, I., Kessler, R., Liu, H., Mortier, P., Nock, M., Pinder-Amaker, S., Sampson, N., Aguilar-Gaxiola, S., Al-Hamzawi, A., Andrade, L., Benjet, C., Caldas-de-Almeida, J., Demyttenaere, K., Florescu, S., de Girolamo, G., Gureje, O., Haro, J., Karam, E., Kiejna, A., Kovess-Masfety, V., Lee, S., Mcgrath, J., O'Neill, S., Pennell, B-E., Scott, K., Ten Have, M., Torres, Y., Zaslavsky, A., Zarkov, Z., Bruffaerts, R.	2016	Young Adulthood (18-29 yrs), 21 countries.	Empirical Study, Quantitative Study	Risk factors	The results show that disorders with pre-matriculation onsets were more important than those with post-matriculation onsets in predicting subsequent college attrition, with substance disorders and, among women, major depression the most important such disorders. The authors conclude that detection and effective treatment of these disorders early in the college career might reduce attrition and improve educational and psychosocial functioning.
Bunting, M. & Moshuus, G.	2016	Adolescence (13-17 yrs).	Empirical Study, Qualitative Study, Longitudinal Study	Risk factors	The interpretation of the data reveals issues of young people having a voice or being silenced, staying, and completing school or being excluded from school as silenced individuals or (less frequently) as outspoken dissidents. The study explores how these young people frame their narratives, as this factor seems to contribute to diametrically opposed outcomes (dropping out or completion). The findings indicate that young people who employ similar negative frames to describe their interactions both at home and at school are the most vulnerable to dropping out.

Cuellar, A. & Dhaval, D. M.	2016	Adolescence (13-17 yrs), USA.	Empirical Study, Quantitative Study	Intervention	Estimates indicate that certain types of intensive mental health intervention can lower dropout and increase high-school completion for justice-involved youth. Effects on grades are negative or not significant, possibly due to the greater retention of less academically-skilled students. We also assess heterogeneity in the treatment effects, and find that the effects on dropout tend to be greater among youth believed to be less academically engaged prior to treatment.
Dooley, T. P. & Schreeckhise, W. D.	2016	Adolescents (13-17 yrs), USA.	Empirical Study, Quantitative Study	Intervention	Initially, the program seems to have an impact. Students who participate in the program are less likely to drop out of school than students in a comparison group. However, when other factors are taken into consideration, such as whether the student was “over-age” for their grade (and thus likely had been “held back”), the effect that program participation had on the likelihood of dropping out disappears. In short, the study find that when controlling for other factors, no statistically significant relationship exists between program participation and dropout rates.
Franklin, B. J. & Trouard, S. B.	2016	Adolescence (13-17 yrs), USA.	Empirical Study, Longitudinal Study, Quantitative Study	Risk factors	The results show that age and poverty proved to be the most effective at discriminating between dropouts and graduates within each panel. Age became more effective with time. Attendance and test scores were stable indicators between panels. Gender predicted dropouts for only the ninth grade panel. Eighth graders that were female were approximately 22% less likely to drop out.
Iachini, A. L., Rogelberg, S., Terry, J. D. & Lutz, A.	2016	Adolescence (13-17 yrs), USA.	Empirical Study, Interview, Focus Group, Qualitative Study, Quantitative Study	Intervention	Students reported being satisfied and finding the intervention helpful in promoting school-related skills. These findings document the promise of MI as a feasible and acceptable strategy for working with students who are repeating the ninth grade in an effort to prevent high school dropout.
Jóhannesson, I. A. & Bjarnadóttir, V. S.	2016	Adolescence (13-17 yrs), Iceland.	Empirical Study, Qualitative Study	Risk factors and intervention	The article concludes that a school culture and practice that enables teenagers and young adults to exercise their right to re-enter academic upper secondary education, which prepares for college, rather than directing them to an industry vocational or practical study program they take little or no interest in is optional.
Kotok, S., Ikoma, S. & Bodovski, K.	2016	Adolescence (13-17 yrs)	Empirical Study, Longitudinal Study, Quantitative Study	Risk factors	The findings indicate that attending a high school with better disciplinary order and stronger school attachment for the students is associated with a decreased likelihood of dropping out, above and beyond individual characteristics.

McKee, M. T. & Caldarella, P.	2016	Adolescence (13-17 yrs), USA.	Empirical Study, Quantitative Study	Risk factors and intervention	Findings indicated that middle school GPA, grades, attendance, and ACT math scores were all strong predictors of ninth grade performance. Using these middle school risk indicators, ninth grade students at risk of school failure may be identified early and provided interventions during their first year of high school.
Robertson, J. S., Smith, R. W. & Rinka, J.	2016	Adolescence (13-17 yrs), USA.	Empirical Study, Quantitative Study	Intervention	The researchers surveyed 23 North Carolina high schools that had markedly improved their graduation rates over the past five years. The administrators reported on the dropout prevention practices and programs to which they attributed their improved graduation rates. The majority of schools reported policy changes, especially with suspension. The main interventions that showed positive impact were improvements in academic support, school/classroom climate, and transition from middle to high school. School districts did support their schools, but only 61% gave additional financial support. Several school administrators reported success of specific programs, teachers having engaging lessons and high expectations, close monitoring of students, giving students more chances to succeed, and improved individual/family support as contributors to their improved graduation rates.
Van Houtte, M. & Demanet, J.	2016	Adolescence (13-17 yrs) Netherland.	Empirical Study, Quantitative Study	Risk factors	The results show that being enrolled in vocational education heightened the risk of planning to quit, and that teachers' beliefs impacted dropout plans, beyond students' perceived teacher support. Particularly in vocational education, teachers' beliefs played an important role.
Wang, H., Chu, J., Loyalka, P., Xin, T., Shi, Y., Qu, Q. & Yang, C.	2016	Adolescence (13-17 yrs), China.	Empirical Study, Quantitative Study	Intervention	The results show that after eight months, the SEL program reduces dropout by 1.6 percentage points and decreases learning anxiety by 2.3 percentage points. Effects are no longer statistically different from zero after 15 months, perhaps due to decreasing student interest in the program. However, we do find that the program reduces dropout among students at high risk of dropping out (older students and students with friends who have already dropped out), both after eight and 15 months of exposure to the SEL program.
Archambault, L., Janosz, M., Dupéré, V., Brault, M.-C. & McAndrew, M.	2017	Adolescence (13-17 yrs), Canada.	Empirical Study, Quantitative Study	Risk factors	The results showed that first- and second-generation students faced more economic adversity than third-generation-plus students and that they differed from each other and with their native peers in terms of individual, social, and family risk factors. Moreover, 40% of the risk factors considered in the study were differentially associated with first-, second-, and third-generation-plus students' failure to graduate from high school.

Boyes, M. E., Berg, V. & Cluver, L. D.	2017	Adolescence (13-17 yrs), South Africa.	Empirical Study, Quantitative Study	Risk factors	As predicted, the results show that higher poverty scores (AOR = 2.01, $p < .001$) were associated with increased odds of school dropout 1 year later. Gender was not a significant predictor of school dropout (AOR = 1.56, $p = .07$) but did interact with poverty (AOR = 0.66, $p = .04$) in predicting school dropout. However, the initial hypothesis that the impact of poverty on school dropout would be stronger for girls than boys was not supported. Instead, results indicated that while girls were at elevated risk of school dropout at low and mean levels of poverty, at high levels of poverty this gender difference was no longer evident.
Boylard, R. L. & Renzulli, L.	2017	Adolescence (13-17 yrs), USA.	Empirical Study, Quantitative Study	Risk factors	The analysis reveals that being either pushed or pulled has little differential impact on the reengagement process. But, particular reasons within the categories have strong effects on keeping students out of school and on the pathways that they take if they return.
Brière, F. N., Pascal, S., Dupéré, V., Castellanos-Ryan, N., Allard, F., Yale-Soulière, G., & Jamosz, M.	2017	Childhood (birth-12 yrs), School Age (6-12 yrs), Adolescence (13-17 yrs), Adulthood (18 yrs & older), Young Adulthood (18-29 yrs), Canada.	Empirical Study, Quantitative Study	Risk factors	The results show that depressive symptoms did not predict school non-completion after adjustment, but moderation analyses revealed an association in students with elevated academic functioning. A curvilinear association was found for anxiety: both low and high anxious symptoms predicted school non-completion, although only low anxiety remained predictive after adjustment.
Cook, R., Dodge, K., Gifford, E. & Schulting, A.	2017	Adolescence (13-17 yrs), USA.	Empirical Study, Quantitative Study	Intervention	The analysis of attendance data indicated that ETPP significantly reduced the prevalence of absenteeism without excessively burdening teachers. Teachers reported improved communication between parents and teachers and had a positive assessment of the effects of specific program elements.

Dougherty, D. & Sharkey, J.	2017	Childhood (birth-12 yrs), School Age (6-12 yrs), Adolescence (13-17 yrs), USA.	Empirical Study, Mathematical Model, Quantitative Study	Risk factors and intervention	The results revealed that students who participated in the program had higher academic achievement compared to the control group. Prior levels of academic achievement moderated the effectiveness of the program with students with low initial levels of academic achievement benefiting more. Emotional competencies and social support did not mediate the relation between participation and achievement. The intervention was related to improved academic achievement among participants; however, the means by which it was effective was unclear. Given the evidence that the program was more effective for some students than others, targeting interventions to meet specific needs of students may be advantageous.
Gustafsson, B., Katz, K., & Österberg, T.	2017	Adolescence (13-17 yrs), Sweden.	Empirical Study, Quantitative Study	Risk factors	The hypothesis that if a young person sees examples of people who are not able to earn a living despite having a long education, such negative examples are influential. Results from estimated logistic models are consistent with the hypothesis.
Magen-Nagar, N. & Shachar, H.	2017	School Age (6-12 yrs), Adolescence (13-17 yrs), Israel.	Empirical Study, Quantitative Study	Risk factors and intervention	Findings showed the effect of the type of school (traditional vs. experimental) on the connections between quality of teaching and dropout risk; these connections are stronger in traditional schools. The conclusion was that quality of teaching plays an important role in decreasing the risk of dropout. Teaching quality has a significant effect on students' satisfaction and their sense of belonging, thereby affecting the risk of dropout.
Na, C	2017	Adolescence (13-17 yrs), Virgin Islands, USA.		Risk factors and consequences	The results show that school dropout significantly increases the likelihood of rearrests, but there is no statistically discernible impact of dropping out of school on self-reported reoffending.
Ottosen, K. O. Goll, C. B. & Sørli, T.	2017	Adolescence (13-17 yrs), Norway.	Empirical Study, Qualitative Study	Risk factors and intervention	Qualitative analysis showed that the teacher-student relationships over years had become more complicated since the implementation of a new educational reform, making the syllabus increasingly theoretical and thus reducing the practical value for many students. Limitations in students' knowledge, skills and academic interest, contributed to the creation of huge differences in academic levels within the class and thus reduced the quality of teaching. Societal changes were identified as possible factors underlying the high dropout rate. Better guidance regarding educational choices, study programs adapted to the students' interests, and actively nurturing involvement may prevent dropout.

Robinson, S., Jagers, J., Rhodes, J., Blackmon, B. J., & Church, W.	2017	Adulthood (18 yrs & older), USA.	Empirical Study, Quantitative Study	Risk factors	The relative impacts of demographic characteristics (race, gender, birth year), school-related factors (grade failure, free lunch status, average number of days missed per year, expulsions) and juvenile justice involvement were examined on graduation and dropout outcomes. The results show that juvenile justice contact and school expulsion were the best predictors of negative school outcomes.
Simić N. & Kristić K.	2017	Adolescence (13-17 yrs), Serbia.	Empirical Study, Qualitative Study	Risk factors and intervention	The results show that low quality (individualisation) of teaching, lack of learning and emotional support and lack of positive teacher-student relationships proved to have the greatest influence on student dropout. The results indicate that student and parent participation in school life is underused as a resource for dropout prevention.
Wahlgren, B. & Marriager-Anderson, K.	2017	Young Adulthood (18-29 yrs), Denmark.	Empirical Study, Quantitative Study	Intervention	The data showed that these focused training programs have an effect on the educational culture at the colleges and on the teachers' attitudes toward the importance of reducing drop-out rates. As a consequence, the teachers acted more consistently and purposefully to prevent dropout, and a positive effect of the intervention on drop-out rates was documented.
Weybright, E., Caldwell, L., Xie, H., Wegner, L., & Smith, E.	2017	Adolescence (13-17 yrs), South Africa.	Empirical Study, Longitudinal Study, Quantitative Study	Risk factors and intervention	The results indicated being male, not living with one's mother, smoking cigarettes in the past month, and lower levels of leisure-related intrinsic motivation significantly predicted dropout.
Wood, L., Kiperman, S., Esch, R. C., Leroux, A. J. & Truscott, S. D.	2017	Adolescence (13-17 yrs), USA.	Empirical Study; Longitudinal Study, Quantitative Study	Risk factors	The results indicate that significant student-level predictors included academic achievement, retention, sex, family socioeconomic status (SES), and extracurricular involvement. Significant school-level predictors included school SES and school size. Race/ethnicity, special education status, born in the United States, English as first language, school urbanicity, and school region did not significantly predict dropout after controlling for the aforementioned predictors.

Zaff, J. F., Donlan, A., Gunning, A., Anderson, S., McDermott, E., Sedaca, M.	2017	Adolescence (13-17 yrs), USA.	Systematic Review	Risk factors	<p>Through this systematic search, we identified 12 assets in individual, family, school, peer, and community contexts, which predict high school graduation, as well as identified assets for which more research is needed. At the individual level the found 11 studies showing that intrinsic academic motivation, academic engagement, locus of control, and expectations for academic attainment predict continued enrollment and high school graduation. Parents play an important role in the educational outcomes of their children. Their findings show that parents' involvement in their adolescent children's education and the closeness of the relationships between parents and adolescent children predict whether young people stay in or graduate from high school. The involvement of adults in a young person's life extends beyond the family. They found that social connections in schools and peer groups have the potential to build the individual promotive factors that predict graduation and continued enrollment. Specifically, the youth-teacher relationship shows consistent, direct predictive effects on graduation and continued enrollment. These relationships could either be more intensive, mentoring-like relationships or more informal but substantive relationships that a teacher nurtures with a student. Moreover, the norms that peers set for each other around educational attainment also influence a young person's chances of staying in and graduating from high school. Institutions Provide Opportunities for Connection. School-based and non-school-based extracurricular activity participation can affect graduation and continued enrollment rates. Studies of community and school-based extra-curricular activities suggest that high quality programs provide supportive adult and peer relationships, meaningful skill-building opportunities, appropriate structure for the developmental period of youth, opportunities to belong, and positive social norms</p>
Bilodeau, C. & Meissner, J.	2018	Young Adulthood (18-29 yrs), Canada.	Empirical Study, Quantitative Study	Intervention	<p>Results showed significant overall increases in student grade point average (GPA), academic functioning, and mental health well-being, demonstrating the program's effectiveness in addressing the differential needs of students.</p>
Biolcati, R., Palareti, L. & Mamei, C.	2018	Adolescents (13-17 yrs), Italy.	Empirical Study, Quantitative Study	Intervention	<p>The findings reveal the capacity of individual counselling to serve the most vulnerable adolescents, with the exception of students who might be at risk of school drop-out.</p>

Brent, R. J. & Maschi, T.	2018		Empirical Study	Intervention	The costs are incurred in the past by an assumed preschool intervention that would have prevented school dropout and facilitated some college education. To estimate education effectiveness, life stressors are used as controls. The best estimate of the benefit–cost ratio was around six for some college component and it was over one for the drop out component considered alone.
Browne, E. L.	2018	Adolescence (13-17 yrs), USA.	Empirical Study, Qualitative Study	Risk factors	The study results revealed seven important themes (a) grade retention, (b) disengagement with school officials, (c) adequate intake, (d) stress, (e) socioeconomics, (f) parental disengagement, and (g) low effort. These findings have important implications for parents and school officials, with respect to designing and implementing effective intervention strategies that will aid in Black Virgin Islands male students remaining in and graduating from high school.
Dupere, V., Dion, E., Nault - Briere, F., Archambault, I., Leventhal, T. & Lesage, A.	2018	Adolescence (13-17 yrs), Canada.	Empirical Study, Interview, Quantitative Study	Risk factors	The results from this hypothesis testing study show that almost one dropout out of four had clinically significant depressive symptoms in the 3 months before leaving school. Adolescents with recent symptoms had an odd of dropping out more than twice as high as their peers without such symptoms (adjusted odds ratio = 2.17; 95% confidence interval = 1.14–4.12). In line with previous findings, adolescents who had recovered from earlier symptoms were not particularly at risk. These findings suggest that to improve disadvantaged youths' educational outcomes, investments in comprehensive mental health services are needed in schools struggling with high dropout rates, the very places where adolescents with unmet mental health needs tend to concentrate.
Hetlevik, Ø., Bøe, T. & Hysing, M.	2018	Adolescence (13-17 yrs), Adulthood (18 yrs & older), Young Adulthood (18-29 yrs), Norway.	Empirical Study, Quantitative Study	Risk factors	The results show that after controlling for somatic comorbidity and parent education level, the absolute risk for not fulfilling secondary education by age 20 was 43% among girls and 60% among boys with internalizing problems and approximately 15% points higher with externalizing problems. The highest absolute risk for dropout was found for boys and girls who have both externalizing and internalizing problems. However, with some overlap in the confidence intervals, the added impact of internalizing problems when added to externalizing problems is uncertain. The authors conclude that intervention for mental health problems by a GP could benefit adolescent education outcomes and mental well-being.

Holen, S- Waaktaar, T. & Sagatun, Å.	2018	Adolescence (13-17 yrs), Norway.	Empirical Study, Quantitative Study	Risk factors and intervention	The results indicated that teacher-student relationship is a potential mechanism to reduce the negative associations between mental health problems and later noncompletion. However, students with mental health problems seemed to experience less supportive teachers; therefore, interventions targeting teacher-student relationships may be required.
Lee, K-G. & Polachek, S. W.	2018	Adolescence (13-17 yrs), USA.	Empirical Study, Quantitative Study	Risk factors	The results indicate that increases in school expenditures reduce New York State dropout rates.
Malloy, J. M., Bohanon, H., & Francoeur, K.	2018	Adolescence (13-17 yrs), USA.	Empirical Study, Qualitative Study	Intervention	The quality of a school's social environment is critically related to student outcomes, including academic performance, attendance, student behavior, and high school completion rates. New Hampshire engaged in a dropout prevention initiative between 2006 and 2012 that focused on implementation of the multitiered Positive Behavioral Interventions and Supports (PBIS) framework combined with an intensive, student-driven school-to-adult life transition intervention for the highest-need youth. This article presents a case study of how one high school in New Hampshire implemented PBIS at all three tiers of support: schoolwide, targeted, and intensive. The case study includes a description of practices implemented by the school, school- and student-level outcomes pre- and postimplementation, the coaching and training support provided to school staff, and successes and challenges experienced by the school.
Mcdermott, E. R., Donlan, A. E. & Zaff, J. F.	2018	Young Adulthood (18-29 yrs).	Empirical Study, Quantitative Study, Qualitative Study	Risk factors	Qualitative analysis provided seven categories of turning points: mobility, family, peers, school engagement and environment, health, crime, and multiple categories. More than half of respondents indicated that the reason they dropped out was related to school engagement and environment. Results showed differences across profiles of lived experiences, reported turning points, and sex.

Mikkonen, J., Moustgaard, H., Remes, H. & Martikainen, P.	2018	Childhood (birth-12 yrs), School Age (6-12 yrs), Adolescence (13-17 yrs), Adulthood (18 yrs & older), Young Adulthood (18-29 yrs), Finland.	Empirical Study, Longitudinal Study, Quantitative Study	Risk factors and consequences	<p>The results show that children with any health condition requiring inpatient or outpatient care at ages 10–16 years were more likely to be dropouts at ages 17 years (risk ratio 1.71, 95% CI 1.61–1.81) and 21 years (1.46, 1.37–1.54) following adjustment for individual and family sociodemographic factors. A total of 30% of school dropout was attributable to health conditions at age 17 years and 21% at age 21 years. Mental disorders alone had an attributable fraction of 11% at age 21 years, compared with 5% for both somatic conditions and injuries. Adjusting for the presence of mental disorders reduced the effects of somatic conditions. The authors conclude that more than one fifth of educational dropout is attributable to childhood health conditions and that early-onset mental disorders emerge as key targets in reducing dropout.</p> <p>Awareness of trauma and the impact it has on children is a growing concern for schools in the United States. Exposure to trauma has been linked to challenges with learning, social/emotional health, and behaviors, all of which can negatively impact school experience and lead to issues with engagement and high school completion. We discuss suggestions for how school counselors can use a trauma-informed approach to implement systemic interventions, targeted interventions, and collaborative partnerships.</p>
Rumsey, A. D. & Milsom, A.	2018	Adolescence (13-17 yrs), USA.	Overview	Intervention	<p>There are several causes leading to school dropout, such as, family background, conflict between family and school, absenteeism from school, bad school achievements, weak school contacts, school failures, etc. The purpose of the research was to find the main causes of early school leaving – according to teachers’ opinion. The research was carried out in a Vocational Centre among teachers in the form of self-administered questionnaire in 2017. In the questionnaire, five categories were identified (students’ features, family, peers, teachers, and institution) that may contribute to dropout. The result showed that out of the five categories teachers think that mostly students and least the institution is responsible for dropout.</p>
Szabó, C. M.	2018	Adolescence (13-17 yrs), Hungary.	Empirical Study, Quantitative Study	Risk factors	<p>The study found that poverty, low educated parents, low parental engagement in child’s education, school distance, being bullied, teased, and induced to dropout were challenges to ethnic minority’s uppersecondary school. More importantly, the study provided supporting evidence for a positive attitude toward schooling and effective support from their parents, relatives, school and in-school peers can prevent ethnic minority student from school dropout and promote their educational success.</p>
Trieu, Q. & Jayakody, R.	2018	School Age (6-12 yrs), Adolescence (13-17 yrs), Vietnam.	Empirical Study, Quantitative Study	Risk factors	<p>The study found that poverty, low educated parents, low parental engagement in child’s education, school distance, being bullied, teased, and induced to dropout were challenges to ethnic minority’s uppersecondary school. More importantly, the study provided supporting evidence for a positive attitude toward schooling and effective support from their parents, relatives, school and in-school peers can prevent ethnic minority student from school dropout and promote their educational success.</p>

Balenzano, C., Moro, G. & Cassibba, R.	2019	Adolescence (13-17 yrs), Italy.	Empirical Study, Qualitative Study, Quantitative Study	Risk factors and intervention	The results show that even if SIG appears to impact scholastic self-esteem and peer relationships, no effect was found when a comparison group matched for baseline measures was used.
Dup��r��, V., Goulet, M., Archambault, L., Dion, E., Leventhal, T., & Crosnoe, R.	2019	Adolescence (13-17 yrs), USA.	Empirical Study, Quantitative Study	Risk factors	Based on interviews conducted with early school leavers and matched at-risk schoolmates (N = 366) in 12 disadvantaged Canadian high schools, recent disruptive events appeared to generally trigger dropout. However, the prevalence of some types of events associated with dropout varies according to the environment. In agreement with social disorganization and formal/informal social control models, crises involving child welfare services or the juvenile justice system (e.g., an arrest after a fight) represented a lower share of triggering events among rural than urban leavers (8% vs. 26%, respectively), whereas those involving peer conflicts and rejection (e.g., exclusion from one's peer group) were overrepresented among rural compared to urban leavers (26% vs. 10%, respectively). These differences are thought to represent upsides and downsides associated with the relative density, stability, and overlapping nature of rural adolescents' social networks.
Wils, A., Sheehan, P., & Shi, H.	2019	Childhood (birth-12 yrs), School Age (6-12 yrs), Adolescence (13-17 yrs), Adulthood (18 yrs & older), Young Adulthood (18-29 yrs) in 44 developing countries.	Empirical Study, Quantitative Study	Risk factors and intervention	Poverty, female gender, and rural location are key risk factors for secondary school dropout. In terms of interventions, school proximity for rural students is critical. Better teaching both reduces dropout and improves learning, whereas instruction in the mother tongue improves also improves learning. Systematic implementation of nine interventions in the 44 countries, 1 costing US\$10.5 per capita per annum, would increase secondary completion rates by about 25% and more than double the index of learning achieved by 2030, with the effects being more pronounced in low-income countries.
Vinas-Forcade, J., Mels, C., Valcke, M. & Derluyin, I.	2019	Adolescence (13-17 yrs) Uruguay.	Overview	Intervention	Results underpin summer peer interactions, teacher-student relations and extra-curricular activities shape positive pre-entry expectations of at-risk students, which secondary schools cannot always fulfil.

