What are the risk, promotive and protective factors for the educational outcomes for children in foster and kinship care?

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Abstract

Background: Children in care are at risk of low educational attainment (Trout, Hagaman, Casey, Reid, & Epstein, 2008). Interventions have been developed to address this problem but systematic reviews of the evidence find that their effectiveness is currently limited (R. Evans, Brown, Rees, & Smith, 2017). Research suggests that the processes underlying low achievement for this population, which are key to informing theories of change in interventions, are poorly understood (Liabo, Gray, & Mulcahy, 2012; Stone, 2007). This thesis speaks to this gap in the literature by investigating risk, promotive and protective factors for children in care.

Methods The thesis includes two studies. In the first, a systematic review of risk, promotive and protective factors for the educational outcomes for children in care was conducted. It aimed to uncover variables that might be targeted in educational interventions. The second study analysed longitudinal secondary data on the educational outcomes of 690 teenagers in care in Ontario, Canada. It examined the relationship between carer involvement and the educational outcomes of young people they care for. Specifically, the study used descriptive statistics and two latent growth curve models to explore what carers do and whether carer involvement, specifically aspirations, is a promotive factor for educational outcomes for children in foster and kinship care. Moderation analysis was then carried out to determine whether carer's high aspirations are a protective factor for children in care with special educational needs.

Results The review identified 33 studies for inclusion. Findings suggested that boys, those from minority backgrounds, children with special educational needs or behavioural problems were more likely to struggle academically than others. Length of time in care was not a risk factor. Finally, findings indicated that carer involvement in educational activities is associated with better school performance outcomes. In Study Two, analyses showed that carers are involved in the education of children, that high aspirations predict better school performance outcomes even after controlling for prior school performance and that carers' aspirations are a protective factor for children with special educational needs.

Conclusion This thesis presents evidence that carers' involvement in children's education, in particular high aspirations, is a promotive factor for children in care and a protective factor for children in care with special educational needs. However, it also highlighted a significant gap in the literature suggesting that carer involvement is not well understood for children in care. These findings may inform future interventions to promote the education of children in care.

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Part One: Background of the thesis

Chapter 1. Introduction

Several decades of research have documented the educational difficulties of children and young people in state care (Stone, 2007). A large body of evidence shows that they are far more likely to score poorly on academic tests, fail exams, drop out of school, be excluded and to have low attendance (Berger, Bruch, Johnson, James, & Rubin, 2009; Doyle, 2013; Scherr, 2007; Sebba et al., 2015; Smithgall, Gladden, Howard, Goerge, & Courtney, 2004; Trout et al., 2008). While some young people in care enjoy educational success (Jackson & Cameron, 2012), many reach adulthood with few or no qualifications, thus putting them at risk of long term economic and social disadvantage (Forsman, Brännström, Vinnerljung, & Hjern, 2016; Okpych & Courtney, 2014). In fact, many studies have reported that care experienced adults are more likely to experience poor physical and mental health, unemployment and criminality, than people in the general population (Berlin, Vinnerljung, & Hjern, 2011; Buehler, Orme, Post, & Patterson, 2000; Centre for Social Justice, 2015; Dregan, Brown, & Armstrong, 2011; Dregan & Gulliford, 2012).

Supporting young people in care to succeed in school may therefore be an effective strategy to improve their long-term life chances. This thesis aims to identify mechanisms by which this can be achieved by asking the question: what are the risk, promotive and protective factors for the educational outcomes of children in care? Detailed definitions are provided in Chapter 2, but broadly risk factors are variables which predict a negative outcome, promotive factors predict a positive outcome and protective factors predict a positive outcome for an at-risk population. To answer the

overarching thesis question, first, I systematically reviewed the existing literature to identify what is already known on this topic. Secondly I conducted an empirical analysis using secondary data analysis of a longitudinal dataset of the relationship between the involvement of foster carers in children's education and their school performance.

This thesis is motivated by three findings from research. Firstly, there is a dearth of longitudinal analyses describing and analysing how educational pathways develop over time and the factors that shape these (Stone & Zibulsky, 2015). Secondly, the evidence on mechanisms underlying the educational outcomes of children in care is inconsistent; this impedes the development of evidence based logic models to inform interventions (Goemans, van Geel, & Vedder, 2015; Oosterman, Schuengel, Wim Slot, Bullens, & Doreleijers, 2007; Romano, Babchishin, Marquis, & Fréchette, 2015; Stone, 2007). Finally, existing interventions to promote the education of children in care are yet to show substantial effects on children's outcomes; knowledge of risk and protective factors may enhance programme theory and boost their effectiveness (R. Evans et al., 2017; Forsman & Vinnerljung, 2012; Liabo et al., 2012; Stone, 2007).

This chapter provides an introduction and overview of the thesis. First, I describe the population of children in care and their educational status. Second, I present the rationale and research focus for this thesis. Third, I briefly outline the theoretical framework for the study. Fourth, I detail the structure of the analyses in this thesis and present the research questions. Finally, I explain the overall dissertation structure.

1.1 Who are children in care?

1.1.1 Definitions and size of the population

Children in care are young people under the age of 18 (or 16 in some jurisdictions), for whom the state acquires some parental responsibility, when their parents are unable to care for them. In the majority of cases, children are removed from the care of their parents and provided with alternative accommodation and support by government agencies, or charities or private organisations contracted to deliver services by the state (Fernandez & Barth, 2010). Different countries and regions use different terminologies to describe the status of these children, including, for example, out-of-home care (USA, Canada and Australia) and Children Looked After (England); the term 'children in care' is a broad umbrella term which is adopted for the purpose of this study and acknowledges differences in legal status. In high-income countries[1], most children enter care because they have been neglected and / or maltreated, witnessed or experienced domestic violence, become orphaned or because their parents are absent for another reason (Fernandez & Barth, 2010). Some children, in particular adolescents, come into care because they have behavioural issues that their parents are unable to manage (Conger & Rebeck, 2001; Sinclair, 2006; Whittaker, 2006).

Estimating the size of the population of children in care is complex as it is constantly in flux, definitions of 'in care' status vary and statistics are collected in different ways, if at all, across countries (Gilbert, 2012; Thoburn, 2010). Administrative sources and research publications provide some estimates for comparisons across countries; these are shown in Table 1 below.

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[1] This World Bank definition is used here http://data.worldbank.org/about/country-classifications

Table 1: Number and rate of children in out of home care

	Number of children in care	**Rate per 1000**
Australia (2016)	46 500	8.60
Canada (2013)	62 428	8.50
England (2017)	72 670	6.20
France (2010)	133 700	9.30
Germany (2010)	167 477	8.00
Italy (2010)	23 309	2.00
New Zealand (2012)	3 783	4.00
Norway (2010)	10 223	6.10
Spain (2010)	35 505	4.60
Sweden (2011)	18 400	9.00
Netherlands (2010)	35 435	9.00
USA (2017)	437 465	9.00

Note: these data are assembled from multiple sources so the date of the estimate changes by country (AIHW, 2017; Backe-Hansen, Højer, Sjöblom, & Storø, 2013; Courtney, Flynn, & Beaupré, 2013; del Valle, Canali, Bravo, & Vecchiato, 2013; DfE, 2017; Fernandez & Atwool, 2013; Gabriel, Keller, Bolter, Martin-Blachais, & Séraphin, 2013; Hardera, Zeller, López, Köngeter, & Knorth, 2013; A. J. Jones, Sinha, & Trocme, 2015; U.S. Department of Health and Human Services Administration for Children and Families, 2017).

1.1.2 Placements

One of the cornerstones of the care system is the accommodation provided to children, generally referred to as a placement. These vary in length and purpose. They may be short-, medium-, or long-term and their objectives range from short-term emergency placements to the provision of an alternative “forever family” for children (Wilson, 2006). In most countries, the majority of children are in care short term and

return to live with their parents after a short time (Thoburn, 2010; Wilson, 2006). In some countries, children can also be adopted from a care placement (Courtney et al., 2013; DfE, 2017). The aims and objectives of placements may change over time, are not always explicit and vary according to the needs of individual children and the context. Some children leave and enter care a number of times and many experience multiple placements without leaving care (DfE, 2017; Thoburn, 2010).

In most jurisdictions, children can be accommodated in different placement types; the most common include foster care, kinship care or residential group homes. Foster care involves the placement of a child with a family other than their own (Sinclair, 2005; Wilson, 2006); in (formal) kinship care children live with a family member other than their parents, for example, a grandparent or aunt or uncle, who have been approved by the relevant authorities (Winokur, Holtan, & Batchelder, 2014). Some children may live in informal kinship care, that is, with a grandparent or aunt but not be under the care of the local authority; these children are not considered to be 'in care'. Young people placed in group or residential homes (which differ in size and purpose) live with peers and are usually supported by several adult staff (Sinclair, 2006; Whittaker, 2006). The distribution of placement types varies by country, as Table 2 below shows (reproduced from del Valle & Bravo, 2013).

Table 2: Percentage of children in foster care, kinship care and residential care across countries (data from 2010-12)

	Foster care	Kinship care	Residential care
Australia	43.04	47.96	5.00
England	64.56	15.84	10.80
France	53.30*		38.60
Germany	34.32	9.68	56.00
Hungary	60.00*		40.00
Ireland	61.45	29.05	7.10
Italy	27.78	21.82	50.40
New Zealand	34.89	44.41	16.70
Norway	66.56	19.44	14.00
Romania	37.43	25.37	37.20
Spain	15.10	45.30	43.90
Sweden	50.19	21.51	28.30
The Netherlands	36.29	20.41	43.30
USA	47.82	27.48	14.80

*Disaggregated numbers were not provided
Note: numbers may not add up to 100% if there are other accommodation types in these countries.

There is a broad consensus across high-income countries that living with a family should be the preferred option for children in care, with many countries transitioning towards a system in which the majority of children are accommodated this way and not in residential group homes (del Valle & Bravo, 2013). However, in some countries like Japan, Israel or Portugal and to some extent in Germany and Italy, the majority of children live in residential care (Carvalho, Delgado, Benbenishty, Davidson-Arad, & Pinto, 2018; Melkman, Refaeli, & Benbenishty, 2016; Thoburn, 2007). Differences in placement types are often explained by the socio-cultural and

historical contexts of different countries or states (del Valle & Bravo, 2013; Thoburn, 2007).

1.1.2.1 Foster care and kinship care

This thesis focuses exclusively on children in care in family settings: foster or kinship care, defined as above. However, while these placements share common features because they are family based rather than group settings, they are also different in a number of important ways. In particular, there is some evidence that the characteristics of children (for example their level of behavioural problems and prevalence of disability) and carers (for example, their age, socio-economic status and level of education) vary in systematic ways (Farmer, 2009). Moreover, the experiences of kinship carers looking after children is distinctive from those of foster carers. For example, their relationship and interactions with social services differ if they perceive assessments and interventions as more intrusive (Connolly, Kiraly, McCrae, & Mitchell, 2017). Kinship carers' relationship with the birth parents of the children (whether ongoing or not) is also, by definition, qualitatively different to those of foster carers. Research also suggests that while foster and kinship carers are subject to the same policy regulations, practice differs (Berrick, 1997; Brown & Sen, 2014; Hunt, 2003; O'Brien, 2012). Finally, research has documented some variation in outcomes for children in foster and kinship care in terms of stability, well-being and education, with suggestions that those in kinship placements do slightly better (Brown & Sen, 2014; Rubin et al., 2008; Winokur et al., 2014). Educational outcomes by placement type are explored in more detail in the review in Chapter 3 and in the empirical study in Part 3 of the thesis. Throughout the thesis, I refer to 'carers' to

include both kinship and foster carers, except where a distinction is substantive to the discussion. As the thesis focusses on the outcomes for children in kinship and foster care this limits the generalisability of the findings to young people in care who are not placed in these settings.

1.1.3 Leaving care

In some jurisdictions, young people may continue to have rights afforded to them by welfare providers after they are discharged from care. In England, for example, young people who have been in care for 13 weeks or more after their 14th birthday and were in care on or after their 16th birthday are entitled to support until the age of 25 (Children and Social Work Act 2017). Such support may include assistance with accommodation, finance, and access to education, health and other services (M. Stein, Ward, & Courtney, 2011).

1.1.4 Outcomes of care

While differences exist between different national child welfare regimes and national policies regarding children in care, cross-country analyses have shown that child protection systems across North America and some European countries have largely converged functionally over the last two decades (Adema, 2012; Courtney et al., 2013; del Valle & Bravo, 2013; Gilbert, 2012; Thoburn, 2007). Indeed, policy orientations have shifted from an emphasis on child protection to the detriment of family support and vice versa, towards a more comprehensive child development model, inspired by the United Nations Convention on the Rights of the Child (Gilbert,

2012; UNCRC, 1989). This transition has rendered cross-country comparisons between outcomes of children in care more meaningful. Moreover, research has documented many similarities across high-income country contexts in terms of children's outcomes.

Research on mental health, for example, has shown that children in care across high-income countries have a high prevalence of psychological disorders, far higher than their peers in the general population (Bronsard et al., 2016; Hambrick, Oppenheim-Weller, N'zi, & Taussig, 2016; Kääriälä & Hiilamo, 2017; Maclean, Sims, O'Donnell, & Gilbert, 2016; Tarren-Sweeney, 2008). A meta-analysis by Bronsard et al. (2016) found that nearly one in two children or young people in care met the criteria for a psychological disorder, including conduct disorder and oppositional defiant disorder; this is nearly four times the rate for young people in the general population. Children in care are also far more likely to have special educational needs (Cherkasova, Sulla, Dalena, Pondé, & Hechtman, 2013; Scherr, 2007; Willis, Dhakras, & Cortese, 2017). Increased mental health problems and special educational needs may explain the large gaps in educational outcomes between children in care and their peers in the general population (AIHW, 2011; Berger et al., 2009; Berger, Cancian, Han, Noyes, & Rios-Salas, 2015; Berlin et al., 2011; Maclean, Taylor, & O'Donnell, 2017; Trout et al., 2008; Turpel-Lafond, 2007; Vinnerljung & Hjern, 2011). Research has also documented the poor long term outcomes of those who spent time in care as children, in terms of poorer physical and mental health, higher unemployment and increased criminality, compared to people in the general population (Berlin et al., 2011; Buehler et al., 2000; Centre for Social Justice, 2015; Dregan et al., 2011; Dregan & Gulliford, 2012; Forsman et al., 2016; Okpych & Courtney, 2014).

This study is primarily concerned with research findings showing that children in care lag behind their peers in the general population in education. The next section briefly examines this problem and sets the scene for the thesis.

1.2 The educational status of children in care

1.2.1 Comparing the educational outcomes of children in care to their peers

Research has documented a gap between the educational outcomes of children in care and their peers (Berridge, 2012; Goddard, 2000; Goemans, Geel, Beem, & Vedder, 2016; Maclean et al., 2016; Scherr, 2007; Stone, 2007; Trout et al., 2008). A systematic review of the academic status of children in care (limited to literature published in US journals) found that all but one of the 36 included studies reported one-third or more of the population performing below their expected grade level; no study included students in care who performed "above average" and 24 of 36 studies reported student performance in the "low to average" or "low" range. The review also found frequent school changes, high numbers of students repeating a grade, multiple absences and high exclusion[2] rates (Trout et al., 2008). A meta-analysis examining the educational experiences of children in care found that they are disproportionately represented in special education, have higher rates of grade retention and experience exclusion at higher rates than their peers (Scherr, 2007). In Goemans, et al. (2016) a meta-analysis compared the cognitive functioning of children in care and children in the general population. They found that children in care had significantly worse

[2] I will use the English term exclusion, to describe all exclusions, suspensions and expulsions from school.

cognitive functioning than children in the general population, but there was no difference in cognitive functioning between children in care and children supported by social services at home. The conclusions from these reviews are unequivocal: as a group, children in care lag behind their peers in the general population on a number of measures of educational outcomes, including cognitive abilities, attainment, literacy and numeracy test scores, attendance and exclusions.

1.2.2 The impact of being in care

While there is a broad consensus that the education of children in care is a cause for concern, there is little agreement about or understanding of the reasons why attainment overall is low. Some maintain that the care system (for example, placement instability and high turnover of social workers) is to blame (Jackson & Martin, 1998) while others argue that this disregards evidence about children's backgrounds and pre-care experiences (Berridge, 2007; M. Stein, 2006; Wolkind & Rutter, 1973). Two systematic reviews have explored the impact of being in care on children's educational outcomes (Forrester, Goodman, Cocker, Binnie, & Jensch, 2009; O'Higgins, Sebba, & Luke, 2015). In a review of English studies only, Forrester et al. (2009) found that although children in care experienced many difficulties, their welfare appeared to improve over time. O'Higgins et al. (2015) conducted an international systematic review to determine whether there was any evidence to suggest that the relationship between being in care and poor educational outcomes was causal. The review found that children in care were at risk of low attainment, but the main drivers of poor outcomes mostly pre-date entry into care. High quality studies, in particular those which specifically aim to evaluate the impact

of being in care on educational outcomes, find that young people taken into care tend to fare better than children at risk who remain at home (Berger et al., 2009, 2015; Font & Maguire-Jack, 2013). However, in one study, boys entering care at 17 were less likely to graduate from high school than those remaining at home (Warburton, Warburton, Sweetman, & Hertzman, 2014). This points to the vulnerability of late entrants and teenagers in care, reflected in other research (see for example Sebba et al., 2015). Although the evidence was mixed, there was little support for the claim that being in foster or kinship care per se is detrimental to the educational outcomes of children.

1.2.3 Interventions to support the education of children in care

The finding that care does not appear to be damaging, on average, to children's education should focus efforts on proactive strategies to provide services that enable children to thrive. Krebs and Pitcoff (2004, p. 365) argue that "[t]he foster care system must be fully accountable for what happens to [young people] in its custody" and that it is important to ensure the care system provides young people with opportunities to succeed. To this end, a number of interventions have been developed to promote the educational success of children in care. These include tutoring interventions (e.g. Flynn et al., 2012; Harper & Schmidt, 2012), reading interventions (e.g. Griffiths, 2012), residential schools (e.g. Jones & Lansdverk, 2006) and others. Four reviews (Brodie, 2009; R. Evans et al., 2017; Forsman & Vinnerljung, 2012; Liabo et al., 2012) have attempted to determine whether interventions aimed at improving the educational outcomes of children in care work; overall these show limited effectiveness. MacDonald and Turner conducted a systematic review of

Multidimensional Treatment Foster Care (now called Treatment Foster Care Oregon). This is a complex intervention which targets children in care at risk of offending. The review reported educational outcomes, but did not find significant effects (2008). Therefore, it appears that intervention efforts to improve the education of children in care to date have had limited success.

1.2.4 Evidence from qualitative research on the educational experiences of children in care

So far, the research evidence presented has almost exclusively been quantitative. Yet young people have important insights about what helps and hinders their school experiences and and there is a large body of qualitative research documenting this. Many studies have also sought the views of professionals involved with children, including foster carers and social workers.

Broadly, these research findings indicate that children in care attribute any educational success to their grit and determination and the support they receive from adult professionals. Indeed, many young people valued education and were motivated by the determination to achieve; some said this stemmed from a desire to be different from their birth families or show those who lack faith in them that they can succeed (Berridge, 2017; Hass, Allen, & Amoah, 2014; Hines, Merdinger, & Wyatt, 2005; Jackson, Ajayi, & Quigley, 2005; Jackson & Cameron, 2010; Rios & Rocco, 2014; K. Wright, 2013). But they also relied on the support of one or more adults who believed in their academic abilities, encouraged them to succeed and provided practical support where needed (Hass et al., 2014; Hines et al., 2005; Jackson et al., 2005; Jackson & Cameron, 2010; Mendis, Gardner, & Lehmann, 2015; Morton, 2016; K. Wright,

2013). In particular, young people singled out carers who showed that they believed in them by holding high aspirations and setting high standards (Jackson et al., 2005; Skilbred, Iversen, & Moldestad, 2016; Strolin-Goltzman, Woodhouse, Suter, & Werrbach, 2016). Mirroring this, barriers to success identified by research include children's individual characteristics and circumstances, lack of adult support and interest in their education and well-being more generally, and system failures.

Many children report that the stress of entering care and emotional consequences of being separated from their birth families has lasting effects on their well-being, often preventing them from focusing in school and on academic tasks (Ferguson & Wolkow, 2012; Harker, Dobel-ober, Akhurst, Berridge, & Sinclair, 2004; Harker, Dobel-Ober, Lawrence, Berridge, & Sinclair, 2003). Some studies explore the on-going impact of contact with birth parents, at times helpful while at others detrimental to educational progress (Berridge, 2017; Jackson et al., 2005). Young people also report feeling stigmatised by their peers, teachers and other adults by virtue of their care status (Ferguson & Wolkow, 2012; K. Wright, 2013).

Adults working with young people often have low expectations for children in care, which, young people say, impacts on their school performance (Jackson et al., 2005; Mannay et al., 2017). Research also indicates that many young people have little support from their carers and social workers; this might include a failure to identify and respond appropriately to their educational needs (Altshuler, 2003; Ferguson & Wolkow, 2012; Zetlin, Weinberg, & Shea, 2006).

System failures identified as barriers to success by young people and professionals include frequent placement disruptions, poor quality educational programmes for youth in care, little monitoring of school outcomes and poor quality interagency work (Altshuler, 2003; Ferguson & Wolkow, 2012; Hines et al., 2005;

Jackson & Cameron, 2010; Morton, 2016; Rios & Rocco, 2014; Skilbred et al., 2016; Zetlin et al., 2006).

A number of other factors are likely to impact on educational outcomes, including the influence of peers, both positive and negative (Hines et al., 2005; Rios & Rocco, 2014). However, there is little research on these other factors that specifically focuses on children in care and education.

Nonetheless, this literature points to some of the factors that may have a risk or protective effect and should therefore be targeted in interventions.

In summary, research indicates that children in care are at significant risk of educational difficulties. Interventions to support their progress have shown little success to date. While the qualitative literature points to many salient factors for the education of children and young people in care, research has not systematically been reviewed to identify risk, promotive and protective factors and to set out the mechanisms underlying these difficulties. It is this gap in the literature which this thesis seeks to address. The rationale for the study is outlined in the next section.

1.3 Research rationale

Despite several decades of research, it appears that progress to improve educational outcomes for children in care has been slow. I argue that research needs to go beyond documenting the gap between children in care and their peers and identifying adverse life experiences of young people in care, to investigate what factors may help them succeed. While a strengths-based approach has long been advocated in social work literature, to date, most research has adopted a deficit model

(Rhee, Furlong, Turner, & Harari, 2001; Saleebey, 1996; Stone & Zibulsky, 2015). This study proposes to address this gap in the literature by identifying not only the risk but also the promotive and protective factors for educational outcomes for this population, and elucidating some of the mechanisms by which they operate.

Educational interventions have been developed to address the poor educational outcomes of children in care, but their impact appears to be limited (Brodie, 2009; R. Evans et al., 2017; Forsman & Vinnerljung, 2012; Liabo et al., 2012). On-going efforts to demonstrate the effectiveness of interventions will go some way to addressing this problem. However, social and educational interventions are notoriously difficult to develop, implement and evaluate. Interventions for children in care show some positive results, but effect sizes remain small. There could be several reasons for this, other than just the effectiveness of the intervention: recruitment and retention of children in care to research studies are challenging, there is often little buy-in from key professionals, activities do not appeal to local needs and randomisation or even the use of a comparison group (for the purpose of evaluation) is often not acceptable to practitioners (Dixon et al., 2014; R. Evans, Hallett, Rees, & Roberts, 2016; Mezey et al., 2015).

While focusing on implementation should be a priority given these difficulties, another locus of investigation involves examining the premise upon which an intervention is developed. This is usually described by a logic model or theory of change, which articulates risk, promotive and protective factors to be targeted by the intervention. Identifying risk, promotive and protective factors is a key step in the elaboration of an evidence-based intervention and an integral step in the development of the theory of change (CDC, 2007; Fraser, Richman, Galinsky, & Day, 2009; Sameroff & Gutman, 2004). Indeed, programmes work by removing or mitigating the

impact of risk and introducing or strengthening the effect of promotive or protective factors. Articulating a social problem in the light of its risk and protective factors is a critical step in intervention development (Fraser et al., 2009). Without adequate knowledge of the social problem and the risk, promotive and protective factors that give rise to or sustain it over time, interventions may be misdirected and ineffective. These factors are the backbone of interventions. By identifying risk, promotive and protective factors for the educational outcomes for children in kinship and foster care, this study hopes to contribute to the development and refinement of interventions for this population.

1.4 Theoretical framework for the thesis

The theoretical framework driving this thesis is articulated in detail in Chapter 2. In brief, both studies are guided by resilience research. Resilience is defined as positive adaptation despite exposure to adversity; resilience research aims to identify risk and protective factors and mechanisms or processes that might explain these associations (Luthar, 2006). Detailed definitions of risk, promotive and protective factors are presented in Chapter 2 and adopted from epidemiological and criminology literature. These definitions guide the methodological and statistical approaches for the thesis.

1.5 Structure of the analyses in this thesis

This dissertation includes two empirical studies: 1) a research synthesis (i.e., a systematic review) of factors associated with educational outcomes of children in

foster or kinship care; and, based on the findings of this systematic review, 2) an empirical longitudinal analysis of the relationship between carer involvement and school performance for children in foster or kinship care.

The research aims and questions for each study are as follows:

1.5.1 Study One: Research synthesis of risk, promotive and protective factors for the educational outcomes for children in foster and kinship care.

The aims of this study were to identify, appraise, and synthesise existing evidence regarding the factors associated with educational outcomes for children in foster or kinship care in high-income countries. The study focused on high-income countries only as infrastructures, legislation and policies in place for children in care are similar in these countries. This means that the findings of the review are likely to be relevant and therefore, inform policy and practice in these settings.

While a number of systematic reviews have been undertaken to describe the educational status of children in care or examine the effectiveness of educational interventions, to my knowledge, none has attempted to review the risk, promotive and protective factors associated with educational outcomes for children in care.

The research question for Study One was: what are the risk, promotive and protective factors for the educational outcomes for children in foster or kinship care in high-income countries?

1.5.2 Study Two: Is carer involvement a promotive or protective factor for the school performance of children in foster or kinship care?

The findings from the systematic review in Study One suggested that carers' involvement in the education of children they foster is associated with better educational outcomes for children in foster and kinship care. Using secondary data, this was investigated in more depth in Study Two (chapters 4 to 7). The aims of this study were to establish whether carer involvement in education is a promotive factor for school performance of children in care. Additionally, the analysis explored whether carer involvement may be a protective factor for children in care who are at significant risk of school failure: those with special educational needs. Based on findings from the systematic review in Study One and the gaps in research outlined in the literature review in Chapter 4, Study Two addresses the following research questions:

1. How and how much are carers involved in the education of children in care?
2. Is carer involvement at time 1 (T1) a risk or a promotive *correlate* or *factor* for school performance trajectories?
3. Is time-varying carer involvement a risk or promotive *factor* for school performance?
4. Is carer involvement a risk-based or interactive protective factor for school performance of children in care with special educational needs?

Before moving onto the next chapter, which explains the conceptual framework, the final section below outlines this dissertation's structure to provide clear expectations of what is to come.

1.6 Overall dissertation structure

This thesis contains eight chapters distributed across four parts. Part One consists of the Introduction (Chapter 1) and theoretical framework for the thesis (Chapter 2). Part Two includes the methods, findings and discussion for Study One (i.e., the systematic review) in one chapter (Chapter 3). Part Three has four chapters covering Study Two (i.e., empirical analysis of the relationship between the involvement of foster carers in children's education and school performance): a literature review (Chapter 4), methods (Chapter 5), findings (Chapter 6), and discussion (Chapter 7). Finally, Part Four is the thesis conclusion (Chapter 8). Each of the four parts is described in more detail below.

1.6.1 Part One: Introduction and background

The introduction contains the present dissertation overview chapter as well as one chapter on the conceptual framework guiding the study, namely risk and protective factors (Chapter 2). The chapter will also consider Bronfenbrenner's ecological model as a framework for analysis.

1.6.2 Part Two: Methods, findings, and discussion for Study One

Part II is brought together in one chapter and presents the research synthesis for Study One, which is a systematic review of risk, promotive and protective factors associated with educational outcomes for children in foster or kinship care.

1.6.3 Part Three: Literature review, methods, findings, and discussion for Study Two

Drawing on the findings from Study One in Part II, Part III details Study Two. Study Two uses secondary data on 690 children in foster and kinship care in Ontario, Canada, to examine whether carer involvement is a protective factor for school performance of children in care. Part III includes three chapters:

1.6.3.1 Literature review

Chapter 4 is a literature review of parental and carer involvement for educational outcomes for young people in the general population and children in care.

1.6.3.2 Methods chapter

Chapter 5 details the methods used in Study Two, including the secondary data sample, ethics, and structural equation modelling techniques to address the research questions of Study Two.

1.6.3.3 Findings chapter

Chapter 6 presents the findings of the empirical analysis, which examine what carers do and how this is associated with school performance over time. It also

explores whether carers' aspirations are a protective factor for children with special educational needs.

1.6.3.4 Discussion chapter

Chapter 7 contextualises the findings from Study Two within the existing literature and suggests some explanations for the findings. It also identifies Study Two's strengths and limitations before examining the implications for research, policy and practice.

1.6.4 Part Four: Conclusion

This dissertation's fourth and final part is a conclusion chapter that synthesises findings from Study One and Study Two before outlining the contributions to knowledge of the thesis and suggesting directions for future work.

Chapter 2. Conceptual Framework

This chapter situates the concepts of risk and protective factors in an overarching conceptual framework and epistemological approach. First, I present the conceptual framework for the thesis, which draws on resilience, epidemiology and criminology research for definitions of risk, promotive and protective factors. I also use Bronfenbrenner's ecological framework. Secondly, I present the epistemological approach for the thesis.

2.1 Thesis conceptual framework: risk, promotive and protective factors within an ecological framework

This thesis was concerned with identifying risk and protective factors for the educational outcomes for children in care. Aside from being at risk of poor outcomes for the reasons that have put them in care to begin with, children in care may face a number of additional difficult experiences while in care which may also disrupt their education. On the other hand, there may be factors that can mitigate against these risks and help children overcome prior adversity and ultimately succeed. Identifying and understanding risk and protective factors and how they work together to produce positive outcomes for children is the aim of this thesis. In order to do this, I situate the thesis within the resilience framework and draw on epidemiological and criminology literature for further definitions. Finally, I will use the ecological framework as proposed by Bronfenbrenner (1979), as stressed by developmental psychopathologists concerned with understanding resilience in childhood and adolescence.

2.1.1 Resilience research

The construct of resilience, broadly defined as positive adaptation despite exposure to significant threat or severe adversity, has received enormous attention in the past several decades, particularly in the field of developmental psychology (Luthar, 2006; Luthar, Cicchetti, & Becker, 2000). Interest emerged thanks to researchers like Garmezy who studied why some children of schizophrenics appeared to be getting on well in their lives, despite significant adversity (Gutman & Flouri, 2011). Other studies, such as Werner and Smith's (1992) longitudinal study of children in Hawaii, and Rutter's work (Rutter, 1985, 1999, 2000b) have also made significant contributions to this field, by examining the long term outcomes of children who experienced adversity (Luthar, 2006). This work paved the way for the emergence of a substantial body of research on resilience. This research aims to "uncover pathways to psychopathology and processes that lead to normal development" (Gutman & Flouri, 2011, p. 616). Like later 'strengths-based' approaches in social work, resilience challenges the deficit model, which focuses predominantly on the factors which put children at risk of adversity and atypical development.

There are different definitions and approaches to understanding resilience across literature and disciplines however. For example, some researchers use protective factors and "resilience factors" interchangeably, suggesting that resilience is a characteristic of the individual or their environment which predicts positive outcomes (Hoge, Austin, & Pollack, 2007; Schofield et al., 2014). Few espouse this view however and a consensus appears to be emerging that resilience is not measured directly; rather it is an interactive concept. Indeed, resilience is understood as

dynamic, not as a fixed or permanent phenomenon, but as a process shaped by emerging vulnerabilities and strengths (Luthar, 2006; Luthar, Sawyer, & Brown, 2006; M. Wright, Masten, & Narayan, 2013). Moreover, resilience is usually domain and time specific; children may be resilient in one area, for example, they may demonstrate educational resilience, but not in another, for example physical or mental health and this may change during the life course (Luthar, 2006; Luthar et al., 2000; Schoon, 2006; M. Wright et al., 2013). Work by Ungar (2008) has also shown that resilience is culturally specific, and that stress and positive adaptation are context dependent.

Children and young people who are looked after by the state have almost all experienced significant adversity, usually in the form of maltreatment or neglect. A host of other risk factors, including poor parenting, chaotic home lives, exposure to domestic violence or substance abuse and instability put children in care at risk of poor outcomes throughout the life course (Buehler et al., 2000; Dregan et al., 2011; Dregan & Gulliford, 2012; Forsman et al., 2016; Klika & Herrenkohl, 2013; Romano et al., 2015; Slade & Wissow, 2007; Stone, 2007). Luthar argues that "the central objective of resilience research is to identify vulnerability and protective factors that might modify the negative effects of life circumstances and having accomplished this to identify mechanisms or processes that might underlie these associations" (2006, p. 743). This thesis applies this approach to identify risk, promotive and protective factors for the educational outcomes for children in foster and kinship care.

A common critique of resilience research is the lack of a unifying conceptual framework across disciplines (Luthar et al., 2000, 2006). So defining and delineating key terms, concepts and exploring models for analysis is important to render the

framework operational for this study. First, I outline two common analytic strategies before presenting definitions for key terms.

Resilience researchers adopt different analytical strategies to explore mechanisms of interest. On the one hand some use person-based data approaches: this involves comparing high functioning individuals who have experienced adversity with, for example, high functioning people with no experience of adversity (for an example with children in care, see Rees, 2013). Other analytic approaches use variable-based analyses and focus on main or interaction effect models (see for example Tessier, O'Higgins, & Flynn, 2018). This thesis draws on the latter approach.

The core concepts in resilience research are vulnerability factors, protective factors and positive adaptation. Vulnerability or risk factors, refer to the adversity construct in the definition of resilience. This is defined as negative life experiences or circumstances which are associated with adjustment difficulties. Positive adaptation is defined as "behaviourally manifested social competence, or success at meeting stage-salient developmental tasks" (Luthar & Cicchetti, 2000, p. 858). Assets or, compensatory or promotive factors are variables which predict positive adaptation. Protective factors are those which predict a positive outcome in the presence of adversity or risk (Luthar et al., 2000; M. Wright et al., 2013). Luthar and colleagues (2000) also distinguish between protective factors which interact with risk in different ways, for example factors which are protective-enhancing (which produce a greater gain for those at high risk than those at low risk) or protective stabilising (where children with the attribute are provided stability despite increasing risk). What resilience research has not made explicit in these definitions is the temporal relationship between the three variables: risk (or vulnerability), protective variables and the outcome. Instead, the literature has leaned on definitions and approaches from

epidemiological literature, mainly the work of Kraemer and colleagues (Kraemer et al., 1997; Kraemer, Lowe, & Kupfer, 2005). Clarity with respect to temporality between variables is important to guide the methodologies adopted in this thesis. In the next section, I discuss epidemiological literature which provides definitions of risk factors that compliment those outlined above. In the final section, I will present definitions of protective factors, which are borrowed from the criminology literature.

2.1.2 Defining risk using epidemiological literature

Epidemiology is the science of disease prevention; it is the study of how disease is distributed in the population and the factors that predict this distribution (Gordis, 2014). Understanding risk factors is therefore at the heart of epidemiological research.

The origin of the term 'risk factor' is attributed to the Framingham Heart Study, a longitudinal observational research project concerned with understanding the development of heart disease. It originated in 1948 and extends to this day (Framingham Heart Study, 2014). The study has advanced conceptual understandings of risk factors not only in medicine but also in intervention research and psychology.

In epidemiology, a risk factor is defined as "a measurable characteristic of each subject in a specified population that precedes the outcome of interest" and increases the probability that the outcome will occur (Jaffee, Strait, & Odgers, 2012; Kraemer et al., 1997, p. 338). In practice, risk is characterised by factors that predict a poor outcome. For children in care, risks may include factors that predate entry into care, including poverty, maltreatment and chaotic home lives, and factors associated with being in care, such as placement instability and lack of social support.

In trying to unite epidemiologists behind consistent definitions, Kraemer et al. (1997) proposed the following classification of risk:

- Risk correlates are variables that have a statistical association with a specified negative outcome;
- Risk factors are variables that correlate with and precede the outcome;
- Causal risk factors: risk factors that can be changed and change the likelihood of the outcome. Causal risk factors for a given problem are not necessarily the cause of a problem however.

The framework also distinguishes between fixed factors, such as gender, for example, and malleable or modifiable factors, which, in theory, can be changed such as for example behavioural problems (Kraemer et al., 2005). By definition, fixed risk variables cannot be causal.

Though these terms arose from the medical sciences, they are applicable to research in the social sciences, and indeed they have been espoused by developmental psychologists researching resilience (see for example Wright et al., 2013). Many social problems can be predicted by the occurrence of risk factors, which can help understand how social problems develop, as well as suggest avenues for intervention (Jaffee et al., 2012; Murray, Farrington, & Eisner, 2009).

The strength of these definitions and the framework from which they emanate is the strong foundation they provide to guide methodological and statistical analyses. Their limitation however is that, in this framework, risk is used as a broad term which distinguishes “high risk” groups from “low risk” groups regardless of whether an outcome is desirable or not (Kraemer et al., 2005); this approach ignores the buffering effects of protective factors and is often referred to as a deficit model (Fraser et al., 2009). By focusing on risk only, this approach ignores the substantial contribution of

research on promotive and protective factors and the study of resilience to our understanding of positive adaptation (Luthar et al., 2000).

Nevertheless, this thesis draws on the epidemiological literature because it provides a clear framework for defining risk, by distinguishing between correlates, factors and causal factors, as well as between fixed and modifiable factors. These distinctions are important in order to understand the processes which produce a particular outcome, and therefore to adequately inform interventions. These definitions are adopted and are used to adapt definitions of promotive and protective (see below) factors for the purpose of this thesis.

I now turn to the criminology literature from which I will extract definitions of promotive and protective factors.

2.1.3 Risk and protective factors in criminology

During the 1990s, the risk and protective factors approach gained traction in the criminology literature. Efforts to identify variables which put young people at risk of offending and those which might protect them burgeoned in order to inform and develop interventions to reduce offending behaviour (Farrington, Loeber, Joliffe, & Pardini, 2008). In this field, risk factors are usually dichotomised so interaction effects can easily be examined. The literature then distinguishes between promotive and protective factors, with definitions as follows:

- Promotive (or direct protective) factors are variables that are associated with a positive outcome, regardless of exposure to risk (Farrington, Ttofi, & Piquero, 2016; Sameroff, 1999; Sameroff & Gutman, 2004);

- Protective factors denote variables that, in the presence of risk, are associated with a positive outcome (Farrington et al., 2016; Rutter, 1985; Sameroff & Gutman, 2004); moreover, this thesis distinguishes between:
    - Risk-based protective factors predict a low probability of a negative outcome among children at risk (Farrington et al., 2016; Ttofi, Bowes, Farrington, & Lösel, 2014)
    - Interactive protective factors predict a positive outcome when a risk factor is present but not when the risk factor is absent. Another way of expressing this is to say that when the protective factor is present, the probability of a negative outcome does not increase in the presence of the risk factor; when the protective factor is absent, the probability of a negative outcome does increase in the presence of a risk factor.

The terms promotive and protective are often used interchangeably (Ttofi et al., 2014); however, as the definitions above demonstrate there are important distinctions between the two concepts.

The criminology literature, as do others, draws attention to the fact that risk and promotive variables may be the mirror image of each other (Farrington et al., 2008); for example a lack of behavioural problems may predict better educational outcomes, just as much as serious behavioural problems may predict worse educational outcomes. However, work by Farrington et al. (2008) showed, for example, that low hyperactivity symptoms was a promotive factor for offending behaviour, whereas having more hyperactivity symptoms was not a risk factor. In order to ascertain whether a variable is promotive or risk, Farrington et al. (2008) propose trichotomising variables in low, medium and high risk and comparing the probability of a negative outcome for each category. While there are other ways of examining

whether variables are risk or promotive, I adopt this approach for this thesis as it has been widely used and its interpretation is straightforward. This approach is not without its limitations, for example decisions about how to trichotomise variables are somewhat arbitrary and where variables are dichotomous, for example having special educational needs or not, it is not possible say with certainty whether they are promotive or risk variables.

Like risk variables, promotive and protective variables are different dependent on their temporal relationships with outcomes and risk variables. For consistency, I will use the same terminology for promotive and protective variables as I do for risk variables. That is, where a relationship between the independent variable and dependent variable is cross-sectional, the promotive or protective variable is identified as a correlate; where a promotive or protective variable occurs before the outcome, it is termed a factor and where causality can be demonstrated it is a causal promotive or causal protective factor.

2.1.4 Bronfenbrenner's ecological framework

This research also draws on the ecological model of human development proposed by Bronfenbrenner (1979), which roots social problems in the complex interplay between individual characteristics of children (body, characteristics), the microsystem (family, school), the mesosystem (which represents the connections between those in the microsystem, for example between parents and teachers), the exosystem (the neighbourhood and local authority) and the macro-system (society, culture, community). For children in care, this will include their gender, behavioural problems (individual characteristics), their birth parents, carers, peers, teachers and

social workers (in the microsystem), social services and the local authority (in the exosystem) and wider societal attitudes and cultural norms in the macrosystem. The ecological model thus situates the social problem within a network of interacting and evolving factors which together affect a child's outcome.

This conceptual framework is adopted for this study because the ecological framework provides a structure through which to examine multiple influences on vulnerability and resilience to stressors (Luthar et al., 2000; Masten, 2007). It is compatible with and is indeed key to the aforementioned approaches to studying risk and protective factors. It provides an evidence-based and flexible framework within which to explore the mechanisms underlying low attainment of children in care. The framework is mainly used to guide the discussion in Study One, and to a lesser extent Study Two. Several studies exploring risk and protective factors have used this conceptual framework (Romano et al., 2015; Slade & Wissow, 2007). Most importantly, this framework is applied here because it proposes that it is possible to identify the antecedents of a particular outcome, enabling early and proactive interventions.

2.1.5 Summary of the conceptual framework for the thesis

The thesis is mainly situated in a resilience framework, but draws on epidemiological and criminology literature to obtain clear and precise definitions of risk, promotive and protective factors which will be used throughout the thesis. The thesis is also guided by the ecological framework to reflect the various spheres of influence on children's lives and how these interact. The definitions I will use in the thesis are summarised in Table 3 below.

Table 3: Definitions of risk, promotive and protective variables used for this thesis

	Risk	Promotive	Risk-based protective	Interactive Protective
Correlate	Is correlated with a higher probability of a negative outcome	Is correlated with a higher probability of a positive outcome	Is correlated with a higher probability of a positive outcome in a population at-risk	Interacts with a risk variable and is correlated with a higher probability of a positive outcome
Factor	As above, but the risk precedes the outcome temporally	As above, but the promotive variable precedes the outcome temporally	As above, but the protective variable precedes the outcome temporally. The temporal relationship between the risk (which defines the risk-based group) and protective variable should also be made clear (but can be in either direction)	As above, but the protective variable precedes the outcome temporally. The temporal relationship between the risk (which defines the at-risk group) and protective variable should also be made clear (but can be in either direction)
Causal factor	Variable which when increased causes an increase in the probability of a negative outcome	Variable which when increased causes an increase in the probability of a positive outcome	In an at-risk population, this is a variable which when increased causes an increase in the probability of a positive outcome	Variable which when increased causes an increase in the probability of a positive outcome in an at-risk population and not the low risk population (interaction effect)

2.2 Epistemology

Through the analysis of large-scale quantitative data, one objective of this study is to identify ‘grand narratives’ about low attainment for children in care. Previous research has identified the opportunities that large administrative datasets offer to experiment with different methodologies in order to generate generalisable population level data (Stone, 2007). In turn, the aim of this exercise is to inform interventions. This type of research and its underlying assumptions, about generalisability, bias and objectivity, are rooted in a positivist epistemology. There are many assumptions of positivism that I do not espouse however, which has led me to reject it as a framework and situate the research within a post-positivist framework instead. Broadly, post-positivism does not hold scientific knowledge or data to be the only source of objective and knowable ‘truth’ (Crotty, 1998). It accepts that there are only partially objective data about the world and that any method or source is flawed (Crotty, 1998; Denzin & Lincoln, 2005). Post-positivism also rejects the notion that researchers can be free of bias and holds that they cannot remove themselves from theory, context, values or history (Crotty, 1998). This is reflected in the fact that post-positivistic research draws on different methodological approaches (qualitative and quantitative) in order to triangulate methods and ‘check’ the validity of findings (Blaxter, Hughes, & Tight, 2010). While this thesis does not include any qualitative analyses, I acknowledge the contribution that qualitative research makes to this field and lean on existing qualitative research in Study Two. Post-positivism remains concerned with objectivity, bias, generalisability and the scientific method.

This is by no means the only useful epistemological framework for understanding the risk and protective factors for the education of children in care.

Post-positivism has limitations, for example there is scant room for children in care to define their educational priorities. This would best be accommodated in a constructivist framework. There may also be value in using a critical realist approach to analyse and critically examine the structures and institutions that children in care navigate and the role these play in supporting or hindering attainment. The choice to work within a postpositivist framework was motivated by the desire to contribute to the development of evidence-based interventions for children in care through statistical analysis of large datasets. The findings will only paint part of the picture, but they will lay the foundations for future work in this field.

This concludes the first part of this thesis. The next part presents a systematic review of risk and protective factors for the educational outcomes of children in foster and kinship care: this is Study 1 of the thesis.

Part Two: Study One

Chapter 3. What are the risk, promotive and protective factors for educational outcomes for children in kinship or foster care: a systematic review

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This study is an international systematic review which seeks to identify the risk and protective factors for educational outcomes for children in kinship or foster care. It is the first study presented for this thesis.

3.1 Introduction and background

As outlined in Chapter 1, children in care lag behind their peers with respect to their educational status. The present review seeks to complement and further existing research by extending the findings from reviews on the gap between children in care and their peers as well as providing information on risk and protective correlates and factors. Understanding risk and protective factors is essential for the development of effective interventions (Fraser et al., 2009; Rutter, 2000a). The study of risk factors is also an area of increasing interest in the foster care field. For example, a systematic review of risk factors for placement instability for children in care was undertaken by Oosterman et al. (2007); inclusion criteria were deliberately broad to identify as many risk variables as possible, including risk correlates emanating from cross-sectional studies. The present review takes a similar approach and includes evidence from cross-sectional and longitudinal studies, in order to identify risk and protective

correlates as well as risk and protective factors for educational outcomes. It was not anticipated that the review would identify causal risk or protective factors. Definitions outlined in Chapter 2, Table 3 are adopted for this review.

3.2 Objective of the review

The objective of this review is to describe the current best evidence on the predictors of educational outcomes for children in care. In doing so, it seeks to identify factors that predict educational resilience of children in care. It aims to expand the evidence on the education of children in care and contribute to nascent research in social work on risk factors and more specifically risk factors for young people in care, with the ultimate aim of informing interventions for these children. To date, I am not aware of any review that has undertaken this task. This review also explores the implications of the findings for future research on risk and protective factors for children in care.

This review sought to answer the following question: what are the risk and protective (including promotive) factors associated with educational outcomes for school age children in foster or kinship care? The search strategy and methodology are outlined below.

3.3 Methods

This review aimed to identify both fixed and modifiable variables associated with educational outcomes for children in care. In preparation of this review, I

followed the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) reporting guidelines (Moher, Liberati, Tetzlaff, Altman, & Group, 2009).

3.3.1 Criteria for Considering Studies for this review

3.3.1.1 Types of participants

The population was school-aged children in care in high-income countries. School-aged children are young people aged between 5 and 18 years old; the review is concerned with educational outcomes of children who are currently in care, thus it limited the population to those at least 5 years old and up to and including the age of 18.

For the purpose of this review, children in care are defined as young people who are not able to live with their parents and are accommodated and provided with support by an agent of the state (including private or charity organisations contracted by the state). Only studies on children in foster care or kinship care were included, studies on young people in group homes were excluded. Children placed in group homes tend to have different characteristics to children in foster or kinship care and different needs, in particular with respect to education (Knorth, Harder, Zandberg, & Kendrick, 2008; Sinclair, 2010; Whittaker, 2006). Predictors for educational achievement are thus likely to differ. For this reason, they are excluded from this review. It is recognised that many children will experience multiple placements, which over the course of their time in care may include a mix of foster or kinship care and residential care. Information about children's placement history is not always reported in studies.

The review includes studies of children who have been in care for any length of time. The population of children and young people in care is diverse, within and across countries and regions. Legal definitions and terminology vary, as do the experiences of children and young people with which this review is concerned. The population included in the review is therefore likely to be heterogeneous in a number of ways.

The review looks at children in care in high-income countries as these operate child welfare systems for similar populations of children and their purpose is comparable. For example, foster care in low-income countries is often facilitated by non-governmental organisations, independently from the state, to provide for refugees of war (Whetten et al., 2014).

Where sufficient information about participants was not provided, clarification was sought from authors and excluded if the information was not available. Where samples included youth above the age of 18, the study was only included if the majority of participants were under 18 and the mean age was under 18. Where samples included children in group homes, the study was included if the majority of children were in foster or kinship care.

3.3.1.2 Types of studies

In order to capture risk, promotive and protective correlates as well as factors, studies were included if these tested the statistical association between one or more variables and educational outcomes. With this in mind, a large variety of study types and methodologies were accepted for inclusion, including cross-sectional, prospective or retrospective longitudinal studies, randomised or quasi-randomised controlled

trials. RCTs or quasi-RCTs will be accepted if randomisation is done for a hypothesised risk or protective factor. RCTs of complex interventions will not be included as these are likely to amalgamate multiple risk and / or protective factors. Moreover, RCTs of complex interventions to support the education of children in care have already been reviewed in existing systematic reviews (R. Evans et al., 2017; Forsman & Vinnerljung, 2012).

3.3.1.3 Types of risk, promotive or protective variables

The objective of this review was to capture evidence about all variables associated with educational outcomes for children in care. These could be fixed (e.g. gender) or modifiable (e.g. placement type), pre-date entry or be related to the care experience. Studies were also included regardless of whether the factor was related to the individual, their immediate environment or wider policy factors.

Secondly, variables were reviewed in the findings if the study showed presented data to determine their relationship with the dependent variable. This was done regardless of whether original studies identified the variables as independent variables of substantive interest (usually accompanied by hypotheses) or whether these were included as control variables. This approach was chosen because published work often lacks sufficient detail which would allow distinctions to be made. Selecting only those variables identified, whether explicitly or implicitly, as risk or promotive variables would likely have required me to make decisions which may have biased the selection of variables and therefore the findings of the review.

As per the definitions proposed in Table 3 of the previous chapter, where the independent variable was measured at the same time as the outcome, it was classified

as a correlate. Where independent variables occurred or were measured before the outcome, they were classified as factors. Variables associated with a negative outcome were risk variables. Those associated with a positive outcome were promotive variables. If studies did not distinguish between risk and promotive variables, that is, if the variable was associated with the outcome at both ends of its distribution, I made this explicit in the review analysis. Finally, where possible, protective variables are further characterised as risk-based protective factors in studies where they predicted better outcomes for an at-risk population or an interactive protective factor in studies there is evidence of an interaction with a risk factor.

3.3.1.4 Types of outcomes

The review included studies that used at least one educational outcome. Accepted outcomes were

- Academic competency scores (literacy or numeracy tests, exam results or grade point average (GPA),
- Cognitive test scores, which measure some aspect of ability such as reading, writing, verbal expression, IQ, etc.
- Measures of school functioning: attendance, exclusions and grade retention.

To be accepted for inclusion, studies had to provide data on the relationship between independent variables and outcomes. Where these were summarised without quantitative data to demonstrate this, studies were not included.

3.3.1.5 Year of publication

The review accepted any study published after 1990. This cut off date was selected to reflect important legal and policy changes that occurred in child welfare in the 1980s as well as the changing population of children in care (Dregan & Gulliford, 2012; Fernandez & Barth, 2010; Thoburn, 2010). The search was last conducted in January 2014 and updated in March 2016, so studies which were published after this time are not included.

3.3.2 Search methods for identification of studies

3.3.2.1 Electronic searches

The following databases were searched:

- ERIC
- British Education Index
- Australian Education Index
- International Bibliography of Social Sciences
- Scopus
- Medline
- PsycInfo
- Social Services Abstracts
- Sociological Abstracts
- Database of Education Research (EPPI Centre)
- Campbell and Cochrane Libraries

- Social Policy and Practice (part of SCIE)

3.3.2.2 Searching other resources

Relevant institutional websites were also searched:

- Google Scholar
- NFER
- C4EO
- CERUK Plus (Current education & children's services research UK)
- SCIE
- The Fostering Network
- BAAF
- NCB
- NSPCC
- Joanna Briggs Institute
- What Works Clearinghouse
- Department for Education
- Chapin Hall
- Office of Planning, Research and Evaluation in Administration for Children and Families (USA).

A number of international experts on children in care were contacted and consulted. The journal Children and Youth Services Review, which frequently publishes on the education of children in care, was also searched by hand for relevant articles.

3.3.2.3 Search terms

The following search strings were used:

(Population)

"foster care" or "foster home" or "foster family" or "foster parent" or "foster carer" or "substitute family" or "family foster home" or "kinship care" or "child in care" OR "children in care" or "out-of-home care" or "out of home care" or "looked after" or "looked-after"

AND

(Outcome)

Educat* or school* or class* or college* or teach* or learn* or train* or diploma* or certificate* or tutor* or achiev* or perform* or academic

The review did not use a search string using the terms “risk”, “promotive” or “protective” factors. It was anticipated that articles would refer to specific predictors, e.g. placement instability, and their relationship to educational outcomes rather than risk factors, particularly in the abstract. Many databases are only able to search for keywords in abstracts rather than the full text. The concepts of risk and protective factors are not widely used in the literature on the education of children in care. It was thought that including these terms would make the search too specific. Therefore, the search was deliberately sensitive.

3.4 Data Collection and Analysis

3.4.1 Selection of studies

Titles and abstracts were screened for inclusion if they met the inclusion criteria above. Where it was not possible to determine whether the study should be included or excluded, the full text was obtained. Where the full text was not available or relevant details of the study were missing (e.g. the precise proportion of children in care in the study), authors were contacted. Where it was not possible to obtain further information, the study was excluded. Many dissertations identified in the search were excluded because they were not available online and authors could not be found or contacted. Some dissertations were used in combination with publications or reports where these provided more detailed statistical information.

3.4.2 Data extraction and management

Studies selected for inclusion were coded to guide discussion of study quality and analysis. Relevant data on study characteristics were extracted from the coding forms onto an Excel spreadsheet to map study characteristics and aid analysis and discussion (see Appendix A).

3.4.3 Assessment of risk of bias in included studies

A systematic approach was developed to assess the quality of each included study; the Cambridge Quality Checklists were the main tool to assess risk of bias

(Murray et al., 2009). See Appendix B for the checklists and critical appraisal for all included studies.

3.4.4 Treatment of qualitative data

The review did not include qualitative research. It is recognised that qualitative data may provide further depth to the findings and omitting such data may limit the conclusions of this review. However, the current review seeks to elucidate the risk and protective variables for educational outcomes, rather than their significance or meaning to young people or their carers.

A qualitative systematic review exploring the significance and subjective impact of risk and protective variables would be a valuable exercise. It would also include the voices of children in care into the debate; these are notably absent from systematic reviews and outcome research (Dickson, Sutcliffe, & Gough, 2010; R. Evans et al., 2016). However, this was outside of the scope of this review.

3.4.5 Data synthesis

It was anticipated that the findings would be too heterogeneous to synthesise in a meta-analysis (Littell, Corcoran, & Pillai, 2008). Meta-analysis was considered for studies that measured the same factor and outcome, but too few studies could be brought together in this way. For this reason, this study includes only a narrative review.

The literature on the education of children in care is seldom conceptualised using a risk, promotive and protective factors framework. Therefore, while there are

many studies which look at the relationship between various independent variables and educational outcomes, determining whether the independent variables are risk, promotive or protective and whether they are correlates or factors is not always straightforward. Firstly, whether the relationship between the independence variable and the outcome is linear is rarely tested, so these may be risk variables at one end of the distribution and promotive variables at the other end. Secondly, temporal relationships between variables are not always made clear in order to determine whether variables are correlates or factors. Thirdly, variables hypothesised to be protective are not systematically examined in at-risk populations or in interaction analyses. It was also not anticipated that causal risk or protective factors would be identified. This makes the aims of this review challenging. Therefore, for the purpose of this thesis, where it was not possible to identify the precise nature of the relationship between a variable and the outcome, this is made explicit. The implications of this are then discussed in the discussion section of the review.

Titles and abstracts were screened for 7137 studies identified through searches. Full texts were obtained for 298 studies, which appeared to meet the inclusion criteria based on information provided in the title and abstract. Thirty-three were retained for inclusion, seven had samples which partly overlapped; these are included here because they test associations for different factors.

3.5 Description of included and excluded studies

3.5.1 Description of included studies

A full table of included studies is presented below in Table 4.

Two studies used a risk and protective factors framework, but the distinction between correlates and factors and protective and promotive variables was not made (Flynn, Tessier, & Coulombe, 2013; Pears, Kim, & Leve, 2012), so these studies were analysed within the framework of the current thesis. Otherwise, the aim of all other studies was to examine the predictive value of one or more variables in order to explain variation in the educational outcome of interest.

The majority of identified studies were conducted in the USA (k = 22). Four studies originated in Canada, four in England and three in Australia. The 33 included studies comprised a total of 79,687 students. All studies reported on participant age: some included school age children of any age (5 to 18 years), while others focused on a cohort within one grade level or a smaller specified age range. One study did not report on the gender split (Mitic & Rimer, 2002) and one used an all-female sample (Pears et al., 2012). Remaining studies had samples that ranged from 40% to 62% female. Six studies did not provide data on the ethnicity of participants. In the studies that did, it was not reported whether the distribution was representative of the local or national population.

Twenty-seven studies identified individual level variables, three examined birth family characteristics, 27 looked at variables pertaining to care experiences, and nine used school related variables. In terms of outcomes, studies used test scores, exam results, average grades, grade point average, attendance rates, grade retention or exclusion.

The majority of studies (k = 19) used one data source only. Almost all used data that had been collected for a trial or other study or for administrative purposes (k = 28).

In terms of the statistical tools used, seventeen studies used regression (linear or logistic), seven used ANOVA or ANCOVA and six t-tests. Others used path analysis ($k = 1$), structural equation modelling ($k = 1$), latent growth curve modelling ($k = 1$), and one study used five methods to determine the effect of an exposure (placement type) on the outcome (Font, 2014).

The aim of the review was to identify risk, promotive and protective factors associated with educational outcomes for children in foster or kinship care. Over fifty different factors were examined in the included studies, though not all were found to be associated with educational outcomes. These factors were grouped into four spheres of influence adapted from Bronfenbrenner's (1979) ecological framework: individual (for example gender and special educational needs), birth family (for example level of education of the birth parents), care experience (for example placement type and length of time in care) and school experiences (for example grade retention and number of schools attended). No identified studies examined associations with broader structural factors or policy. The ecological framework recognises the various spheres that children interact in and which interact with each other. This approach reflects the complexity of children's experiences and the combination of factors to which they may be exposed.

Table 4: Included studies for systematic review Study One (abbreviations are below the table; longitudinal studies are indicated, readers should assume those not identified as longitudinal were cross-sectional)

Study authors, year & location	Analytical ample	Type(s) of analysis	Independent variables (risk, promotive or protective variables)	Effects of independent variables on outcome (only adjusted effects are reported unless otherwise stated)
AIHW (2007) Australia	895 children in care in years 3, 5 & 7	Linear regression	State, gender, indigenous status, placement type and length of time on current guardianship/custody order.	**Outcomes: national standardised reading and numeracy test scores (administrative data)** Ethnicity (reference: white Australian) β = -.359* (reading) and β = -.439* (numeracy) Length of time in care *r* ranged from .114 to .204 ($p < 0.05$), *ns* in multivariate analyses **Not significant**: Gender, placement type
AIHW (2011) Australia	684 children in years 3, 5 & 7	Longitudinal study 3 years in duration. Linear regression	State, gender, indigenous status, placement type and length of time on current guardianship/custody order.	**Outcomes: national standardised reading and numeracy test scores (administrative data)** Ethnicity (indigenous status, reference: white Australian): β = -.408* (reading) and β = ns (maths) Number of placements in last 12 months (2006) β = ns (reading) and β = -.596** (maths) **Not significant**: Gender, placement type, number of placements (2003, 2004, 2005) and length of time in care
Aldgate et al. (1992) England	49 children in care age 10 - 14	Longitudinal study 1 year in duration. Linear regression.	Initial plan made by social work (re permanence), reason for entering care, length of current placement, number of placements, contact with birth family, expectations about long term stability	**Outcomes: standardised maths, reading or vocabulary test scores (assessed)** Reason for entry: In care for abuse or neglect associated with lower test scores (β = -.47***). Two years later, no differences between reason for entry (reading progress β = -.48***). Initial expectations about placement length: β = .31**, ns predictor for progress. **Not significant**: Length of current placement, number of placements, frequency of contact with birth mother, expectations about stability

Study authors, year & location	Analytical ample	Type(s) of analysis	Independent variables (risk, promotive or protective variables)	Effects of independent variables on outcome (only adjusted effects are reported unless otherwise stated)
Berrick et al. (1994) USA	600 children in care age 7 to 8	Chi-square	Compared kinship care to foster care	**<u>Outcome: grade retention (carer reported)</u>** Placement type: 31% of children in foster care had repeated a grade vs 23% in kinship care 23%. $(\chi^2 = 5.24, df = 1, p < 0.05)$
Brooks & Barth (1998) USA	258 school age children in kinship and foster care	ANOVA	Exposure to drugs pre-natally or post-natally, placement type	**<u>Outcomes: Grades and grade retention (carer reported)</u>** **Not significant**: Exposure to drugs pre-natally or post-natally, placement type
Burley & Halpern (2001) USA	4,559 children in care across grades 3, 6 or 9.	Linear regression	Gender, ethnicity, special educational needs, entered care in last 12 months, average placements per year, average caseworkers per year, foster care type (basic / specialised), length of time in care, highly capable programme, grade retention, watches TV at home, language spoken at home, uses computer at for schoolwork, homework help, extra assistance with reading / maths and attended another school this year	**<u>Outcomes: standardized test scores in reading and maths (ITBS and ITED) (administrative data)</u>** Entered care last 12 months: β = -16** (grade 9), β = -8.5** (grade 6), ns grade 3 Ethnicity: (reference white) β = -7.4** to β = -12.6** for Native American children grade 3 to 9. β = 17.9** for Asian youth grade 6 (ns otherwise). β = -10.1*** to -6.8** for African American children grade 3 to 9. ns for Latino children Special educational needs: β = -20.7*** to β = -19.8*** grade 3 to grade 9 Highly capable programme: β = 44.4*** to β = 56.6*** grade 3 to grade 9 Grade retention: ns (grade 3), β = -7.0*** (grade 6), β = -5.6*** (grade 9) Watches 5hours+ TV per day: ns grades 3 and 6, β = -10.1*** (grade 9) Language spoken at home β = -19.8* to β = -11.1*** grades 3 to 9 Uses computer for schoolwork: β = 5.26** (in Grade 6), β = 6.0*** (in Grade 9), ns grade 3

Study authors, year & location	Analytical ample	Type(s) of analysis	Independent variables (risk, promotive or protective variables)	Effects of independent variables on outcome (only adjusted effects are reported unless otherwise stated)
				Homework help: β = 6.0** (grade 3) β = 10.0*** grade 6, ns grade 9 Receives assistance with reading / maths: β = -10.1*** to β = -14.0*** grades 3 to 9 Attended other school this year: β = -7.9*** (grade 3), β = -4.3* (grade 6), ns grade 9. Not significant: Gender, age at entry, length of time in care, average placements per year, average caseworkers per year, foster care type
Cheung et al. (2012) Canada	687 young people in foster care age 10 to 15	Two level multilevel model	Placement level: literacy support, academic expectations, home- and school-based involvement Child level: age, gender and externalising behavioural problems	**Outcome: school performance (composite of carer and social worker reports)** 15% of the variation in youth's scores is explained by differences between placements. Age: β = -.258* Gender: β = .171* (girls coded as 1, boys as 0) Externalising behaviours score β = -.193* Caregiver home-based involvement β = .107* Caregiver school-based involvement β = .068* Placement literacy environment β = .098* Carer academic expectations β = .253*
Choice et al. (2001) USA	303 children in care age 5 to 18	Logistic regression	Age, emotional problems, learning disability, needs an individual educational plan, has an individual education plan, lives in low income county and has a plan for reunification with family	**Outcome: average grades (social work case files)** Age: OR: .87 (95% CI .79-.95) *p* = .003 Emotional problems: OR: .52 (95% CI .37-.72) *p* = .000 Learning difficulty: OR: .40 (95% CI .17-.93) *p* = .034 Has an individual education plan OR: .16 (95% CI .07-.36) *p* = .000 Needs an individual education plan OR: .11 (95% CI .03-.43) *p* = .001

Study authors, year & location	Analytical ample	Type(s) of analysis	Independent variables (risk, promotive or protective variables)	Effects of independent variables on outcome (only adjusted effects are reported unless otherwise stated)
				Is the child living in low income county OR: .13 (95% CI .03-.51) p = .003 Plans for reunification OR: .23 (95% CI .07-.79) p = .019
Colton & Heath (1994) England	49 children in care age 10 - 14 (as Aldgate et al., 1992)	T-tests	Behaviour problems	**Outcomes: standardised maths, English and vocabulary test scores (assessed)** At T1 children above cut-off for emotional behavioural problems had lower attainment than those below cut-off but difference at T2 and T3 was not statistically significant, on parent questionnaire. No statistically significant differences on teacher questionnaire.
Conger & Rebeck (2001) USA	16,183 children in care, age 5 to 18	Linear regression	Age (not shown), gender, ethnicity, school variables, placement variables, reason for placement, placement type, time in care, placement change, school change, attendance	**Outcomes: attendance, and standardised reading and maths test scores (administrative data)** Gender (girls = 1, boys = 0): β = .066** (reading scores), otherwise ns Ethnicity (reference: Hispanic): β = 1.175** for white children (attendance). β = -.041† for African American children and young people (reading), β = .071† for white children (maths) otherwise ns. Reason for entry (reference is voluntary entry): Abuse / neglect β = 1.124** (attendance), β = 0.130** (reading), otherwise ns. Behavioural problems β = -3.876** (attendance), otherwise ns. Length of time in care β = -4.585** in care part of semester / β = -2.754 ** in care none of semester (Attendance). β = .001† (reading) otherwise ns. Number of placements β =-1.318** (attendance), otherwise ns.

Study authors, year & location	Analytical ample	Type(s) of analysis	Independent variables (risk, promotive or protective variables)	Effects of independent variables on outcome (only adjusted effects are reported unless otherwise stated)
				Placement type Attendance increased in foster and kinship care, by 4.4% and 7.8% respectively. And β = -2.684** for residential care vs foster care (attendance), ns otherwise. School transfer: β = -.053* (maths), ns (reading) Attendance β = .004** (reading) and β = .005** (maths)
Evans (2001) USA	3,483 children in care, age 6 to 18.	ANOVA, linear regression	Age, gender, ethnicity, IQ, height and weight, reason for entry	**<u>Outcomes: maths reasoning, maths calculation, basic reasoning, written expression (administrative data)</u>** Gender: being male predicted poorer outcomes (F [5,1223] = 14.54, $p <$ .0001) Ethnicity: African American children had poorer outcomes than Caucasian children (F[5,1136] = 15.12, $p <$ .0001. Low height and low IQ significant predictor of poor outcomes (details not provided) Reason for entry (neglect, abuse, behavioural problems, court ordered): Neglect group: poorer outcomes than children in care for other reasons (F[5,1223] = 5.74, $p <$ .0001) **Not significant**: age, weight
Flynn et al. (2013) Canada	1,106 young people in care, age 12-17	Longitudinal study, 1 year in duration; Hierarchical linear regression	Gender, placement type (foster, kinship, residential), grade retention, cognitive impairment, SDQ score, caregiver school involvement, caregiver aspirations, well-being (internal developmental assets), prior attainment.	**<u>Outcomes: average marks and school performance (carer reported)</u>** Age: β = -.08† for school performance. Gender: (1 = Female, 0 = Male) β = .07† to β = .11** Well-being β = .10* to β = .25*** SDQ Total Difficulties β = -.13*, β = -.22***, otherwise ns. Cognitive impairment index (1=none, 4= high): all β ns Placement type (reference: foster care): ns in multivariate analyses.

Study authors, year & location	Analytical ample	Type(s) of analysis	Independent variables (risk, promotive or protective variables)	Effects of independent variables on outcome (only adjusted effects are reported unless otherwise stated)
				Caregiver school involvement β = .10* otherwise ns. Caregiver aspirations: β=.10* to .23*. Otherwise ns. Grade retention: β = -.08†, otherwise ns.
Font (2014) USA	1,215 young people in care age 6-17	Linear regression, change score models, propensity score (PS) matching and Instrumental variables (IV)	Placement type ("mostly kinship" or "mostly foster care") is the main predictor. Covariates for which details are not presented were gender, ethnicity, age, age at entry into care, disability, long term health conditions, reason for entry into care, parental substance misuse, birth family risk factors, population density, geographical location, community disadvantage	**Outcome: Maths, Reading (WJ), IQ: Verbal and non Verbal Cognitive Test (K-BIT) (administrative data)** Linear regression models (reference category is kinship care): Model with PS weighting: Reading: -.147*, Maths: -.047, IQ: -.216** Model with IV and PS weighting: Reading -.507*, Maths: -.042, IQ: -.419† Residualised changed models: Model with PS weighting: Reading: -.136*, Maths: -.102, IQ: -.181*** Model with IV and PS weighting: Reading: -.389†, Maths: -.056, IQ: -.219 Simple change models: Model with PS weighting: Reading: -112*, Maths: -.131†, IQ: -189** Model with IV and PS weighting: Reading: -.289, Maths: -.010, IQ= -.154
Geenen & Powers (2006) USA	70 children with special educational needs in foster care, 88 in	t-test, ANOVA and ANCOVA	Special educational needs (SEN) length of time in care, ethnicity, number of foster care placements and type of placement.	**Outcomes: GPA, attendance, credits earned, grade retention, maths and reading test scores (teacher reported)** Children in care with special educational needs (SEN) had lower grade point average (GPA) than children in care without SEN, children not in care with SEN and general population ($F = 3.77$, $p < .01$); likewise for credits earned ($F = 3.24$, $p < .01$). Children with SEN in care and not in care had higher grade retention rates than children in care

Study authors, year & location	Analytical ample	Type(s) of analysis	Independent variables (risk, promotive or protective variables)	Effects of independent variables on outcome (only adjusted effects are reported unless otherwise stated)
	foster care no special needs			without SEN and in general population, but differences were not statistically significant (F = .174, p = ns). Children in care without SEN and children in general population had similar maths (F = 13.55, p < .001) and reading scores (F = 15.19, p < .001), which were higher than children in care with SEN and children not in care with SEN. Number placements *r* =-.14* (GPA), *r* = .23* (reversed scored maths). Otherwise ns. Placement type: in foster care better outcomes (no detail of figures). Otherwise ns. **Not significant**: Ethnicity, length of time in care
Heath et al. (1994) England	49 children in care age 10 - 14 (as Aldgate et al., 1992)	Longitudinal study 1 year duration T-tests	Age, carer level of education, expectations of teachers	**<u>Outcomes: standardised maths, English and vocabulary test scores (assessed)</u>** Age: Older children performed worse relative to younger children in care (no detail) Level of education of the carer small differences (reading) Low expectations Teachers' low expectations of children not associated with outcomes **Not significant**: special educational needs, social class, number of schools attended
Hegar & Rosenthal (2009) USA	1,415 children and young people in foster care and kinship care	Linear regression, interaction	Gender, ethnicity, placement type, low income county and interactions: Placement type x Ethnicity x Placement with sibling	**<u>Outcomes: school performance (teacher reported)</u>** Ethnicity: ns for Black children, β = .70** for Hispanic children, β = -.57** other ethnicities Placement type ns predictor. β = − .069* for kinship × sibling interaction: The interaction of kinship care, sibling placement and ethnicity (white children) was also significant. Placement with sibling ns predictor. See above for interactions. **Not significant**: Age, gender, low income county

Study authors, year & location	**Analytical ample**	**Type(s) of analysis**	**Independent variables (risk, promotive or protective variables)**	**Effects of independent variables on outcome (only adjusted effects are reported unless otherwise stated)**
Kirk et al. (2012) USA	550 youth in foster care	*t*-test	Gender	**Outcomes: grade point average (young people reported)** Gender: Girls reported higher grades ($t(548)=-4.42$, $p=.006$, d=−.38) than boys. 69% of girls reported GPA of 3.0 or above, compared to 55.0% of boys.
McNichol & Tash (2001), USA	268 children in foster care	ANOVA	Prenatal / postnatal exposure to parental substance, gender	**Outcomes: standardised cognitive test scores (obtained from case files)** Prenatal / postnatal exposure to parental substance Children exposed prenatally had lower (verbal, performance and full scale) IQ at T_1 ($F[2,210]=3.18$, $p < 0.05$), but higher IQ at T_2 compared to children exposed to drugs in early childhood (ANOVA $F[2,78]=3.36$, $p < 0.05$). **Not significant**: gender
Mitic & Rimer (2002) Canada	3,523 school age children in care	Chi-square and logistic regression	Ethnicity	**Outcomes: national reading, writing and numeracy test scores (administrative data)** At grade 4, 7 and 10, non-Aboriginal children scored higher than Aboriginal children or young people (OR ranged from 2.64 to 3.46, $p < .001$).
Pears et al. (2010) USA	85 maltreated children in foster care	Path analysis	Gender, cognitive ability, maltreatment and placement, carer involvement in schooling, inhibitory control, average classroom size, teachers' qualification level and school type	**Outcomes: academic achievement (carer reported TRF of CBCL)** Gender: $r = -.16$* (in path analysis) Inhibitory control: $r = .22$* (in path analysis) Cognitive ability: $r = .40$* (in path analysis) and indirect path from cognitive ability to outcome, through inhibitory control was also significant (detail not provided) Carer involvement: $r = .22$* in path analysis. But indirect path of maltreatment to academic competence through caregiver involvement was not significant.

Study authors, year & location	Analytical ample	Type(s) of analysis	Independent variables (risk, promotive or protective variables)	Effects of independent variables on outcome (only adjusted effects are reported unless otherwise stated)
				Not significant: average classroom size, percentage of teachers with a master's degree or higher and school type
Pears et al. (2012) USA	75 girls in foster and kinship care (in transition from primary to secondary school)	Latent Growth Curve Analysis	Placement type, poor self-regulation, Placement changes, caregiver support	**<u>Outcomes: academic competence at T1, T2 and T3 (carer reported TRF of CBCL)</u>** Poor self-regulation: T1 predicted intercept (β = -.59, p < .001) but not the slope. Caregiver support: predicted the slope (β = .43, p = .02) but not the intercept. Not significant: Number of placements, self-competence
Pears et al. (2013) USA	93 maltreated children in foster care	Structural equation models	Gender, maltreatment, risk behaviour (substance misuse, externalising behaviour, deviant peer association), cognitive ability, behavioural school engagement, affective school engagement and cognitive school engagement	**<u>Outcomes: academic competence (carer reported TRF of CBCL)</u>** Cognitive engagement: β = .35 p < .001 Affective school engagement: β = .23 p < .001 **Not significant:** gender, behavioural engagement, risk behaviours The total indirect effects for academic competence (the combined effects of three indirect paths from group status to academic competence) was significant (z = -2.43, p < .05).
Perzow et al (2013) USA	149 children in foster care, age 9 to 11years	Linear regression	IQ, gender, age, number of schools, number of caregivers	**<u>Outcomes: IQ, academic performance, teacher and caregiver academic rating, WIAT score (carer and teacher reported School Scale and TRF of CBCL)</u>** Disassociation: β = -.23** (academic competence), β = -.15** (WIAT), otherwise ns. IQ: β = .26** to β = .57** (across the four outcomes) **Not significant**: age, gender, number of schools attended, number of caregivers

Study authors, year & location	Analytical ample	Type(s) of analysis	Independent variables (risk, promotive or protective variables)	Effects of independent variables on outcome (only adjusted effects are reported unless otherwise stated)
Petrenko et al. (2012) USA	334 maltreated children in foster care, age 9 to 11years (As Perzow et al. 2013)	Linear regression (model 1), hierarchical linear regression (model 3), latent class analysis (model 4)	Sexual abuse, physical abuse, physical neglect, supervisory neglect, severity, prior period in care	**Outcomes: IQ, academic performance, teacher and caregiver academic rating, WIAT score (carer and teacher reported School Scale and TRF of CBCL)** Reason for entry Model 1: Supervisory neglect was associated with higher Verbal IQ scores (β = 4.99, *p* = .017, sr2 = .017). Other subtypes were ns. Model 2 (regression including severity): all subtypes ns. Model 3 (hierarchical regression): the supervisory neglect group had better Verbal IQ scores than the physical neglect group (β = −4.00, *p* = .026). Model 4 (Latent Class models): Children in the Supervisory Neglect class had higher verbal IQ scores than children in the Sexual Abuse/Mixed class (*p* = .009, d = 0.55). No class differences were identified for nonverbal IQ or academic achievement. Number of placements Model 1 (regression): β = −3.55, *p* = .026. Model 2 (regression including severity): β = −3.76, *p* = .019. Model 3 (hierarchical regression): β = −3.67, *p* = .021.
Sawyer & Dubowitz (1994) USA	372 children in kinship care, age 5 to 19	*t*-test	Gender, age at entry, reason for entry, length of time in care, number of placements, number of children in placement, child behaviour, carer age, carer level of education, carer employment, carer is grandparent	**Outcomes: reading and maths test scores (administrative data CAT)** Age at entry: Entering after 12 predicted lower reading and maths scores. Number of children in the placement: 5 or more children in the placement predicted lower reading and maths scores. Not significant: gender, age at entry, reason for entry, length of time in care, number of placements, number of children in placement, child behaviour, carer age, carer level of education, carer employment, carer is grandparent

Study authors, year & location	Analytical ample	Type(s) of analysis	Independent variables (risk, promotive or protective variables)	Effects of independent variables on outcome (only adjusted effects are reported unless otherwise stated)
Sebba et al. (2015)	4,849 children in care	Linear regression	Gender, ethnicity, SEN, free school meals (FSM), neighbourhood deprivation (IDACI), home language, reason for entry, length of time in care, SDQ, placement changes, school changes, absences, exclusions, placement out of authority, placement type, school type, past achievement The findings presented here are β values of predictors of GCSE exam results when all covariates are included in the model, including exam scores at age 11 (Key Stage 2).	**Outcomes: GCSE scores and progress from exams at age 11 to exams at age 16** Gender (reference male): β =-.028** SEN (reference: none): Autistic Spectrum Disorder β = -0.055*** / Moderate Learning Difficulty β = -0.027*, Severe or Multiple Learning Difficulties: β = -0.138*** Behavioural, Emotional and Social / Physical, Sensory and Other Disabilities / Specific Learning Difficulty / Speech, Language and Communication: all ns Strengths and Difficulties Questionnaire Score: β = -.089*** Reason for entry (reference: entry 0-4 or 5-9): Disability: -.033*, Adolescent entrant (abuse or neglect) / (other reasons):ns Placement changes after age 11: β = -.076* Home language at age 16: β = -.038* Length of latest placement: β = .030* School changes in 2 years before exams: β = -.080*** In non-mainstream school: β = -.272 (special school) to -.094*** (other type). Unauthorised absences: β = -.127*** Fixed and permanent exclusions: β = -.090*** Exam scores at age 11: β = 0.253*** **Not significant**: Ethnicity, Length of time in care, FSM age 7 and 16, Home Language at age 7, IDACI age 7 and 16, Placed out of authority age at 16.

Study authors, year & location	Analytical ample	Type(s) of analysis	Independent variables (risk, promotive or protective variables)	Effects of independent variables on outcome (only adjusted effects are reported unless otherwise stated)
Shin (2003) USA	152 young people in care, age 16.5-17.5	Linear regression	Aspiration for higher education, problem solving skills, anxiety, depression, loss of control, positive affect, emotional ties, life satisfaction, placement in kinship care, educational planning, special education, school performance, extracurricular activity, positive school experience, hospitalised care, drug abuse	**Outcome: standardized test scores in reading (WRAT-R) (administrative data)** Well-being: negative association between depression, loss of control, emotional ties and outcome. Positive link between life satisfaction and outcome. ns in multivariate analyses. Risk taking behaviour r ns, and $\beta = -.24^{*}$ for drug use Special education (enrolled in programme or not) $r = -.46^{**}$, ns in multivariate analysis Placement type (kinship care) $\beta = .24^{*}$ Aspirations for education $r = .49^{**}$ and $\beta = .53^{***}$ Positive school experience $r = .31^{**}$, ns in multivariate analysis Extracurricular activities $r = .32^{**}$ and $\beta = .25^{*}$ **Not significant**: age, gender, ethnicity
Stein (1997) Canada	248 children in age, age 4 to 16	t-test	Gender	**Outcome: language and overall performance (teacher reported)** Gender: Boys had slightly higher ratings than girls both outcomes
Turpel-Lafond (2007) Canada	32,186 all children in care between 1997 and 2005, age 5 to 18	Proportions	Special educational needs, ethnicity, gender	**Outcomes: national literacy and numeracy test scores (administrative data)** Gender: 26.6% of girls graduate, compared with only 15.9% of boys. Ethnicity: Aboriginal children have poorer outcomes than non-Aboriginal 24% of non-Aboriginal children graduated from high school, in contrast to 16% of Aboriginal CiC. Special educational needs: 12% of children with SEN graduate from high school (vs 34%)

Study authors, year & location	Analytical ample	Type(s) of analysis	Independent variables (risk, promotive or protective variables)	Effects of independent variables on outcome (only adjusted effects are reported unless otherwise stated)
Weiss & Fantuzzo (2001) USA	490 children in care, age 6 to 8	Logistic regression and interaction analysis	Age, low birth weight, APGAR score, lead poisoning, single mother, teenage mother, poverty, maltreatment, poverty	**Outcomes: school grades and attendance (teacher reported)** Age: OR: .84* (academic competence) & OR: 1.52**** (attendance), CIs not provided. Low birth weight OR: 1.34**** and OR: 1.32*** Single mother OR: 1.60**** to OR: 2.25**** Teenage mother 1.46**** Poverty OR: 1.67**** to OR: 2.43**** Maltreatment: OR: 1.76**** to OR: 1.94**** Not significant: low APGAR score, lead poisoning All interaction analyses of in care status and risk factors were ns.
Wise et al. (2010) Australia	199 children in foster care, age 7 to 17	Stepwise regression	Age, gender, age at first placement, number of placements, well-being, carer age, carer school-based involvement, carer level of education, carer gender, carer support of child's academic work, carer expectations for education, child functioning and behavioural problems.	**Outcomes: grade retention, overall achievement and risk of exclusion (carer reported)** Age: β = .17* (risk of exclusion), otherwise β is ns Gender (1=female, 0=male): β = -.19† (grade retention), otherwise β is ns Special educational needs β = -.24* for intellectual disability and β = -.19† for physical disability, β is ns for learning disability / disorder, β = -.16* for ADD (temporary suspension) Carer expectations β = -.50*** (reverse coded) achievement / β = -.19 and grade retention Carer support of academic child's work β = .34*** overall achievement, otherwise ns.

Study authors, year & location	Analytical ample	Type(s) of analysis	Independent variables (risk, promotive or protective variables)	Effects of independent variables on outcome (only adjusted effects are reported unless otherwise stated)
				Not significant: Age first placement, well-being (emotional disorder), number of placements, carer age, carer school-based involvement, carer level of education, carer gender
Zima et al. (2000) USA	302 children in care, age 6 to 12	Logistic regression	Age, gender, ethnicity, length of time in care, behavioural problems, number of placements, placement type, carer level of education, number of schools attended, attendance	**Outcomes: risk of exclusion, academic skills delay, grade retention (carer reported)** Age OR: 1.52* (CI 95% 1.19-1.97) (risk of exclusion), otherwise, ns Gender OR: 6.71* (CI 95% 2.53-21.49) (risk of exclusion), otherwise ns Ethnicity: OR: 3.26 (CI 95% 1.57-6.87) for academic skills delay, otherwise ns Behavioural problems (CBCL Total T > 63)_OR: 3.37 (CI 95% 1.41-8.25), OR ns for academic skills or grade retention Length of time in care OR: 1.17* (CI 95% 1.01-1.34) for risk of exclusion. Otherwise ns. Number of placements OR: 1.18* (CI 95% 1.01-1.36) for academic skills delay, otherwise ns Placement type OR: 3.04* (CI 95% 1.20-7.35) for living in a group home, otherwise ns. **Not significant**: Carer level of education, number of schools attended, attendance
Zorc et al. (2013) USA	209 children in foster or kinship care, age 5 to 8	Poisson regression	Age, Gender, Placement stability, behaviour, chronic illness, reason for entry, school changes, placement type	**Outcome: attendance (teacher reported)** Gender: Boys 25.4 days absent vs Girls 19.1 days absent,

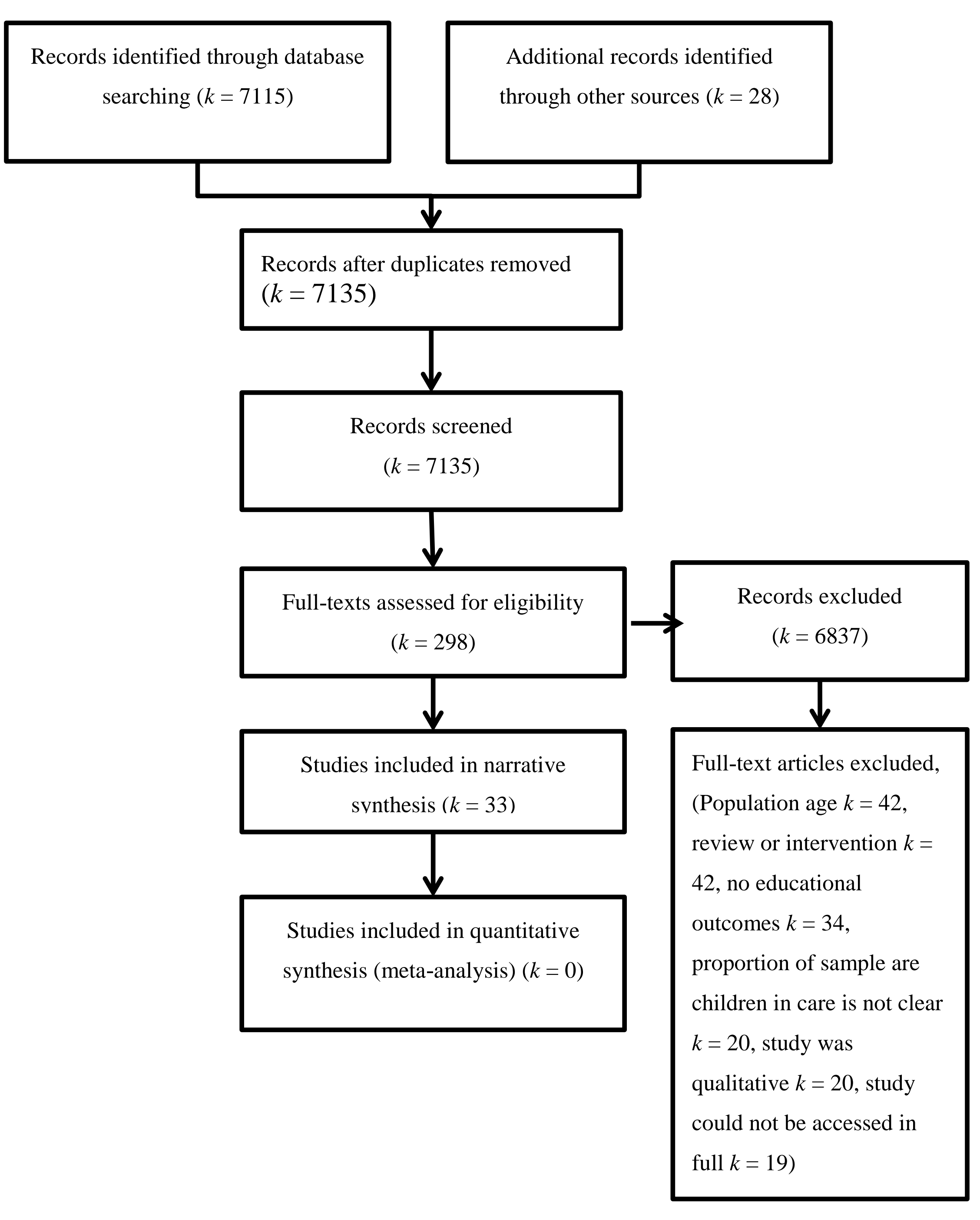
Study authors, year & location	Analytical ample	Type(s) of analysis	Independent variables (risk, promotive or protective variables)	Effects of independent variables on outcome (only adjusted effects are reported unless otherwise stated)
				Behavioural problems (CBCL score dichotomised at 83rd percentile): 27.1 days absent v 19.5 for children who didn't score above cut of. IRR = 1.32 (*p* = .008). Chronic illness (yes / no) lower attendance (25.5 days) than children without an illness (21.1). Number of placements (stability) early stability: 15days absent; late stability: 22.28; no stable placement (23.1). IRR *ns* for late stability, IRR = 1.37 for unstable. School changes moderately predicted attendance (no detail of figures). Not significant: Age, ethnicity, placement type, reason for entry (neglect, physical or sexual abuse)

Exact *p*-values are provided where available in original studies, alternatively the following notation is used $^{\dagger}p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.0001$.
Abbreviations used in the table: ITBS: Iowa Test of Basic Skills; ITED: Iowa Test of Educational Development; KBIT: Kaufman Brief Intelligence Test (cognitive ability); WJ: Woodcock Johnson (reading, maths and cognitive ability); TRF: Teacher Report Form; CBCL: Child Behavioural Checklist; CAT: California Achievement Test (reading and maths); GCSE: General Certificate of Secondary Education (national exams at age 16 in England and Wales); WRAT-R: Wide Range Achievement Test-Reading.

3.5.2 Excluded studies

In total, 261 studies were excluded. The most common reasons for exclusion were: the population were preschool children or young people were over the age of 18 ($k = 42$), the study was a review or a complex intervention ($k = 42$), there were no educational outcomes ($k = 34$), it was not clear what proportion of the sample, if any, were children in care ($k = 20$), data was qualitative only ($k = 20$) or studies could not be accessed in full (for example, articles were in old journals and authors could not be contacted) ($k = 19$).

3.5.3 Prisma flowchart (Moher et al., 2009)



3.5.4 Critical appraisal of included studies

Overall, because the inclusion criteria were broad, included studies were heterogeneous, making comparisons difficult and meta-analysis inappropriate, a common problem in this type of review (Losel & Bliesener, 1990; Losel & Farrington, 2012; Murray et al., 2009). To facilitate the narrative review, each included study was first assessed for quality, and findings were then grouped thematically to highlight the key points. All included studies were critically appraised using the Cambridge Quality Checklists. An overview of the methods and limitations of the included studies is given below and the critical appraisal for individual studies is provided in Appendix B.

The 33 included studies were all observational, of these seven were prospective longitudinal and two were retrospective longitudinal. The distinction between prospective and retrospective longitudinal was not always clear when the data used for the study were taken from administrative datasets or children's services records. The majority of studies did not use this terminology (prospective or retrospective) to describe the study design.

All studies provided some description of the samples; however, there was much detail missing. For example, most studies that included children with special educational needs[3] did not provide prevalence rates, and where they did few described whether these were physical, learning disabilities or emotional and behavioural problems. This is important because these groups are distinct and their educational outcomes will be affected differently according to the nature of their need. Half the

[3] Special educational needs is used throughout this review as an umbrella term to include difficulties such as autism or learning difficulties, as well as physical disabilities. It is acknowledged that the term may have different meanings in different countries and contexts.

included studies reported on placement type. Few studies reported the socio-economic status of children (or their birth families or carers) or whether the study setting was rural or urban. Only three studies reported on characteristics of birth parents and only one reported whether children were accommodated by state or non-state providers of care. Finally, only one study reported whether other interventions were provided to children in care in that locality. In the majority of cases, this lack of data may be explained by the fact that studies used secondary data analyses, so that they were limited by the data available to them.

In terms of outcomes, the majority reported acceptable validity, however, there was a risk of bias when the study relied on outcomes reported by the foster carer or teacher, rather than scrutinising administrative or school records; this was the case in 11 studies. Thirteen studies reported test scores from assessments carried out for the purpose of the study.

A limitation of some administrative datasets is the lack of information about who collects and records the data; while often it is reported to be information provided by children's services, it is not clear how this is done. For example, do individual social workers submit information or is this provided by foster carers? Is information about length of time in care entered carefully at the time a placement beings and ends or is this reported retrospectively? While some datasets come with detailed guidance (DfE, 2013; Flynn, Vincent, & Miller, 2011), many do not. In addition, even where guidance states how data should be gathered, this does not guarantee quality. For example, in the dataset used in Sebba et al. (2015), foster carers are asked to complete the Strengths and Difficulties Questionnaire, but only a total difficulties score is reported; it is not known whether some questions are left unanswered and if there is missing data for instance. These are some of the limitations

common to all studies which use secondary data analysis. Moreover, a significant number of studies (k = 14) used data which was reported by young people or foster carers, including educational outcomes. This introduces risk of bias if young people are subject to social desirability bias, or carers or teachers don't know children well, for example.

The Cambridge Quality Checklists recommends that studies should have a sample size of 400 or more. This is to ensure studies are sufficiently powered, and indeed no studies included a power calculation so large sample sizes can go some way to mitigating concerns about power. Fifteen studies had sample sizes over 400. In three which did not however, sample sizes were smaller than 400 because populations or the number children eligible for the study were much smaller (Geenen & Powers, 2006; McNichol & Tash, 2001; Wise, Pollock, Mitchell, Argus, & Farquhar, 2010). In Wise et al. (2010) a large number of independent variables was included, therefore the study may be underpowered.

The majority of included studies used random or census sampling, thus reducing the risk of selection bias. Most, but not all, studies clearly identified the population and any exclusion criteria. However, it was not evident that "being in care" was defined similarly across studies. Not all studies provided detail of attrition, young people who chose not to participate or young people excluded from analyses. Some studies excluded – deliberately or not – children with severe intellectual impairments, medical problems or those who were absent on the day of testing. A small minority of studies provided details on missing data and treatment of missing data in analyses.

The majority of risk or protective variables investigated for this review were demographic descriptors or related to children's care history (for example placement

type). Questions of validity and reliability may therefore be of less concern. However, few studies included detailed definitions of the variables included for analysis. For example, while length of time in care may seem an objective measure of how long a child has been looked after by the state, it is not clear whether this is calculated as the most recent period in care or whether it includes previous periods in care in earlier childhood, and whether this is amalgamated with the legal status of the child or the length of time they have been in a particular placement. Other variables such as maltreatment and special educational needs, as described above should also, where possible, be accompanied by detailed definitions. Few studies stated whether children with special educational needs had been assessed by a trained professional or not. Where studies measured behavioural problems and mental health, most used validated or standardised questionnaires, but assessments of reliability or validity, in particular for children in care was not always provided. Studies using composite measures provided estimates of internal consistency.

The maximum score for critical appraisal on the Cambridge Quality Checklists is 15; this includes a score on the risk correlates checklist (out of 5), a score on the risk factor checklist (out of 3) and a score on the causal risk factor checklist (7). The higher the score, the stronger the evidence that a variable has a causal relationship with the outcome. Scores for included studies ranged from 3 (Choice et al., 2001) to 14 (Font, 2014), with only two other studies scoring above 10 (Flynn et al., 2013; Sebba et al., 2015). The checklist scores are only a rough measure of study quality but this does point to the overall weakness of the evidence base for risk and protective factors for educational outcomes for children in care, as has been reported elsewhere (Stone & Zibulsky, 2015)

In discussing the findings of each study, details of the critical appraisal are highlighted where the evidence is particularly strong or weak. Readers may otherwise assume that study designs are adequate for the purposes of the analyses carried out.

3.6 Findings: what are the risk, promotive and protective factors for the educational outcomes for children in kinship and foster care?

The review included 33 studies that examined associations between one or more variables and educational outcomes. In summarising the results, some of the complexity from each study is lost. Full details of covariates, sample sizes and *p*-values for estimates can be found in Table 4 and in the original studies.

3.6.1 Child level variables

The included studies examined the associations between educational outcomes and four fixed variables (age, gender, ethnicity and special educational needs) and five modifiable variables (behavioural problems and executive function, mental health and well-being, cognitive ability, language and physical health).

3.6.1.1 Age

Nine included studies examined the relationship between age and various educational outcomes for children in care. Four studies found that age did not predict

school performance (Perzow et al., 2013; Shin, 2003; Wise et al., 2010; Zima et al., 2000) and seven found that older age predicted worse school performance and higher risk of exclusion from school in multivariate analyses (three studies included multiple effect sizes) (Cheung, Lwin, & Jenkins, 2012; Choice et al., 2001; Flynn et al., 2013; Heath, Colton, & Aldgate, 1994; Pears, Fisher, Bruce, Kim, & Yoerger, 2010; Wise et al., 2010; Zima et al., 2000). In Flynn et al. (2013), older age did not predict school performance at T1, but it was associated with slower progress in school performance between T1 and T2. In Wise et al. (2010) and Zima et al. (2000), children who were older were more likely to be excluded but age did not predict overall attainment or grade retention. In studies that found no significant effect, the age range of children in the sample was smaller than two years, whereas in those which found a significant effect the range was five or more years, with the exception of one in which children had a three-year gap. However, the latter studies also found some non-significant effects.

These findings provide some evidence that children in care may fall behind their peers as they age and cognitive loads increase. Studies comparing the educational outcomes of children in care and children in the general population show that there is a gap in attainment between these groups and that the size of this gap increases with age (Burley & Halpern, 2001; O'Higgins et al., 2015; Townsend, 2012; Turpel-Lafond, 2007). This suggests that older age may be a risk factor for greater academic difficulties.

3.6.1.2 Gender

Nineteen included studies examined the relationship between gender and educational outcomes for children in care. Just over a third of these found no significant difference between boys' and girls' school performance while in care (AIHW, 2007; Burley & Halpern, 2001; Hegar & Rosenthal, 2009; McNichol & Tash, 2001; Perzow et al., 2013; Sawyer & Dubowitz, 1994; Shin, 2003). Just under a third found that girls outperformed boys on all outcomes (Cheung et al., 2012; Flynn et al., 2013; Kirk, Lewis, Brown, Nilsen, & Colvin, 2012; Pears, Kim, Fisher, & Yoerger, 2013; Sebba et al., 2015; Turpel-Lafond, 2007) and a third found mixed results (AIHW, 2011; Conger & Rebeck, 2001; L. Evans, 2001; Wise et al., 2010; Zima et al., 2000). Three of these found that girls performed better than boys on all outcomes except maths. Only one study found that boys had better school performance than girls (E. Stein, 1997), but these differences were small.

These findings, though mixed, mirror broad gender differences in academic achievement in the general population (DfES, 2007), so it is not surprising that these differences should be replicated to some extent in the care population. It suggests that boys in care may be at greater risk of academic underachievement.

3.6.1.3 Ethnicity[4]

Overall, in the 10 studies that examined the association between ethnicity and educational outcomes, for the most part belonging to a minority ethnic group was associated with lower educational outcomes.

[4] I employ the terms to describe ethnic groups as they are used in individual studies.

Children from Native American and Aboriginal backgrounds had substantially poorer outcomes than other children in care of different ethnicities (AIHW, 2007, 2011; Burley & Halpern, 2001; Mitic & Rimer, 2002).

In Evans (2001), African-American children had lower achievement in all subject areas than children from white backgrounds. Likewise, in Burley and Halpern (2001) African American children had lower average school performance than white children at age eight, 11 and 14. In Zima et al. (2000) African American children were at greater risk of academic skills delay but did not have higher rates of grade retention or suspension than white children. On the other hand, in Hegar and Rosenthal (2009) and Conger and Rebeck (2001) the school performance or attendance rates of African American and white children were not significantly different.

Findings on Hispanic children in the USA were mixed: in Hegar and Rosenthal (2009) these children (like those of “other” ethnicities) performed significantly worse than white children. In Burley and Halpern (2001) and Conger and Rebeck (2001) there was no difference in school performance of children from white and Hispanic backgrounds. However, children from white backgrounds had better attendance than children from Hispanic backgrounds.

Finally, in Sebba et al. (2015) and Shin (2003) ethnicity was not a significant predictor of school performance or reading scores, after controlling for a number of other variables (including for example free school meals in Sebba et al. (2015)).

These findings broadly mirror the literature on ethnicity and educational outcomes in the general population in the respective contexts of each study (DfES, 2006; Helme & Lamb, 2011; Kao & Thompson, 2003; Richards, 2008). This points to the greater risk of academic underachievement faced by children from ethnic minority

backgrounds. Ethnicity in and of itself is not a risk factor for educational outcomes (Kraemer et al., 2005). Rather, the findings cited above may reflect disadvantages faced by children from minority backgrounds in the particular contexts in which they find themselves.

3.6.1.4 Special educational needs (SEN)

Studies included in this review reported a high prevalence of SEN among children in care, echoing previous research (Goerge, Voorhis, Grant, Casey, & Robinson, 1992; Scherr, 2007; Trout et al., 2008).

All included studies found that children with special educational needs were at risk of poor educational outcomes, perhaps unsurprisingly. However, special educational needs were captured in a number of different ways.

In Burley and Halpern (2001), Choice (2001) and Shin (2003) children in special education programmes had significantly worse school performance than those not attending similar programmes. In Burley and Halpern (2001), the strength of this association also appeared to increase with age.

In Choice (2001), Geenen and Powers (2006), Turpel-Lafond (2007) and Sebba et al. (2015) having any type of special educational need was associated with poorer school performance[5]. In Sebba et al (2015), only children with an autism spectrum disorder and those with moderate or severe learning difficulties made significantly slower progress than children without any special educational needs. In Flynn (2013)

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[5] Categories in Sebba et al. (2015) were: Autism Spectrum Disorder, Behavioural, Emotional and Social, Moderate Learning Difficulty, Physical, Sensory and Other, Severe or Multiple Learning Difficulties, Specific Learning Difficulty, Speech, Language and Communication

and Wise et al. (2010) results were mixed. In Flynn (2013) cognitive impairment was associated with school performance and marks in bivariate analyses but these differences disappeared in multivariate models. In Wise (2010), special educational needs were separated into eight different categories[6]. None were significant predictors of overall school achievement, only having an intellectual disability predicted grade retention and having ADD/HD put children at greater risk of school exclusion. While this study indicates that just over a third of the sample (36%) had a "functional limitation", it is not clear how many children fell into each SEN category.

Children in care with SEN appear to have worse performance than children with SEN in the general population

A number of studies also compared the outcomes of children in care with and without special educational needs with children who weren't in care and had or didn't have special educational needs (Geenen & Powers, 2006; Sebba et al., 2015; Turpel-Lafond, 2007). These found that children in care with special educational needs perform significantly worse than children in all other groups, suggesting a potential cumulative or interactive effect of being in care and having special educational needs. Overall, this evidence suggests that children in care with special educational needs are therefore at additional significant risk of educational underachievement beyond the risks in the non-care population.

There is some overlap between this section and the following one in that some studies include behavioural problems within classifications of special educational

[6] Categories in Wise et al. (2010) were: physical and emotional disability, intellectual disability only, ADD/HD, physical disability only, intellectual and physical disability, emotional disability, intellectual and emotional disability, learning difficult / disability

needs whereas others distinguish these separately. The review follows the definitions and terminology used in included studies.

3.6.1.5 Mental health, behavioural problems and executive function

There is a high prevalence of mental health and behavioural problems among children in care compared to children in the general population (Fernandez, 2008; Ford, Vostanis, Meltzer, & Goodman, 2007; Kerker & Dore, 2006; Meltzer, Gatward, Corbin, & Ford, 2003; Scherr, 2007; Sempik, Ward, & Darker, 2008). Twelve studies identified for this review analysed the link between mental health or behavioural problems and educational outcomes.

Behavioural problems for educational outcomes

Cheung et al. (2012), Flynn et al. (2013) and Sebba et al. (2015) found that higher scores on the Strengths and Difficulties Questionnaire (SDQ) Total Difficulties scale predicted lower academic achievement. In Choice et al. (2001) having an emotional problem (measured by the Emotional Problems Scale) was also a significant predictor of school failure. In Shin (2003) drug abuse, a marker of risk taking behaviour, predicted poorer reading scores. Zima et al. (2000) and Zorc et al. (2013) found that children with behavioural problems (both measured using the Child Behaviour Checklist) were significantly more likely to be suspended or report low attendance. However, in Zima et al. (2000) behavioural problems were not linked to academic skills delays. Moreover, children who scored in the 90th percentile for acting out behaviour (as assessed by their teachers) were less likely to experience exclusion.

This may be a result of interventions provided specifically for these youths. Of the above studies, Flynn et al. (2013), Sebba et al. (2015) and Zorc et al. (2013) used longitudinal data and found that children with behavioural problems have greater academic problems over time, including significantly slower progress and lower attendance. This suggests that behavioural problems may be a risk or a promotive factor, not just a correlate (greater behavioural problems as a risk factor and low behavioural problems as a promotive factor).

Executive function and self-regulation for educational outcomes

Pears et al. (2010) and Pears et al. (2012) found evidence of greater problems with executive function (inhibitory control, attention problems and lack of self-control) among children in care compared to children in a community sample. Lower inhibitory control also predicted lower academic competence. In Pears et al. (2012), poor self-regulation at T1 predicted poorer academic competence cross-sectionally and longitudinally; this suggests that self-regulation may be either a risk or a promotive factor (as above). However, self-competence (measured by Self-Perception Profile for Children) was only correlated with school performance; the association in cross-sectional and longitudinal multivariate analyses was not significant.

Other measures of child well-being

Colton and Heath (1994) found mixed evidence on the relationship between behavioural problems and maths, reading and vocabulary test scores. Study subsample sizes were very small (n = 10) in some analyses, which limits the reliability of the findings. For example, children with high parent reported

behavioural problems had significantly worse reading and vocabulary scores than children below the clinical cut off (also parent reported). Whereas this finding was reversed for teacher reported behavioural problems. In maths, there appeared to be no difference between children with and without behavioural problems (teacher reported).

Flynn et al. (2013) found that well-being, measured using the Internal Developmental Assets questionnaire (Search Institute, 2017), was a significant predictor of school performance in cross-sectional and longitudinal analyses suggesting that this too, may be a risk or promotive factor for educational outcomes. In Perzow et al. (2013) symptoms of trauma, in particular disassociation, were found to significantly predict lower academic competence and cognitive ability, however they were not associated with teacher or carer rated school performance; this may be because teachers and carers do not recognise signs and symptoms of disassociation. In Shin (2003) of six measures of mental health[7], all but one (anxiety) were correlated with reading scores, however none of these relationships were significant in multivariate analyses.

Sawyer and Dubowitz (1994) found no link between behaviour and attainment. In multivariate analyses in Pears et al. (2013) and Wise et al. (2010), behavioural problems did not predict educational outcomes, although bivariate correlations were significant.

Mental health, behavioural problems and poor executive function may constitute significant barriers to learning (Shonk & Cicchetti, 2001; Slade & Wissow, 2007).

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[7] Mental health in Shin (2003): anxiety, depression, loss of control, positive affect, emotional ties, life satisfaction; measured by the Mental Health Inventory and the Multidimensional Scale of Perceived Social Support.

While overall the findings here are mixed, there is some suggestion from longitudinal analyses that behavioural problems may be a risk or promotive factor for educational outcomes for children in care. No study analysed whether this relationship was linear. Moreover, while behavioural problems were measured before the educational outcome in these studies, the direction of prediction is not clear. Indeed, it is possible that academic difficulties cause or exacerbate behavioural problems. Nevertheless, this evidence suggests that having behavioural problems may be a risk factor for educational outcomes for children in care.

3.6.1.6 Cognitive ability as a predictor of success

Evans (2001), Pears et al. (2010) and Perzow et al. (2013) found a strong positive association between measures of IQ and educational outcomes for children in care. This suggests that higher cognitive ability is a promotive correlate for positive development as argued in some psychological research (see for example Gutman & Flouri, 2011).

3.6.1.7 Language

Burley and Halpern (2001) and Sebba et al. (2015) examined whether speaking a language other than English at home was associated with educational outcomes. Burley and Halpern (2001) found that it predicted lower test scores in years 3, 6 and 9. In Sebba et al. (2015) speaking a language other than English at home at age 16, but not at age 7, was associated with poorer outcomes at age 16.

3.6.1.8 Physical health

Two studies included variables related to children's physical health (L. Evans, 2001; Zorc et al., 2013). In Zorc et al. (2013) children with chronic health problems had statistically significantly lower average attendance (25.5 days absent) than children without these problems (21.1 days absent). In Evans (2001) low height, but not low weight, predicted lower attainment. One other study examined physical well being at birth, but it is categorised as 'birth risks' and included in the following section under variables relating to the birth family.

3.6.2 Variables pertaining to birth families

Relatively few studies (*k* = 3) included data on the characteristics or involvement of birth families or other pre-care experiences.

Weiss and Fantuzzo (2001) found that early childhood disadvantage and experiences of poverty were associated with poorer outcomes on a number of measures for all children in their sample, which included children in care. Interaction analyses to explore associations for children in care were also conducted. These did not suggest that early childhood deprivation had a different effect on educational outcomes for children in care compared to peers in the general population.

McNichol and Tash (2001) examined parental substance misuse and found that children in care who had been exposed to drugs prenatally scored significantly lower on IQ tests than those who had been exposed to drugs by their parents in early childhood. However, over time the latter group made significant progress and became the highest achieving group. Brooks and Barth (1998) found no significant difference

between the grades or rate of grade retention between children in care who had been exposed to parental substance misuse and those who hadn't.

The evidence here suggests that pre-care experiences and characteristics or behaviours of birth parents play an important role in predicting educational outcomes, echoing research on children in the general population (see for example Sylva et al., 2014). Pre-care experiences are likely to explain a substantial proportion of educational difficulties that children in care face (O'Higgins et al., 2015; Stone, 2007). Few studies on pre-care experiences were identified for this review; this is likely explained by the fact that studies investigating risk factors such as maltreatment, poverty or other early childhood adversity tend to do this in samples of children in the general population (see for example Romano, Babchishin, Marquis, & Fréchette, 2014; Slade & Wissow, 2007; Stone, 2007).

3.6.3 Variables pertaining to care history

These included studies examined the associations between educational outcomes and eight themes relating to care history: reason for and age at entry, length of time in care, number and type of placement, characteristics of carers, placement with siblings and social work factors.

3.6.3.1 Reason for entry

Research on maltreatment, which is not restricted to children in care, has investigated how neglect and different abuse subtypes affect children's cognitive functioning (Crozier & Barth, 2005; Eckenrode, Laird, & Doris, 1993; Kendall-

Tackett & Eckenrode, 1996; Romano et al., 2015; Trickett & McBride-Chang, 1995; Veltman & Browne, 2001; Viezel, Freer, Lowell, & Castillo, 2015). Nine studies identified for this review examined whether reason for entry and maltreatment experiences predicted educational outcomes. Findings were not consistent across studies, but this is primarily due to the variation in how reason for entry is reported.

Weiss and Fantuzzo (2001) found that children who had experienced maltreatment (any type) had poorer educational outcomes than children who hadn't. Pears et al. (2010) found a negative correlation between maltreatment and academic competence, but in a multivariate model there was no direct effect of maltreatment on school outcomes. However, there was a significant indirect relationship fully mediated through inhibitory control. Similarly, in Pears et al. (2013), maltreatment was negatively correlated with academic outcomes. In the multivariate model, this association was no longer significant, however, the relationship was mediated by affective school engagement (feelings about school) and cognitive school engagement (effort and self-regulation of students). These findings suggest that it may not be maltreatment per se which affects school outcomes but rather the ways in which maltreatment manifests itself through children's behaviour. These three studies focused on young children (aged 4 to 7) however, so comparison groups (non maltreated children) are likely to be different to non-maltreated children in older samples. For example, very young children are unlikely to be in care because of behavioural problems their parents are unable to cope with, as is often the case in older samples.

In Conger and Rebeck (2001), possible reasons for entry were grouped into three categories: abuse/neglect, court ordered (often because of behavioural problems) or

voluntary (usually because of family stress or crisis). Here, children who entered because of abuse or neglect had better attendance and better maths scores than children on a voluntary order, but reading scores were not different. On the other hand, children in care following a court order had worse attendance than children on voluntary orders but reading and maths scores were no different. Aldgate, Colton, Ghate and Heath (1992) and Heath et al. (1994), who analysed results from the same sample of children, found that children who were in care because of abuse or neglect had poorer reading and maths performance at age 9 but that a year later, they appeared to be slowly closing that gap. In contrast, the vocabulary test scores of children in care for abuse or neglect declined over time. However, sample sizes were small (n = 10) in some analyses so results should be interpreted with caution.

In Sebba et al. (2015), care careers were examined; this variable amalgamates age at first entry to care and reason for entry. Here, children who entered care because of a disability had lower outcomes and made significantly less progress than children who entered under the age of 10 and usually for abuse or neglect. There was no difference in attainment between this latter group and teenage entrants. In Sawyer and Dubowitz (1994) there was no difference in reading or maths scores whether children had entered care because of abuse, neglect or other reasons. In contrast, in Evans (2001), children who had been neglected had slightly higher overall underachievement compared to children who were in care because of abuse.

Petrenko et al. (2012) was the only identified study to include data on frequency and severity of abuse and neglect. Some children had also experienced more than one type of maltreatment. Children who had experienced supervisory neglect had higher verbal achievement than children who had experienced other types of abuse or neglect. There was no independent effect of any maltreatment subtype on non-verbal

K-BIT scores or academic achievement in any of the analyses. Experiences of physical abuse and sexual abuse were associated with important behavioural – rather than educational – problems. These findings are broadly in keeping with the findings from previous studies on maltreatment in other populations (Eckenrode et al., 1993; Veltman & Browne, 2001). Moreover, the use of multiple study designs to analyse the relationship between these variables strengthens the evidence.

Conflicting findings on maltreatment may be influenced by different definitions of maltreatment or the fact that data recorded usually reflects only one or the most recent incident of maltreatment. Frequency and severity are rarely documented for the purposes of research. Studies that find no independent effect of maltreatment on academic achievement may reflect the fact that there is little (recorded) variation in maltreatment experiences in a population of children in care. Alternatively, these could indicate that other variables – a safe care placement or good relationship with a carer, some of which are controlled for in the above studies – are working to attenuate the effects of maltreatment. The mixed evidence makes conclusions about the relationship between reason for entry and educational outcomes difficult to draw.

3.6.3.2 Age at entry into care

In most countries, children can be taken into care at any time between birth and 18; figures from 2001 appear to show no distinctive pattern of age on entry across countries (see Thoburn, 2010). In this review, three included studies examined the relationship between age at entry and educational outcomes.

As reviewed above, in Sebba et al. (2015) the exam performance at age 16 of young people who entered care as teenagers was not significantly different to young people who entered before the age of 10, after controlling for other factors. Progress between age 11 and 16 was also not significantly different. Likewise, in Wise et al. (2010), age at entry did not predict overall achievement, grade retention or exclusions. Sawyer and Dubowitz (1994) found that children who entered care at age 12 or after performed better than those who entered when they were younger. However, more than 20 statistical tests were performed in that study, increasing the chances of spurious statistical associations.

It does not appear from this evidence that age at entry is a risk or promotive variable for educational outcomes of children in care. Age at entry is closely related to length of time in care, which is examined in the next section.

3.6.3.3 Length of time in care

Recent data from the Department for Education in England concluded that there was a positive correlation between length of time in care and number of qualifications obtained at age 16 (DfE, 2014). This may reflect a positive effect of being in care in England. Only one included study partly supports this hypothesis (AIHW, 2007), but the results from other included studies do not.

In AIHW (2007) the longer children were in care the better their results in reading and numeracy tests in half the territories surveyed (AIHW, 2007); in regression analyses however, length of time in care was no longer a significant

predictor. Conger and Rebeck (2001) determined that children had better attendance if they stayed in care for at least the duration of the semester after they entered. Leaving care in the middle of the semester was associated with poorer attendance. However, length of time in care prior to taking exams was not associated with reading or maths scores. Zima et al. (2000) found that children who had been in care for a greater number of years were significantly more likely to be excluded from school than those who were in care for shorter periods of time. However, length of time in care was not associated with academic skills or grade retention.

A further six included studies conducted across a range of contexts found no statistically significant link between length of time in care and educational outcomes (AIHW, 2011; Aldgate et al., 1992; Burley & Halpern, 2001; Geenen & Powers, 2006; Luke et al., 2015; Sawyer & Dubowitz, 1994). Although these studies did find that length of time in care predicted educational outcomes in bivariate, but not multivariate, analyses. Sebba et al. (2015) suggest that the effect of length of time in care disappears in multivariate analyses because any relationship is explained by other factors, including the profile of children entering care at different ages. Several of these above cited studies also used longitudinal designs (AIHW, 2011; Aldgate et al., 1992; Luke et al., 2015) suggesting moreover, that a shorter stay in care is not a risk factor for educational outcomes, as had been suggested by the data published by DfE discussed above.

3.6.3.4 Number of care placements and placement instability

Children in care move home more often than their peers (Oosterman et al., 2007; Ward, 2009), which may be disruptive to their education (Haveman, Wolfe, &

Spaulding, 1991; Mehana & Reynolds, 2004). Twelve studies in this review examined the link between placement instability and educational outcomes.

In AIHW (2011) the higher the number of placements during the two-year study period, the lower the numeracy test scores. Also, the higher the number of placements in the 12 months prior to testing, the lower the likelihood of achieving reading and numeracy benchmarks, but this finding was not consistent across school years. Sebba et al. (2015) also found that instability in the year preceding exams and placement changes after the age of 11 were associated with lower scores at age 16. In Conger and Rebeck (2001) having a change of placement in the 12 months preceding testing was linked to more school transfers in the same year and it was moderately associated with attendance but it did not predict reading and maths scores. In contrast, Geenen and Powers (2006) noted that children who had experienced more placements had lower grade point average (GPA) in maths. Moreover, children with special needs were more likely to experience a greater number of placements, which might explain the relationship between instability and the outcomes. In Zima et al. (2000) greater instability predicted academic delays, but not grade retention or exclusions. Petrenko et al. (2012) found that children with a history of multiple care placements had greater academic delays above and beyond effects of abuse or neglect.

Five studies found no evidence of a link between placement instability or a high number of placements and academic outcomes (AIHW, 2007; Aldgate et al., 1992; Burley & Halpern, 2001; Pears et al., 2012; Sawyer & Dubowitz, 1994).

The mixed findings here may indicate that placement mobility operates through other variables such as attendance or school transfers. Zorc et al. (2013) examined the relationship between placement instability and attendance in greater depth. They

found that attendance rates decreased in a stepwise fashion as placements varied from 'early stability' (achieving placement stability within 45 days) to 'late stability' (stability achieved between 45 days and 9 months). Children with unstable placements were 37% more likely to be absent than children who experienced early stability.

Overall, the results here do not provide clear evidence as to whether placement instability is a risk factor or not. While instability in and of itself is not desirable for children in care, its relationship with educational outcomes is not clear; this is likely due to other variables present in analyses which may act as confounders.

3.6.3.5 Placement type

This study is only concerned with children in kinship and foster care; studies with samples of children in other placement types were excluded. Seventeen studies comparing the outcomes of children in foster care and kinship care were identified. All but four of these were included in another large meta-analysis which found no overall effect of kinship care on educational outcomes (Winokur et al., 2014). This large and well-designed meta-analysis (by CASP standards) provides strong evidence for this claim. Of the studies not included in Winokur et al.'s study, but identified for this review, a further four studies found no difference between the outcomes of children in kinship and foster care (AIHW, 2007, 2011; Font, 2014; Sebba et al., 2015). In a particularly strong study methodologically, Font (2014) set out to determine the causal impact of being in kinship care, compared to foster care on reading, maths and cognitive skills. Because randomisation to placement type is not

possible (kin carers may not be available for example), a number of statistical techniques, including propensity score matching and instrumental variables, were used to account for selection bias and other potentially confounding variables. Findings were mixed, but estimates which were statistically significant, were all in the same direction: compared to children in foster care, children in kinship care were higher performing at time 1, but their school performance decreased more dramatically over time than their peers in foster care. This downward trend was particularly pronounced for children in kinship care who were not high functioning at time 1. These findings may, however, reflect the particular context of the study.

These conflicting findings suggest no clear evidence about the impact of placement type on children's educational outcomes. On the one hand, the review by Winokur and colleagues (which finds no evidence of a difference) brings together a larger number of studies which cut across contexts, but the majority of these present only bivariate analyses. This contrasts with the Font study which represents only one context and sample of children but uses far more sophisticated methods to account for selection bias in the samples. It is not clear from the current evidence whether being in kinship or foster care is therefore a risk factor for educational outcomes for children in care.

3.6.3.6 Placement out of area

Sebba et al. (2015) was the only study to look at young people placed out of area (outside the regional boundaries of the authority responsible for their care). In this study, out of area placements did not predict outcomes at age 16.

3.6.3.7 The characteristics and involvement of kin and foster carers

Qualitative research has suggested that carers play an important role in supporting children in care to achieve academic success (Dickson et al., 2010; Martin & Jackson, 2002; Sinclair, 2005), so it was expected that carer characteristics or behaviours would be linked to greater attainment in studies included in this review. Nine studies were identified for inclusion.

Carer involvement in education

Six studies found evidence of a positive association between greater caregiver involvement, including high aspirations and expectations, and educational outcomes (Burley & Halpern, 2001; Cheung et al., 2012; Flynn et al., 2013; Pears et al., 2010, 2012; Wise et al., 2010). In Burley and Halpern (2001), Cheung et al. (2012), Pears et al. (2010) and Wise et al. (2010) caregiver involvement in schooling (for example helping with homework) was positively associated with higher attainment. The evidence on school-based involvement was mixed: in Pears et al. (2010) school and home-based involvement is amalgamated in the same measure. In Cheung et al. (2012) and Wise et al. (2010), school-based involvement was not a significant predictor of school performance, but in Flynn et al. (2013) it was associated with better average marks.

In Pears et al. (2010), caregiver involvement fully mediated the relationship between maltreatment and social-emotional competence. In Pears et al. (2012), the only study to use a validated measure of caregiver support, namely the 10-item

Attachment to Parent subscale of the Inventory of Parent and Peer Attachment, having support from a caregiver predicted better academic performance for girls in foster and kinship care around the transition from primary to secondary school. In Heath et al. (1994), children placed with a foster parent who themselves more years of education performed slightly better in reading but not in maths or vocabulary tests than children placed with carers with lower levels of education. Reading scores did not change over time however, and selection bias cannot be ruled out. Pears et al. (2010), Sawyer and Dubowitz (1994), Wise et al. (2010) and Zima et al. (2000) found that the educational background of the carer did not predict the educational outcomes for children in their care. Moreover, in Wise et al. (2010) caregiver gender and age were also not related to outcomes.

The characteristics of carers

Heath et al. (1994) examined the relationship between social class (categorised as “working” or “middle” class) of the carer and children’s educational outcomes at three time points. There was no difference in attainment between children in care placed with foster carers of different social class. The authors conclude that being placed in a middle class family does not provide any particular benefits to children with regards to educational outcomes. Samples sizes were small (n = 49 overall) however and selection bias may influence the results.

Finally, Sawyer and Dubowitz (1994) found that living with a grandparent was not associated with maths or reading scores. The same study found that the greater the number of children living in the placement, the lower the reading scores (but not maths scores).

Taken together the findings of these studies build on the evidence of qualitative researchers that carers play an important role in supporting the educational attainment of the children in care (Jackson & Cameron, 2010). These findings reflect the broader literature that the involvement and support of parents plays a positive role in the educational success of children (A. Goodman & Gregg, 2010; A. Goodman, Gregg, & Washbrook, 2011; Gorard, See, & Davies, 2012).

3.6.3.8 Placement with siblings

Hegar and Rosenthal (2009) found no difference in the academic performance of children whether they were placed with a sibling or not. However, when children were in kinship care with a sibling, these young people had worse school performance than children placed with a sibling in foster care. Furthermore, there was no difference by ethnicity: African-American and Hispanic children in kinship care had similar outcomes whether they were placed with a sibling or not. However, if children were in foster care, they performed better when they were placed with a sibling. On the other hand, the combination of kinship and sibling placement predicted lower achievement for white children. The relationship between sibling placements and educational outcomes is likely to be mediated by other variables such as well-being, for example if remaining with siblings gives children in kinship care a greater sense of stability. While this study had a strong research design, replicating three-way interactions is often difficult so the findings may not be replicable or generalizable. This evidence provides insufficient guidance on whether placement with siblings can be a risk or promotive factor.

3.6.3.9 Social work factors

Relatively few studies – here, three – explored the relationship between social work provision and educational outcomes for children in care despite the important role played by social work and other social care professionals.

Burley and Halpern (2001) found that the turnover of social workers did not predict any variation in educational outcomes. Aldgate et al. (1992) found that the initial decisions social workers made with regards to permanence were significant in predicting maths, reading and vocabulary scores. Where decisions indicated the placement was likely to be permanent, children performed better than if they believed the placement was short term only. In Choice et al. (2001) having plans for reunification with the birth family was associated with worse educational outcomes. The latter two findings suggest that children's expectations about placements are significant in predicting achievement; this may be an important finding for social work practice. Once again mixed evidence here means conclusions cannot be drawn on whether the variables reviewed here act as risk or promotive factors.

3.6.4 The school experience of children in care

In this final section, I review the eleven included studies that explored the role of schools in predicting the educational outcomes of children in care.

3.6.4.1 School transfers

Like placement instability, school mobility is disruptive to the education of children in general (Heinlein & Shinn, 2000; Mehana & Reynolds, 2004). Seven included studies examined this relationship for children in care.

In Burley and Halpern (2001), attending multiple schools in the same academic year was associated with a 9 to 12 percentile ranking decrease in test scores between grade 3 and 9. Conger and Rebeck (2001) found that there was a small but significant relationship between changing school and lower maths test scores, but not reading scores. In Sebba et al. (2015) school changes in the two years before exams were also associated with lower outcomes. Three studies found no link between school mobility and educational achievement, grade retention or exclusions (Heath et al., 1994; Perzow et al., 2013; Zima et al., 2000). Finally, Zorc et al. (2013) examined the relationship between placement and educational stability and school attendance. This study found that school transfers were not an independent predictor for attendance. However, changing school was closely related to placement stability. The paper argues that stabilising care placements would be sufficient to reduce school absences. This was the only study to examine the relationship between placement and school stability and outcomes. More research is needed to assess these pathways and relationships and determine how they affect educational outcomes.

Given the mixed evidence here, it is not clear that school change acts as a risk variable for educational outcomes of children in care. Like placement change, this is not to say that school changes are desirable but rather that where changes do happen there may be important reasons for this which may benefit children or be mitigated by other factors.

3.6.4.2 Children's educational aspirations and feelings about school

Few studies examined the association between children's feelings about school and their educational outcomes.

Shin (2003) found a significant positive relationship between high aspirations and school success. In Pears et al. (2012), feelings of self-competence (the child's reported ability to perform well within and across domains) did not predict higher academic competence in cross-sectional or longitudinal analyses. In a later study, Pears et al. (2013) examined the association of behavioural engagement (attendance), affective engagement (feelings about school, teachers and peers) and cognitive engagement (efforts made to learn and abilities to regulate these efforts) with academic competence. Greater affective and cognitive engagement were associated with higher academic competence, but there was no independent effect of behavioural engagement on academic outcomes. Greater cognitive engagement was also linked to fewer behavioural problems. The study also examined the mediating effect of affective engagement on the relationship between maltreatment and academic outcomes. Findings indicate that being in foster care was associated with lower levels of affective engagement but that greater affective engagement predicted school success. Promoting positive feelings towards school, and greater school engagement in general, for children in care may be an important pathway to better school outcomes.

In the general population, evidence on the role of the attitudes of children to education in predicting outcomes is mixed (Gorard et al., 2012). This research should

be extended to children in care; indeed, the present evidence suggests that children's positive feelings towards school may be promotive for their educational outcomes.

3.6.4.3 Other school related factors

While this review accepted studies that used grade retention, attendance and exclusions as outcomes, several included studies examined the relationship between these variables and attainment.

Grade retention

In Flynn et al. (2013) grade retention predicted worse outcomes in a cross-sectional multivariate analysis, but it was not associated with academic progress over the course of a year. Conger and Rebeck (2001) found that increased attendance predicted better reading and maths scores for children in care. Similarly, Sebba et al. (2015) found that absences (particularly unauthorised) and exclusions explained important variation in exam scores at age 16, namely that high rates of absence and exclusions predicted worse outcomes. In contrast, in Zima et al. (2000) attendance did not predict grade level, grade retention or exclusions.

Low expectations for children in care

In Heath et al. (1994) teachers' low expectations of children were not associated with lower scores in reading, writing or maths at single time points or over time. Shin (2003) found that positive school experiences (not defined) were associated with

better reading scores in bivariate analyses. However, these associations disappeared in multivariate analyses.

Additional support for children in care in school

Heath et al. (1994) and Burley and Halpern (2001) both investigated whether receiving extra help was linked to academic outcomes. In Heath et al. (1994) children receiving extra help had poorer academic outcomes than those who did not receive help, but their scores appeared to improve over time; the authors infer that teachers are able to identify children who need extra support and provide support which enabled them to catch up, though it is not clear whether these children closed the gap with their peers. Samples sizes were very small in some analyses (n = 10) however, so the findings may not be reliable. In Burley and Halpern (2001) children receiving extra support had worse outcomes than young people who didn't. This might be because help is targeted at young people in significant difficulty. These findings should be examined in conjunction with more detailed studies on academic support for children in care (i.e. tutoring interventions) which seem to offer promising results (R. Evans et al., 2017; Flynn, Marquis, Paquet, Peeke, & Aubry, 2012b; Forsman & Vinnerljung, 2012; Liabo et al., 2012).

School type

Finally, two studies examined school type. In Sebba et al. (2015) children who were in non-mainstream schools (particularly those in special schools, but also young people in pupil referral units and alternative provision) at age 16 had significantly

lower attainment than children in care in mainstream school. In Pears et al. (2010) children in a private or magnet (public but specialised) schools performed marginally better than those in public or specialised treatment schools (at the $p < .10$ level), but outcomes were not related to average class size or percentage of teachers with a Master's degree or higher.

Taken together these studies indicate that children in care's experiences in school are multifaceted and complex. Overall, there were far fewer studies on the role of schools and teachers and children's experiences of school than there were of children's care histories. Further research is necessary to paint a clearer picture of how schools can affect the education of children who are in care and what the school related risk and protective factors are.

3.7 Summary of main results

This review charts a comprehensive summary of the factors associated with educational outcomes for children in care. To the authors' knowledge, it is the only review of its kind.

There were over fifty different factors reviewed, which were grouped according to the various spheres of influence for young people as reflected in the ecological framework (Bronfenbrenner, 1979). These included individual, peer and family level characteristics, social work and care history variables and school level factors. The bulk of the evidence was located around the individual and micro-level of the ecological framework. Moreover, the review did not identify any study which examined the relationship between wider policy or structural factors and educational

outcomes, nor did any studies consider the ways in which various levels of the ecological framework may interact with each other. All included studies examined at least one individual characteristic and its relationship to educational outcomes. Among these, there appeared to be some consensus that male gender and minority ethnicity predicted poorer attainment. Moreover, the review suggests that behavioural problems and special educational needs put children in care at significant risk of academic difficulties.

As has been highlighted in previous research, there is a dearth of potentially significant information about children's birth families and the impact this may have on children's educational trajectories. In this review, three studies contained some – limited – data on birth families. Greater information about birth families is crucial to understand the educational pathways of young people and how these interact with care histories to affect educational outcomes.

In terms of placement factors, evidence indicates that length of time in care is not a risk factor for educational outcomes. While relationships may be significant in bivariate analyses these tend to disappear in multivariate models suggesting other factors, for example the characteristics of children, confound these relationships. Evidence was otherwise mixed, including for age at entry, placement type and instability and other social work factors (for example number of social workers). Overall, these findings may be a reflection of the heterogeneity of the included studies, in terms of samples, concept definitions, study designs, contexts, methodologies and outcomes. Moreover, the results from multivariate analyses, most frequently regression analysis, are also likely to be influenced by the diverse covariates selected. Rare were the studies that used the same covariates: the addition

of one or more variables to an equation may unexpectedly change findings, including the direction or strength of association between other variables.

Several studies examined the role that carers play in supporting the education of children they care for. There appeared to be consensus that a caregiver's involvement in children's education as well as support was associated with higher attainment. This finding is perhaps not surprising as supportive adult relationships have been found to be important for educational outcomes of children in the general population as well (Gorard et al., 2012), but it is significant in this context given the central role of carers in children's fostering experiences. Carers' involvement may thus be acting as a promotive factor. Likewise, children's aspirations and school engagement may also act as a promotive factor for educational outcomes.

Evidence on school level factors indicates that children in care experience a high number of school transfers. However, findings were mixed as to whether this had a deleterious effect on outcomes or not. Included studies also highlight the fact that children in care experience grade retention and attendance problems at higher rates than their peers in the general population; however, associations with attainment and test scores were not consistent across studies.

All included studies were critically appraised to determine whether results could be trusted and to guide commentary where findings from included studies contradicted each other. In general, with the exception of Font (2014), the quality of the evidence in this review was low to moderate.

Overall, the review suggests that the literature is still rooted in the deficit model: included studies were predominantly focused on factors which put children at risk of poor educational outcomes. The majority of included studies investigated linear relationships only, and none appeared to consider the differential effect at either end

of the distribution. For example, having fewer placements may be promotive rather than a risk factor; indeed it is feasible that beyond three or four placements, further instability makes little difference. If this non-linear relationship exists, it may also explain the inconsistent findings in this review on the relationship between placement stability and educational outcomes, for example. Likewise, having no behavioural problems may help children demonstrate more resilience to some of the adversities they may experience. Research in criminology has shown that having no or very few hyperactivity symptoms has a stronger promotive effect against offending behaviours than more severe symptoms have a risk effect (Farrington et al., 2008). This highlights the importance of studying these relationships in more depth. The review findings suggest that carer involvement may have a promotive effect for children in care. The evidence is supported by the fact that the majority of included studies found similar effects, however, individual studies were flawed such that this weakens the strength of this finding. Nevertheless, if replicated in other studies with stronger methodologies, this would suggest that by actively supporting children in their education, carers may play an important role in promoting their educational resilience.

3.8 Conclusion

3.8.1 Strengths of this review

This appears to be the first study to comprehensively and systematically review the risk and protective factors for the educational outcomes of children in kinship and foster care. The review took a broad approach and included independent variables in any domain (individual, family, care) and whether they were correlates or factors. As

such, it makes an important contribution to the literature on the education of children in foster and kinship care. Indeed, it provides a comprehensive overview on the state of the evidence on factors associated with educational outcomes and in so doing, provides the platform for future research about mechanisms underlying low achievement.

Secondly, the review contributes to knowledge on risk and protective factors for children in care. Knowledge about risk and protective factors is essential for the development of effective interventions. Current interventions for children in care have shown limited success; strengthening the evidence on risk and protective factors is therefore key to creating better interventions. The findings from this paper build on the results of previous reviews of risk factors (Bhatti-Sinclair & Sutcliffe, 2012; Oosterman et al., 2007; Simkiss, Stallard, & Thorogood, 2012) and educational outcomes for maltreated children (Romano et al., 2015; Scherr, 2007; Stone, 2007; Trout et al., 2008).

Finally, the review adds to the literature (including systematic reviews) on risk factors. The sensitive search strategy identified an important number of factors hypothesized to be associated with educational outcomes for children in care. A number of challenges were encountered however, in conducting the review, most notably, with respect to synthesis of heterogeneous methodologies, contexts and findings, a common problem with such reviews. There is a growing interest in systematic reviews of risk factors, how they are conducted, what the challenges and opportunities are and how they can contribute to knowledge (Murray et al., 2009; Shenderovich et al., 2016). It is hoped that the findings and discussion of this paper can contribute to future studies and reviews of risk factors.

3.8.2 Limitations of the review

The aim of this review was to identify factors associated with educational outcomes; it did not identify or specify any factors a priori. Although the search terms were designed to maximise sensitivity, it is likely that the review did not identify all relevant studies. Moreover, the search strategy limited studies to children in care, but in doing so, may have filtered out studies where children in care were a subsample of a study sample, in particular where studies didn't report these details. Future systematic reviews may wish to focus on the relationship between one factor and educational outcomes. These may also be more conducive to conducting a meta-analysis, provided heterogeneity of studies is not a barrier to this.

The review did not examine genetic or other biological factors that may influence educational outcomes. This is a particularly important area of research as evidence emerges of genetic factors involved in anti-social behaviour and mental health (see for example Bowes & Jaffee, 2013; Jaffee et al., 2012; The National Scientific Council on the Developing Child, 2015).

The review also only included studies in English. This limits the generalisability of the findings to other countries. Future research may broaden the contexts from which research is drawn for example through multi-country collaborations.

The review did not include children in other types of placements (for example group or residential care) which means that the findings of this review may not be generalisable to all young people in care. Qualitative research was not included as this was outside of the scope of this review. However, such studies may offer important insights into other risk and protective factors associated with educational outcomes.

3.8.3 Implications for practice

The mixed findings do not lend themselves to straightforward prescriptions or recommendations for practice. However, some themes emerge.

The findings indicate that certain groups of children may be more at risk of poor outcomes. These groups include boys, those from minority ethnicity groups, children with special educational needs and young people with behavioural problems. Practitioners may wish to pay particular attention to the specific needs of these young people and tailor or target interventions at them.

The review also identified several studies that found an association between carer involvement and children's educational outcomes. This is a promising finding for practice as it may inform future interventions or work with carers more generally. Findings about the effectiveness of existing interventions with carers are mixed however (Briskman et al., 2012; Flynn et al., 2012b; Turner & Macdonald, 2011). To support the development and implementation of such interventions, further research is required to first identify the processes by which carers can promote educational outcomes and then how these findings can be used to develop interventions.

3.8.4 Implications for Research

While there exists a large body of research on the education of children in care, more evidence is needed to understand the processes underlying the problem of low achievement. This implies the need for research using large samples, more sophisticated statistical models and longitudinal designs, which should include

detailed information about the characteristics of children, their families, placements and environment. However, research in this field is fraught with difficulties of recruitment, use of data tends to be extremely sensitive, and local samples of children are often small. Another strategy may be to analyse existing data from interventions to conduct exploratory analyses, including of mediating relationships (Green et al., 2014; Pears et al., 2013). However, resistance to randomisation in social care means the practice of rigorous evaluations remains a challenge (Dixon et al., 2014; Mezey et al., 2015). Despite this, advances continue to be made by the accumulation of findings in reviews like this one, even where individual studies cannot make strong recommendations.

As more research is produced, there may also be scope to undertake a more focused systematic review and meta-analysis, by focusing for example on a single risk factor. Future primary research however, needs to provide more detailed data about children in care to make this possible. For example, in this review length of time in care was used as a proxy for length of current placement, care period, time in care overall and other variations that could have been analysed separately had more detailed records been available. It would also be helpful if samples of children in care were more clearly identified. There exists a large literature on child maltreatment, for example, but it is not always clear whether participants are, or ever were, in care. Greater clarity may also allow for more subgroup analysis, by age or gender for example. Research should also make the practical significance of findings clear. Several studies included in this review omitted to do this (and it was not immediately obvious from the data), thus limiting interpretation. This review also identified several gaps in the literature in particular around the link between well-being or pre-care experiences and educational outcomes. Greater information about pre-care

experiences is particularly important in order to understand the influence of these early experiences on educational achievement, and to explore how these interact with later experiences in care (O'Higgins et al., 2015).

Literature on children in care appears to exist in a silo, so that research on maltreated children often excludes or ignores children in care (or mentions them as an afterthought). Likewise the literature on children in care draws very little from research on children in the general population. Yet, each field may have much to learn form the other. For example, children in care are more likely to come from poor or disadvantaged backgrounds where substance misuse, domestic violence and maltreatment occur. There exists a rich literature on the link between maltreatment and educational outcomes, for example, which is not limited to children in care (Leiter & Johnsen, 1994; Romano et al., 2015; Shonk & Cicchetti, 2001). Risk factors identified in research on children in the general population could be further studied to assess their relevance and importance for children in care.

Finally, as research evidence accumulates and longitudinal studies become more prevalent, future reviews should consider inclusion criteria limited to prospective longitudinal studies, in order to identify risk and protective factors.

In summary, this review contributes to the literature on the educational outcomes for children in care by systematically identifying risk and protective correlates and factors for educational achievement. Understanding the relationship between educational outcomes and various factors is necessary to develop evidence based logic models to inform the development of effective interventions. Over 50 correlates of educational outcomes were identified in this review and these were broadly grouped, according to the ecological framework, by individual, birth family, care

experiences, social work and school factors. The findings were mixed but these suggest that boys, those belonging to minority ethnic groups, children with special educational needs or those with behavioural problems are at particular risk of poor outcomes. Length of time in care was not associated with educational outcomes. On the other hand, carers' involvement emerged as a potential promotive factor for the educational outcomes of children in care. There was no clear pattern of association between other identified factors, including age at entry into care or school factors and educational outcomes.

These findings reflect the diversity of study samples, methodologies and contexts of the individual studies included in this review. The findings of this review suggest that future research should where possible prioritise longitudinal research designs to explain the low school performance of children in care. Research should also assess whether the risk factors for low educational attainment in the general population apply to children in care. These two research directions will hopefully allow risk and protective factors to be identified so that ultimately interventions can be put in place to help children in care succeed in school.

Part Three: Study Two

Chapter 4. Literature review and rationale for Study Two

The findings from the systematic review in Study One of this thesis suggest that carers' behaviours and attitudes with respect to education may play an important role in promoting educational success of children in care. The second study (Study Two, Part Three of this thesis) explores this proposition in more depth by analysing the relationship between carer involvement and school performance of teenagers in kinship and foster care. In this chapter, I review relevant literature and present the rationale for Study Two. Because the systematic review in Study One already reviewed the literature on educational outcomes of children in care in some detail, this chapter focuses exclusively on the literature on parental and carer involvement in education. In this thesis I use the term carer to describe both foster and kinship carers.

4.1 Introduction

Study One was an in-depth review of the literature on the education of children in care. It identified that boys, children from minority backgrounds and those with special needs and behavioural problems are particularly at risk of low attainment compared to other children in care. It also found that carer involvement appears to play an important role in promoting better educational outcomes; this suggests that carers' involvement might play a promotive role for children in care. However, the evidence remains limited and thus warrants further investigation. Moreover, as carer

involvement is modifiable, it can be targeted by interventions (unlike fixed factors like gender for example).

The review also found important gaps in knowledge, emanating from the lack of longitudinal work. Indeed, as evidence grows on the factors associated with educational outcomes, longitudinal analyses are needed to explore how variables work together over time. This will allow us to discover promotive factors, rather than just correlates for the education of children in care, which can subsequently be targeted for interventions. Study Two seeks to address these gaps in the literature by exploring what carers do and how this is associated, or not, with educational outcomes of teenagers in foster or kinship care over a four year period.

The present chapter reviews the literature on the involvement of parents in the general population and the involvement of carers in the education of children in care. The systematic review in Study One included only six studies on the involvement of carers for educational outcomes; this suggests that the breadth of the evidence on carer involvement is limited. This stands in contrast to research on parental involvement in the education of children in the general population. In this chapter, I briefly review the findings on parental involvement to inform and set up the parameters of Study Two, which is concerned only with carer involvement for children in foster or kinship care. Specifically, I review definitions of parental involvement, briefly present evidence on its association with educational outcomes and describe select theories which suggest how this relationship might work. In the second part of the chapter, I describe how carer involvement is conceptualised and defined as well as how carers are involved in the education of the children they care for. I then examine the nature of the relationship between carer involvement and school performance and suggest how current theoretical frameworks on parental

involvement for educational outcomes need to be modified for children in care. Finally, I present the research questions for Study Two. The methodology for the study is then presented in Chapter 5 and the findings in Chapter 6.

4.2 Parental involvement in the education of children

4.2.1 Definitions, typology and measurement

There is a rich literature on parental involvement for educational outcomes of children in the general population; indeed a rapid search of Google Scholar and SCOPUS using the terms "parental involvement" and ("systematic review" OR "meta-analysis") returned 30 relevant reviews; a further 12 were identified through citation lists. The size of the evidence points to the significant interest in the role parents play in their children's education (see for example Desforges, 2003; Hattie, 2008). Indeed, increasing parental involvement to maximise pupil outcomes is now a key policy concern for governments around the world (Goodall & Vorhaus, 2011; US Department of Education, 2018).

Despite this large evidence base, there is little consistency in how parental involvement is defined. Indeed, studies on the subject often fail to specify clear definitions, typologies or a theoretical framework to guide their research (Desforges, 2003; Fan & Chen, 2001; Hill & Tyson, 2009; See & Gorard, 2013). In this chapter, I focus on parental involvement in education and its impact on children's educational attainment, rather than, for example, parental involvement in isolation or in relation to other aspects of family life or other child outcomes.

Some researchers argue for a broad definition of parental involvement. For example, The Global Family Research Project, which focuses exclusively on the study of parental involvement, defines it as everything parents do with their children which is intentionally linked to learning (Bouffard & Weiss, 2008). In the No Child Left Behind Act (2018), parental involvement is "the participation of parents in regular, two-way, and meaningful communication involving student academic learning and other school activities" (paragraph 9101). A myriad of other definitions have also been proposed (Desforges, 2003).

In systematic reviews and meta-analyses of parental involvement for educational outcomes of children, parental involvement is loosely defined so as to capture a broad evidence base and includes: home-based involvement (for example, help with homework), school-based involvement (for example, attending parent teacher meetings), communication about and with school, parental aspirations, expectations about education and other general activities (Avvisati, Besbas, & Guyon, 2011; Desforges, 2003; Fan & Chen, 2001; Hill & Tyson, 2009; Jeynes, 2007; Shute, Hansen, Underwood, & Razzouk, 2011). Typologies that have been proposed reflect these various activities and dimensions of parental involvement (see for example, Sui-Chu & Willms, 1996). By far the most widely cited is Epstein's, which describes six types of involvement (Epstein & Dauber, 1991; Fan & Chen, 2001):

1. General parenting (provision of school supplies, support and supervision at home)
2. School-parent communication (talking about school as well as communication between the school and parent)
3. School-based parent involvement (parents volunteering in school)
4. Home-based parent involvement (parents helping with learning activities)

5. Parental involvement in school decision making and governance
6. Parental involvement in collaborations between the school and the community.

Other typologies have been put forward, such as Grolnick and Slowiaczek's (1994) in which parental involvement has three distinct dimensions:

1. Behavioural involvement includes both home (homework help) and school-based activities (volunteering at school)
2. Cognitive involvement describes the ways in which parents expose their children to intellectually stimulating activities and experiences.
3. Personal involvement is the attitudes and expectations about education that parents hold for their children.

Findings from meta-analyses on parental involvement confirm this multi-dimensional nature of parental involvement, and identify significant heterogeneity in effect sizes. Post-hoc analyses attribute this to different components of parental involvement and their relationship with educational outcomes. (Castro et al., 2015; Fan & Chen, 2001; Hill & Tyson, 2009; Jeynes, 2007; Ma, Shen, Krenn, Hu, & Yuan, 2016; Menting, Orobio de Castro, & Matthys, 2013). This has been further verified by studies on the measurement of parental involvement concepts (Chen & Zhu, 2017; Walker, Wilkins, Dallaire, Sandler, & Hoover-Dempsey, 2005).

There is also little consistency across studies in how parental involvement, or different strands of parental involvement are measured (Hill & Tyson, 2009) and there are no standardised measures. Moreover, there also appears to be variation in who reports on involvement: the parent, the child, the teacher, or another person. In a recent study, Chen and Zhu (2017) also showed the influence of various factors, including child gender and age on the measurement structure of parental involvement.

The Global Family Research Project has produced a sample list of research informed measurement tools for parental involvement but ad hoc approaches remain common (Westmoreland, Bouffard, O'Carroll, & Rosenberg, 2009).

Consistency in definitions and measurement tools is important because a systematic measurement procedure ensures the concept of interest – here, parental involvement – is adequately represented. Findings from reviews also suggest that inconsistencies in definitions and measurement are one of the main drivers of discordant findings across individual studies on parental involvement (Chen & Zhu, 2017; Desforges, 2003; Hill & Tyson, 2009).

Notwithstanding these limitations, the following section examines the evidence on the relationship between parental involvement in education and educational outcomes of children.

4.2.2 Relationship between parental involvement and educational outcomes of children: evidence from research

Most of the research on parental involvement focuses on its relationship with educational outcomes of children (Desforges, 2003), as evidenced by the large number of systematic reviews, meta-analyses and meta-syntheses on the subject. There is some overlap in systematic reviews, but most are distinguishable only by their inclusion criteria. While a number of reviews had no discernable exclusion criteria (Fan & Chen, 2001; Gorard et al., 2012; Hattie, 2008), others focused exclusively on a particular age group (Hill & Tyson, 2009; Jeynes, 2005, 2007; Ma et al., 2016; Shute et al., 2011) or ethnic groups (Jeynes, 2003, 2016, 2017), or were limited by date (Castro et al., 2015), to one type of parental involvement (Walker,

Hoover-Dempsey, Whetsel, & Green, 2004) or urbanicity (Jeynes, 2012). One review focused on fathers' involvement (Wilder, 2014).

A number of studies include only interventions; these aim to discover whether intervening to increase parental involvement has an impact on educational outcomes of children (Bus, van IJzendoorn, & Pellegrini, 1995; Cummings et al., 2012; Goodall & Vorhaus, 2011; Layzer, Goodson, Bernstein, & Price, 2001; Mattingly, Prislin, McKenzie, Rodriguez, & Kayzar, 2002; Nye, Turner, & Schwartz, 2006; See & Gorard, 2013; van Steensel, McElvany, Kurvers, & Herppich, 2011). Several reviews were not systematic but have been influential in the literature because they seek to explain how parental involvement is associated with attainment, rather than just describe the relationship (Desforges, 2003; Hornby & Lafaele, 2011; Pomerantz, Moorman, & Litwack, 2007).

The reviews all find that at least one aspect of spontaneous parental involvement is positively associated with educational outcomes of children. However, there is some variation in overall effect sizes (from $ES = .12$ in Castro (2015), and $ES = .18$ in Hill & Tyson (2009) to $ES = .53$ in Jeynes (2007)). This discrepancy could be due to different search strategies (often not presented), inclusion or exclusion criteria (not explicit in every study) or meta-analytic method (including effect size calculation). Only Hill & Tyson (2009) provide detailed justifications for their methodologies including the use of a random effects approach. More weight is therefore given to their findings, and accordingly the small overall effect size in their review (Coe, 2002).

All meta-analyses found significant heterogeneity in overall effect sizes; posthoc analyses were then conducted to examine the relationship between different involvement dimensions and outcomes. While these broadly agreed that high parental

expectations and aspirations had the strongest association with student outcomes, effect sizes varied across meta-analyses (from ES =.22 to ES =.88) (Castro et al., 2015; Fan & Chen, 2001; Hattie, 2008; Hill & Tyson, 2009; Jeynes, 2007). School-based involvement was positively related to outcomes in Hill & Tyson (2009) and Fan & Chen (2001), but not in Jeynes (2007) or in Castro et al. (2015). Evidence on home-based involvement showed that general help with learning activities was associated with higher attainment in Hill & Tyson (2009) ($ES = .21$) and in Fan and Chen (2001) ($ES = .09$). Help with homework was associated with positive outcomes in Jeynes (2007) ($ES = .36$) and Castro et al. (2015) ($ES = .024$), but with worse attainment in Hill & Tyson (2009) ($ES = -.11$). The latter finding is interpreted as suggesting that parents might be more inclined to help teenagers who are struggling academically. This points to the need for longitudinal studies where prior attainment is accounted for. Other, general aspects of parental involvement were also associated with better outcomes across studies. Taken together the findings confirm the multi-dimensional nature of parental involvement, with some reviews arguing against global definitions.

Research has also documented the important role of other variables in the relationship between parental involvement and educational outcomes: those that affect the strength of the relationship (moderators) and those which explain it (mediators). By far the most commonly analysed are family socio-economic status (SES) and ethnicity. But the (statistical) effect of parental level of education, marital status, characteristics of the child and the neighbourhood, as well as methodological approaches, have also been tested (Desforges, 2003; Hornby & Lafaele, 2011; Pomerantz et al., 2007). A very brief overview of some important moderating variables is presented below.

The moderating effect of SES on the relationship between parental involvement and educational outcomes has been examined extensively. This is driven by the evidence of the impact of poverty of educational outcomes (G. J. Duncan & Brooks-Gunn, 1997). Indeed, research has sought to investigate, for example, whether parental involvement varies by social class and whether it can mitigate the effects of poverty on educational outcomes (Desforges, 2003). Findings, including from meta-analyses, indicate that parental involvement continues to have an effect on educational outcomes even when the family SES is accounted for (Fan, 2001; Jeynes, 2007; Ma et al., 2016; Sylva et al., 2014).

The role of ethnicity has also been extensively researched, through subgroup analyses or by focusing exclusively on the outcomes of one group, for example Latino (Jeynes, 2017) or African American children (Jeynes, 2016). The findings from this research suggest that parental involvement is associated with better outcomes for children regardless of ethnic background (Fan & Chen, 2001; Hill & Tyson, 2009; Jeynes, 2005, 2007). Effect sizes vary across the literature but it is not clear whether differences represent true effects or should be attributed to methodological differences (Hill & Tyson, 2009). However, there is evidence to show that ethnicity influences the type, quantity and quality of parental involvement, aspects of which may be located in cultural or socio-economic differences (Desforges, 2003; Hill et al., 2004; Hill & Tyson, 2009; Pomerantz et al., 2007; Shute et al., 2011).

Children’s characteristics also play a role in determining the type, quantity and quality of parental involvement, and thus in the relationship between involvement and educational outcomes (Desforges, 2003; Hornby & Lafaele, 2011; Pomerantz et al., 2007). For example, evidence indicates that children with behavioural problems influence the ways in which parents are involved with the school; these may be

negative interactions which also colour the ways in which parents are subsequently involved at home (Hornby & Lafaele, 2011). Research also suggests that parental involvement has a greater effect for younger children, although it remains important for teenagers (Fan & Chen, 2001; Hattie, 2008; Hill & Tyson, 2009; Jeynes, 2005, 2007; Ma et al., 2016). Parental involvement may be quantitatively different for adolescents but there is also evidence that it is qualitatively different; indeed while parents may be less involved, what they do with teenagers will also vary (Hill & Tyson, 2009). Both the nature of secondary schools and characteristics of young people in their teens are likely to invite different behaviours from parents (Desforges, 2003; Hill et al., 2004; Hill & Tyson, 2009). Hill and Tyson (2009) argue that different theoretical frameworks may be required to examine parental involvement for teenagers.

Analyses of moderating variables indicate that parental involvement is associated with educational outcomes of children over and above the effect of other variables, although this may not be the case for every dimension of parental involvement (Desforges, 2003). This suggests that the relationship may be causal. The best way to determine causality is through a randomised controlled trial. And indeed, such is the interest in and promise of the role of parental involvement in educational success that interventions have flourished.

Reviews and meta-analyses focusing exclusively on the impact of these interventions find mixed results (Cummings et al., 2012; Gorard et al., 2012; Mattingly et al., 2002; See & Gorard, 2013) and only small effects (Bus et al., 1995; Goodall & Vorhaus, 2011; Higgins & Katsipataki, 2015; Jeynes, 2012; Nye et al., 2006). Nye et al. (2006) focused on out of school activities of parents of primary school aged children to support their learning (mainly reading or maths interventions).

The overall effect size was $d = .43$. The review provided a detailed description of and justification for its methodology, and only included randomised controlled trials. This lends greater weight to the paper's conclusions about the nature of the relationship between parental involvement and educational outcomes (CASP, 2017; Greenhalgh, 1997). Taken together the reviews cited above cover a diverse range of interventions, including reading interventions with parents, family support work, programmes aiming to strengthen partnerships with school, and increasing homework help. Interpretation is hampered by poor quality evaluations however (Higgins & Katsipataki, 2015; Mattingly et al., 2002; Nye et al., 2006). Synthesising 13 meta-analyses, Higgins and Katsipataki (2015, p. 2) conclude that: "Variation in approaches and evaluation quality make specific recommendations for practice challenging, though some consistent patterns of findings indicate strategies that are likely to be 'good bets' to explore and evaluate".

By their nature, meta-analyses also obscure the complexities of individual studies which include extensive controls, longitudinal research designs, reciprocal relationships, direct and indirect mediational pathways and more. This is important in order to understand the nature of the relationship but also to enable researchers to develop a sound theory of change for interventions. Theoretical frameworks can also help to guide questions and, as evidence accumulates these can be further refined in order to explain how the relationship between parental involvement and educational outcomes works. I examine some of these in the next section.

4.2.3 Models and theories of parental involvement

As well as a substantial body of literature surveying the nature of the relationship between parental involvement and school performance, a number of models and theories have been proposed to explain the mechanisms by which parental involvement impacts educational outcomes; these emanate from different social sciences disciplines including sociology, education and psychology (Avvisati et al., 2011; Pomerantz et al., 2007). For the purpose of this study I touch on a very limited number of models and theories which can meaningfully be used to explore parental (carer) involvement for children in care. This is of course a narrow view of the literature, which is acknowledged as a limitation here.

Theories on parental involvement suggest a multitude of ways in which it can affect school achievement of children. School-based involvement has not been shown to have a strong relationship with educational outcomes (Castro et al., 2015; Fan & Chen, 2001; Hill & Tyson, 2009). Nevertheless, theory has suggested that through greater involvement of parents in school (in the classroom for example) parents are exposed to knowledge about the curriculum and enhance their cultural capital, both of which can be used to support children's learning at home (Epstein, 2010). School-based involvement may also be used to signal the value to children of learning and school. Hill and Tyson (2009) argue that school-based involvement for teenagers may involve less classroom time in favour of attendance at school activities (plays or sports day). The link then with school achievement is likely to be significantly reduced than it might be for younger children whose parents are directly involved in learning activities in school. Some teenagers, as they grow more independent, may also resist their parents' presence in school, further weakening the potential impact on achievement.

Theory suggests that home-based involvement works because it provides structure for learning in the home and reinforces knowledge and instruction received at school (Hill & Tyson, 2009). Parents may also read with their children or help them with homework which increases children's knowledge and skills (Bus et al., 1995; Gonida & Cortina, 2014; Walker et al., 2004). By supplying resources to their children and supporting them with learning activities, parental involvement can have a direct impact on cognitive abilities (See & Gorard, 2013). Educational theories about cultural capital – broadly – suggest that parents transmit skills as well as specific types of knowledge which, if aligned with school values, help children succeed (Gorard et al., 2012; Lareau & Weininger, 2003). The latter is difficult to operationalise however and outside the scope of possible analyses on the education of children in care given current data.

Psychological theories also focus on the interactions between parents and children (Gonida & Cortina, 2014; Grolnick, 2009; Hill & Tyson, 2009; Hoover-Dempsey & Sander, 1995). These suggest that the "parent as teacher" and parents' attitudes affect children's behaviour and in turn, their educational experiences. These theories, including social learning theory, posit that children develop by observing their parents' behaviours and attitudes. Parents convey important messages about education through their attitudes to school, but also to their own abilities and perceptions of self-efficacy. So, when parents are positive about learning, school and specific activities such as reading, children are more likely to absorb these values and emulate them at home and in other domains including school (Hyde et al., 2017; Simpkins, Fredricks, & Eccles, 2012). Parental involvement is thus a way for parents to model behaviours for children that are conducive to learning. Parents reinforce these values by holding high aspirations and expectations of children. Psychological

theories also suggest that greater involvement conveys to children that they are worthy of attention and able to succeed thus stimulating their intrinsic motivation and self-beliefs, which are crucial for achievement. These relationships are also bi-directional so children's behaviours and attitudes affect how parents interact with them and their educational needs (Grolnick & Slowiaczek, 1994; Hill & Tyson, 2009; Rozek, Svoboda, Harackiewicz, Hulleman, & Hyde, 2017).

The quality and quantity of these interactions are likely to be influenced by characteristics of early adolescent development and family dynamics (Grolnick, 2009; Hill et al., 2004; Hill & Tyson, 2009). Both parenting approaches and parents' involvement change from the early years to adolescence. Indeed, adolescence is marked by significant changes in young people's biopsychosocial circumstances, which include the onset of puberty and important developments in the brain. These changes have important consequences for behaviour, cognition and mental health of young people (Viner & Taylor, 2005). Growing cognitive abilities and maturity mean teenagers are likely to play a more active role in their education and decisions with respect to school. This changing landscape from early childhood influences parenting approaches and decisions with respect to parental involvement in education. Parenting approaches change so that young people are given more independence and their role and responsibilities within the family may evolve. Parents' use of control and supervision also adapts to the needs of young people and the family. Finally, parents' influence is likely to become more indirect as children age. Hill and Tyson (2009) argue that within this context parental aspirations, expectations and communication about the value of education are likely to have the most significant effect. This is indeed what they found in their meta-analysis.

Theory also suggests that mechanisms by which parental involvement impacts school achievement are affected by parents' motivations and choices. For example, Hoover-Dempsey and Sandler argue that involvement is determined by parents' motivational beliefs about their role and self-efficacy, their perceptions of invitations from others (child, school, teachers) to be involved, as well as their life circumstances (Hoover-Dempsey & Sander, 1995; Hoover-Dempsey et al., 2005; Walker et al., 2005). These three dimensions shape the way parents are involved and the choices they make about home or school-based activities (Walker et al., 2005). This model is particularly useful for the present study as it provides a rich framework within which to articulate how parental involvement might work for children in care. The emphasis on parents' motivations and self-efficacy is particularly pertinent for the care context, as carers' perceptions of their role and self-efficacy as a carer is likely to play a role in determining their involvement in children's education. Moreover, the model considers the various actors which affect the quantity and quality of parental involvement, including children themselves, school and teachers. This is also particularly relevant to the care context which includes additional actors who take a keen interest in the education of children in care: social workers, the virtual school, designated teachers, birth parents and more. This model therefore provides a sound platform from which to explore what involvement is for children in care and how (or whether) it can promote educational success. However, the data in this study does not allow me to test this model for children in care. Rather I will draw on this model to interpret my findings and make suggestions for future research.

The following sections of this chapter discuss parental (carer) involvement for children in care. The focus of this study is on the involvement of carers in the education of children in care, therefore an in-depth examination of the involvement of

birth parents in the education of children in care is outside the scope of this thesis. The importance of their role is acknowledged, but readers should note that references to parental or carer involvement relates to foster or kinship carers only and not birth parents.

4.3 What is parental involvement for children in care?

A notable feature of the systematic reviews mentioned above, in the context of the present study, is that they exclude, though apparently not deliberately, studies on children in care. This is likely to be because so few exist, but it means that there is a knowledge gap with regards to what parental (carer) involvement means for children in care and how it is associated with educational outcomes. Foster and kinship care placements differ substantially from the family environment where children live with their parents, therefore it is important to explore how involvement works in the specific context of these care placements.

Given the size of the literature on parental involvement for children in the general population, we might expect to find a substantial body of evidence for children in care. However, a systematic search of the literature, with deliberately sensitive search criteria, returned relatively few relevant studies (see Tables 5 to 7). The search yielded nearly 3000 studies and 27 were retained for analysis for a systematic review. There were nine studies on spontaneous involvement, five interventions and thirteen qualitative studies. This search was specific to parental involvement unlike the search strategy in the systematic review in Study Two. As such, additional studies were identified and included for discussion here. This section critically appraises and summarises the findings of these studies; it also draws on the

broader evidence base about carer involvement and foster placements more generally. The objectives for the remainder of the chapter are:

- to describe the evidence base and definitions used
- to explore carer involvement in the specific context of the care system
- to examine the relationship between carer involvement and the educational outcomes of children in care
- to set out the rationale for the research questions in Study Two.

4.3.1 Involvement in the context of the care system

The overview of the literature on parental involvement above describes a rich literature, which includes definitions, typologies, theories and numerous reviews of the relationship between parental involvement and educational outcomes of children. Does this evidence apply to the care context?

On the one hand, the literature offers a rich evidence base on what works and frameworks to guide further research, including with a different population, namely children in care. As discussed above, Epstein's (1991) and Grolnick and Slowiaczek's (1994) typologies and Hoover-Dempsey and Sandler's theory (2005) offer a solid foundation for exploring carer involvement and children in care's school performance. The evidence that parental involvement can promote educational success points to potential strategies for supporting the attainment of children in care (Higgins & Katsipataki, 2015). Moreover, many of the variables explored in the research are relevant in the care context, including ethnicity, socio-economic status, parental level of education and the child's characteristics, to name a few (Desforges, 2003).

On the other hand, the care context is unique. First of all, children in foster care and their carers are not related, this means that any hereditary effect of cognitive abilities on later school outcomes is absent (Jaffee et al., 2012). Secondly, the majority of children in care are not removed from the care of their parents at birth and indeed many experience multiple placements throughout their care history meaning that they do not benefit from a stable and warm early environment in which to thrive (Melhuish et al., 2008; Sylva, Melhuish, Sammons, Siraj-Blatchford, & Taggart, 2010). Thirdly, the majority of children come into care because they have been maltreated or neglected; this has a major impact on their development and their learning (Font & Berger, 2015; Leiter & Johnsen, 1994; Romano et al., 2015). Fourth, as a result of multiple adversities children in care or their carers may not feel that school is a priority, meaning involvement in education is irrelevant (Jackson, 2013). Fifth, placements may also be short term, in which case the carer may have only a very limited role in the child's education. Sixth, multiple placement changes may also result in absences from school and changes in educational placements, also affecting carer involvement (Sebba et al., 2015; Zorc et al., 2013). Seventh, the role of carers is ill defined in policy and practice, so that some carers see their role as a substitute parent whereas others would like to have it recognised as a profession (Narey & Owers, 2018; Schofield, Beek, Ward, & Biggart, 2013). However, carers are bound by policy, legislation and codes of conduct which state that they must have regard to the educational needs of the child. So their involvement in education is mandated, unlike for parents (Jackson, 2013). Eighth, many adults and professionals are involved in the lives of children in care beyond carers and teachers; these include birth parents, multiple social workers, virtual school professionals, designated teachers, independent reviewing officers, advocates, etc. This network of

professionals will shape children's educational experiences and individuals within it will have different views and expectations on how best to address the educational needs of children (Berridge, Henry, Jackson, & Turney, 2009). Finally, a number of other factors may impact the quality and quantity of carer involvement: the quality of the relationship between the carer and the young person, the characteristics of the child including age, behavioural difficulties and attitudes to education as well as the carer's attitudes to education and school. This list is not exhaustive but aims to illustrate the ways in which the unique context of the care system is likely to shape carer's involvement.

Despite the unique features of this context, it is a reasonable assumption that carers who take an interest and participate in children's education may make a difference to children's outcomes (educational and others). Moreover, entry into care should mean children are safe and their basic needs are met. Being in care may thus provide the basic tenets for an environment that enables children to concentrate on learning in ways that may not have been available to them with their birth families. Statutory requirements of the local authority and foster carers also mean that education should feature as a priority in care planning, enrolment in school should take place as soon as possible if children are out of school, attendance should be closely monitored and children should be provided with the educational resources they need in school and in the home (Jackson, 2013). This provides a platform from which carers can get involved both at home and in school with children.

There is currently little research on carer involvement, so it is not clear how the research findings on parental involvement in the general population apply to this unique context. But, as detailed in Studies One and Two, children in care lag behind their peers in education and face significant academic challenges, so studying the

ways in which they might be supported to catch up is urgent. Given the evidence on the important role played by parents in the education of their children, and the emerging evidence about the positive effect of carers, investigating whether carer involvement can act as a protective factor for the education of children is imperative.

4.3.2 Carer involvement in the education of children in care: description of the evidence base

As outlined in the introduction of section 4.3, a systematic search of the literature was undertaken to identify research on carer involvement in education for children in care (for a description of methods, see Appendix C). In the literature reviewed, only two studies, both observational, focused exclusively on the involvement of kinship or foster carers in the education of children (Cheung et al., 2012; Kang, 2004). In the seven remaining observational studies carer involvement was one variable of a larger analysis on predictors of educational success (Burley & Halpern, 2001; Flynn et al., 2013; Pears et al., 2010, 2012; Roy & Rutter, 2006; Tilbury, Creed, Buys, Osmond, & Crawford, 2014; Wise et al., 2010), see Table 5. Five intervention studies evaluated the impact of a programme, in which carer involvement was one element, on educational outcomes of children (see Table 6). The thirteen qualitative studies explored what young people and foster carers perceived as key to the educational success of youth in care, and the function of carers in that; the findings are summarised briefly in Table 7. This demonstrates that the body of research on carer involvement in education of children in care is very limited compared to the equivalent research for children in the general population (Cheung et

al., 2012). It is this gap that Study Two aims to address. The studies identified in this systematic search are presented below in Tables 5 to 7.

Table 5: Observational studies identified in a systematic search of carer involvement for educational outcomes for children in kinship and foster care

OBSERVATIONAL STUDIES				
Study author, year and location	**Sample**	**Type of analysis**	**Covariates**	**Effects of carer involvement variables on educational outcomes (bivariate and adjusted effects are presented)**
Burley & Halpern (2001), USA	4,559 children in care across grades 3, 6 or 9.	Linear regression	Gender, ethnicity, SEN, age of entry, number of placements, caseworkers per year, care type, length of time in care, grade retention, TV and computer use, language, homework help, tutoring and school changes	**Outcomes: Reading and maths (ITBS)** Homework help: B = 6.0** (grade 3) B = 10.0*** grade 6, ns at grade 9
Cheung et al. (2012), Canada	687 young people in foster care age 10 to 15	Two level multilevel model	Placement level: literacy support, academic expectations and school-based involvement Child level: age and externalising behavioural problems 15% of the variation explained by differences between placements.	**Outcome: academic achievement (carer reported)** Caregiver home-based involvement $\beta = .107$* Placement literacy environment $\beta = .098$* Carer academic expectations involvement $\beta = .253$* **Not significant**: Caregiver school-based involvement
Flynn et al. (2013)**,** Canada	1106 young people in care, age 12 to 17	Hierarchical multiple regression	Gender, placement type, grade retention, cognitive impairments, SDQ score, caregiver	**Outcomes: average marks and school performance (SP) (carer reported)** Caregiver school involvement:

OBSERVATIONAL STUDIES				
Study author, year and location	**Sample**	**Type of analysis**	**Covariates**	**Effects of carer involvement variables on educational outcomes (bivariate and adjusted effects are presented)**
			school involvement, caregiver aspirations, internal developmental assets, prior attainment.	*r* (marks T1) = .10**, *r* (marks T2)= .16*** / *r* (SP) ns. β (marks T2 controlling for T1) = .10*, otherwise ns. Caregiver aspirations: *r* (marks T1) = .26 ***, *r* (marks T2) = .16***, *r* (SP T1) = .35***, *r* (SP T2) = .28; . β (marks T1) = .18*, β (marks T2 controlling for T1) = ns, β (SP T1) = .23*, β (SP T2, controlling for T1) = .10*
Kang (2004)**,** USA	298 children in foster and kinship care, mean age 11.6 years	Linear multiple regression	Ethnicity, age, gender, disabilities, number of school changes in the past 12 months, total number of days with the caregiver, caregivers' educational and income	**Outcomes: Reading and Maths (ITBS)** Caregiver expectations: ns for full sample; Caregiver expectations (high school graduation or less): B = - 6.27** for children without disabilities Mediation analyses: 1. does caregiver involvement mediate the effect of caregivers' educational expectation on children's math and reading achievement – ns 2. does level of direct educational activities mediate relationship between expectations and reading outcomes? - ns

OBSERVATIONAL STUDIES				
Study author, year and location	**Sample**	**Type of analysis**	**Covariates**	**Effects of carer involvement variables on educational outcomes (bivariate and adjusted effects are presented)**
Pears et al. (2010), USA	85 maltreated children in foster care, age 4 to 6	Path analysis	Gender, IQ, involvement in school, inhibitory control, classroom size, teachers' qualification and school type	**Outcomes: academic achievement (teacher reported)** Carer involvement r = .30**, also significant in the path analysis. Indirect path maltreatment to outcome through involvement was not significant.
Pears et al. (2012), USA	75 girls in care primary to secondary school	Latent Growth Curve Analysis (LGCA)	Placement type, self-regulation, number of placement, caregiver support	**Outcomes: academic competence at T1, T2 and T3 (carer and teacher reported, using TRF of CBCL)** Caregiver support $r = .21^{\dagger}$ at T3. ns at T1 / T2. Caregiver support predicted the slope (.43, p=.02), not the intercept in the LGCA
Roy & Rutter (2006), England	19 children in foster care, age 5 to 8	ANOVA	The study compares association of help with homework and reading outcomes for children in residential and foster care	**Outcomes: Reading skills (NARA)** Help with homework (weekly / less than weekly v daily / almost daily): Children in foster care whose carers read daily / almost day (n = 5) had higher average reading scores (M = 14.1, SE = 3.9) than children in foster care whose carers read weekly / less than weekly (M = 1.3, SE = 2.4), $F(1, 32) = 5.4$, p = .03

OBSERVATIONAL STUDIES				
Study author, year and location	**Sample**	**Type of analysis**	**Covariates**	**Effects of carer involvement variables on educational outcomes (bivariate and adjusted effects are presented)**
Tilbury et al. (2014), Australia	202 children in care, age 12 to 18	Correlations (regression in the main study)	The dependent variable of interest in this study was school engagement, not an academic outcome. However, correlations were available for help with homework, carer support with studies and school achievement	**Outcomes: school achievement (self-reported)** Carer aspirations: r = .23** Carer support with studies: r = .03
Wise et al. (2010), Australia	199 children in foster care, age 7 to 17	Stepwise regression	Child age, gender, age first placement, number of placements and well-being, carer: age, gender and level of education - expectations - carer-school contact - "I know how to help child do well in school" - "I make a difference in child's success in school" - "I am able to help with work that is difficult"	**Outcomes: grade retention, overall achievement and temporary suspensions (carer reported)** Carer expectations (reverse coded): β = -.50*** achievement / β = -.19 suspensions, ns for grade retention I know how to help [child] do well in school: β = .22*** achievement / otherwise ns Carer-school contact, "I think I can make a difference in the child's success in school", How often do you talk about school activities, help with homework: ns

OBSERVATIONAL STUDIES				
Study author, year and location	**Sample**	**Type of analysis**	**Covariates**	**Effects of carer involvement variables on educational outcomes (bivariate and adjusted effects are presented)**
			- How often do you talk about school activities - Help with homework	

Table 6: Intervention studies identified in a systematic search of carer involvement for educational outcomes for children in kinship and foster care

INTERVENTION STUDIES					
Study author year and location	**Analytical sample**	**Analytic strategy**	**Description of the intervention**	**Covariates**	**Findings**
Flynn, et al. (2012a), Canada	77 young people in foster care. Pre-test: n = 42 treatment; n = 35 control.	RCT, ANCOVA **Follow-up** was 10 months after baseline	Tutoring intervention delivered by foster carers. Carers provide 3h / week of individual tutoring, for 30 weeks. 3 h tutoring: 2 h of one-on-one direct instruction to the foster child in reading, 30 min of	Pre-test scores	**Outcomes: word reading, sentence comprehension, reading, spelling, math computation (WRAT)** Word reading: ns ($t[62]= 0.90$, $p = .19$, 1-tailed) Reading: ns ($t[62]= 1.32$, $p = .096$, 1-tailed) Spelling: ns ($t[62]=-0.34$, $p = .74$, 2-tailed) Sentence comprehension: ($t[62] = 1.85$, $p = .035$, 1-tailed); Math computation: ($t[62] = 2.43$, $p = .009$, 1-tailed).

INTERVENTION STUDIES					
Study author year and location	**Analytical sample**	**Analytic strategy**	**Description of the intervention**	**Covariates**	**Findings**
	Post test; *n* = 30 treatment, *n* = 34 control, age 6 to 13		reading aloud by the foster child and 30 min instruction in math under the supervision of the foster parent. **Note:** results are differences between treatment and control group		
Gately (2014), England	12 children in foster care, age 5 to 10	Pre-post *t*-test Follow-up was 6 weeks	Paired Reading (PR) intervention: children read with carers twice a day during 6 weeks following PR methods **Note:** results are differences between baseline and follow-up	Time	**Outcomes: Reading accuracy, rate and comprehension (Salford Reading Test)** Reading comprehension: $F\ (1, 11) = 9.04$, $p < .05$ Reading rate: $F\ (1, 11) = 8.19$, $p < .05$ Reading Accuracy: ns

INTERVENTION STUDIES					
Study author year and location	**Analytical sample**	**Analytic strategy**	**Description of the intervention**	**Covariates**	**Findings**
Green et al. (2014), England	34 young people eligible for MTFC care, aged 10-17 (*n* = 12 in the treatment group and *n* = 13 in control group), age 10 to 17	Regression analysis **Follow-up** was 12 months after baseline	MTFC is multi-dimensional treatment foster care, an intervention for young people in care at risk of offending: foster parent is provided intensive training and support in parenting skills **Note**: results are differences between treatment and control groups	Gender, age, prior placement and baseline scores on outcome measures	**Outcomes: Language skills and attendance (HoNOSCA)** For education, attendance and school exclusion, those who received MTFC-A did not do any better than those in usual care placements
Osborne, et al. (2010), England	35 young people in foster care, age 5 to 11	Pre-post *t*-test **Follow-up** was 4 months	Paired Reading (PR) intervention: children read with carers 3 times per week, 20mins at a time for 16 weeks following PR methods	None	**Outcome: Reading test (Salford Reading Test)** Reading skills: $t(34) = 9.32$, $p < .001$ (equivalent to 1 years progress) Ratio gai$n = 2.96$; (for every month a child participated in the intervention, their reading age increased by approx. 3 months)

INTERVENTION STUDIES					
Study author year and location	**Analytical sample**	**Analytic strategy**	**Description of the intervention**	**Covariates**	**Findings**
			Note: results are differences between baseline and follow-up		
Vinnerljung, et al. (2014), Sweden	81 children in foster care, age 8 to 12	Pre-post *t*-test **Follow-up** was 16 weeks later	Paired Reading (PR) intervention: children read with carers 3 times per week, 20mins at a time for 16 weeks following PR methods **Note:** results are differences between baseline and follow-up	None	**Outcomes: Literacy tests (WISC)** Average improvement in reading age was 11 months; younger children (aged 8–9) improved significantly on all four administered standardised reading tests, and on the WISC-IV Vocabulary subtest. ES = .38 (vocabulary), ES = .27 (literacy / reading age) Letter chain, word chain tests: ns

Table 7: Qualitative studies identified in a systematic search of carer involvement for educational outcomes for children in kinship and foster care

QUALITATIVE STUDIES			
Study author, year and location	**Analytic sample**	**Method**	**Findings**
Acoff (2014)**,** USA	4 young people in care, age 18	In-depth interviews	Seven themes emerged from the interviews: young people valued role model(s), they were motivated by others, self care was critical, being successful was important, have better living environment helped them succeed, many were driving by the desire to be "better than my biological parents", and they needed help in the transition out of foster care. Foster carers were good role models. Good relationship, high expectations and encouragement help young people succeed. These relationships also taught them to value education.
Harker, et al. (2003)**,** UK	80 children and young people age 10 to 18	Longitudinal qualitative interviews	Young people said that the most important factor in success is support of carers, including advice and encouragement. Carers of young people who found educational success: - Provided a stable and safe home environment with encouragement and support. - Supported young people improve their concentration on school work - Checked homework and progress, and showed interest in education - Provided support and encouraged academic progress - Attended school events Young people found that when adults show interest, young people are encouraged to apply themselves. - Carers who fail to do any of this were blamed for poor progress Teachers, social workers and peers also major source of support / barriers to support

QUALITATIVE STUDIES			
Study author, year and location	**Analytic sample**	**Method**	**Findings**
			Young people said priority given to immediate safety and well-being and that this was often to the detriment of their education Some children were unaware of their rights and entitlements and confused about adult responsibilities Young people identified positive encouragement as most important contributory factor in their achievement
Harker, et al. (2004), UK	56 young people in care, age 12 to 19	Longitudinal qualitative interviews	The most consistent explanation for educational achievement was the availability and encouragement of adults and carers to support education. Young people who had done well said that this was thanks to: - Support and encouragement of carers - Encouragement to succeed academically by the carer (but also teachers) - School and college attendance was heavily promoted - Stable care placement were conducive to educational progress - Young people’s own attitudes were also critical to success. Young people applied themselves and developed a growing understanding of importance of education
Hass, et al. (2014), USA	19 care experienced adults	Interviews	Keys to success are: - an individual's sense of autonomy in decision making - the availability of support systems, both instrumental and social

QUALITATIVE STUDIES			
Study author, year and location	**Analytic sample**	**Method**	**Findings**
			- environmental factors, including access to individually-defined safe havens and opportunities to experience or demonstrate competence. Importance of adults in promoting educational success: - they should be caring, - they should communicate messages about high expectation, - they should help young people take opportunities to participate in and contribute to their social and academic environments. Young people talked about the importance of foster carers, but many mentioned teachers, friends and therapists.
Hines (2005), USA	14 care experienced adults	Interviews	Successful young people were independent, self-sufficient and determined, wanting to prove they could be successful against the odds, while still able to accept and seek support. Importance of friends and parents was emphasised, including positive parenting, love and support from foster carers. Stability and good relationships were seen as a means to engage with support from parents. Family which supported success were those which instilled high aspirations and encouraged children to, e.g. write poetry. Attachment to teachers and engagement in school was seen as important for success. Participants also talked about peer influences, for example if others were going to college or university this acted as a motivator for young people.

QUALITATIVE STUDIES			
Study author, year and location	**Analytic sample**	**Method**	**Findings**
Jackson & Cameron (2010) multisite across Europe	36 managers, 372 young people, 170 biographical narrative interviews with young people. At follow (1 year later) 135 young people and 112 interviews with adults nominated by the research participants as	Interviews and biographical narratives	Themes: foster carers are effective if they are supportive of education, value education (even if not educated themselves) and provide practical support (e.g. financial support), help to develop good study habits, provide motivation and space conducive to studying. Young people's motivation, determination and self-reliance were important themes in the report. Several mentioned a desire to succeed to be different from their birth family.

QUALITATIVE STUDIES			
Study author, year and location	**Analytic sample**	**Method**	**Findings**
	having been supportive to their education		
Jackson, et al. (2005), England	129 care experienced young adults	Interviews	Young people received support and encouragement from carers, high expectations and positive attitudes towards education, including mandatory school attendance, help with homework, advocacy, and provision of conditions conducive to educational success. There was also structure and discipline. Stability and good relationship with foster carer also key to success. Some foster carers had low expectations of young people which discouraged them to do well and aim higher. Personal motivation and sense of their own potential key to success identified by children and young people. Young people also talked about school effects (other young people going to university were a positive influence). Some also talked about being influenced by birth children in their placement.
Mendis, et al. (2015) Australia	18 care experienced adults	Interviews	Young people able to do well through their connection to a significant adult who encouraged them to pursue an education
Morton (2016), **USA**	11 care experienced adults	Interviews	Quality of the placement, relationships, value of education, being pushed, motivation, expectations, structure and study habits, help with homework, encouragement to read. Support also came from school, mentors, programmes for education and resilience of young people.

QUALITATIVE STUDIES			
Study author, year and location	**Analytic sample**	**Method**	**Findings**
Rios & Rocco (2014), USA	24 care experienced adults	Interviews	Barriers to success: uninvolved foster parents and low quality placements. Negative peer influence. Supports for success: Education minded foster parents, high expectations, boundaries and support to develop good study habits. Other general findings: supportive teachers important, challenging academic environments important, community supports and resilience and determination.
Skilbred, et al. (2016), Norway	16 care experienced adults and 13 foster carers	Interviews	Structures and routines (in contrast to chaotic lifestyles), including predictable day schedules, homework routines were key to support young people's education. Interest and high expectations of carers motivated young people to do their best. Foster carer support and genuine interest was crucial to achieve goals. Communication with foster carers was also important. "establishing routines, making demands, setting boundaries and following up are proof of you liking your child". Good attendance was seen as particularly important to make up qualifications gap. Homework help depended on what young person wanted or asked for. Few foster parents had higher education qualifications themselves.
Strolin-Goltzman, et al. (2016) USA	10 care experienced adults	Interviews	Several participants noted that a set structure and rules helped in their transition between schools. Youth who felt their home or school environment was structured expressed more capacity to invest in their education, as well as more accountability to their learning. Young people valued adult mentors who: - prioritised education - provided emotional support that reinforced their educational success.

QUALITATIVE STUDIES			
Study author, year and location	**Analytic sample**	**Method**	**Findings**
			These sentiments suggest that adult's interest and investment in the education of foster youth bolsters the youth's own view of prioritization skills, value, and commitment to their education. In the absence of this support, youth described feeling confused, unmotivated, or ill-equipped to invest in their schooling, let alone higher education.
Wright (2013), USA	14 care experienced adults	Interviews	Barriers: negative feelings (shame, sadness, depression), academic challenges, instability, and self-caused barriers (pregnancy, substance misuse). Facilitators: encouragement and support services. Factors in finding success: feelings of success, adjusting to college, focus, support (on campus) Suggestions for improvement to practice: providing foster parents with training on how to be involved in education of children in care.

ITBS: Iowa Test of Basic Skills; TRF / CBCL: Teacher Report Form of Child Behaviour Checklist; WISC: Wechsler Intelligence Scale for Children; NARA: Neale Analysis of Reading Ability; WRAT: Wide Range Achievement Test; HoNOSCA: Health of the National Outcome Scales Child and Adolescents (scholastic or language skills)

4.3.3 Carer involvement in the education of children in care: definitions and measurement

Cheung et al. (2012) and Kang (2004), which focus exclusively on understanding the relationship between carer involvement and educational outcomes, both draw on research on parental involvement for children in the general population to define carer involvement. Cheung et al. (2012, p. 1093) provide this definition: "Home-based involvement, refers to parental reinforcement of learning at home and includes activities such as helping with homework and discussing school progress". Across the observational and intervention studies, carers were involved by having high aspirations for young people (Cheung et al., 2012; Flynn et al., 2013; Kang, 2004; Wise et al., 2010), helping with homework (Burley & Halpern, 2001; Green et al., 2014; Roy & Rutter, 2006), getting involved in and communicating with school (Cheung et al., 2012; Flynn et al., 2013; Kang, 2004; Pears et al., 2010; Wise et al., 2010), providing a cognitively stimulating home environment (Cheung et al., 2012), tutoring (Flynn et al., 2012a; Gately, 2014; Osborne et al., 2010) and offering general or non-specific support (Cheung et al., 2012; Green et al., 2014; Pears et al., 2012; Tilbury et al., 2014; Wise et al., 2010). Although carer involvement is not precisely or consistently defined across studies, types of involvement broadly mirror the ways in which parents in the general population are involved in the education of their children. This suggests that Epstein's typology is relevant for the study of carer involvement (Epstein & Dauber, 1991).

No studies reviewed here used the same measurement tool and none used those suggested by the Global Family Research Project (Westmoreland et al., 2009) for example. Researchers either analysed data available to them in secondary datasets or

asked general questions to measure home-based involvement (for example, “my caregivers are ready to help if I have problems at school”, “how often do your carers help with schoolwork?”, “how involved are your foster carers in your studies?”). These were used as single item questions for analyses or summed for aggregate measures. School-based involvement was measured by asking carers how much they engaged with or participated in school activities. Aspirations of foster carers were assessed by asking them how far they hope the child or young person will go academically. One study used a nine-item scale (measuring caregiver involvement in preparing children for school, the frequency of caregiver communication with the teacher, and caregiver interest in solving problems at school), this was not a standardised measure but it had good internal reliability $(\alpha = .89)$ (Pears et al., 2010). This reflects the diverse approaches used in the research reviewed in the first sections of this chapter. This suggests that the literature on carer involvement in education is likely to suffer from similar weaknesses to research on children in the general population: definitions are broad and often inconsistent across studies and research based measurement tools are seldom used. Moreover, while Kang (2004) and Cheung et al. (2012) both drew on the theories of Epstein (Epstein & Dauber, 1991), Grolnick and Slowiaczek (1994) and Hoover-Dempsey and Sandler (2005), no other study referenced these to guide, frame or interpret their research. This further characterises the evidence base and highlights the knowledge gap on carer involvement for children in care: no theory of parental (carer) involvement for children in care has, to date, been proposed.

Of the intervention studies, four were reading interventions supporting foster carers to read with the children in their care (Flynn et al., 2012a; Gately, 2014; Osborne et al., 2010; Vinnerljung et al., 2014). Here, involvement is characterised by

tutoring or reading with children. The fifth was an evaluation of multi-dimensional treatment foster care (MTFC), a high intensity fostering scheme for at risk youth in care (Green et al., 2014). In this programme, carer involvement is defined by the quantity of supervision.

The findings from qualitative research also describe the ways in which carers support children's education; these mirror those of quantitative research. They include encouragement and support (Acoff, 2014; Hass et al., 2014; Jackson et al., 2005; Jackson & Cameron, 2010; Mendis et al., 2015; Rios & Rocco, 2014; Strolin-Goltzman et al., 2016; K. Wright, 2013), carers' high aspirations and expectations (Acoff, 2014; Hass et al., 2014; Jackson et al., 2005; Jackson & Cameron, 2010; Mendis et al., 2015; Morton, 2016; Rios & Rocco, 2014; Strolin-Goltzman et al., 2016), establishing structure and discipline with regards to school and education (Jackson et al., 2005; Rios & Rocco, 2014; Skilbred et al., 2016; Strolin-Goltzman et al., 2016) and supporting young people to develop good study habits (Jackson & Cameron, 2010; Rios & Rocco, 2014; Skilbred et al., 2016; Strolin-Goltzman et al., 2016), supervising or helping with homework and tutoring (Jackson et al., 2005; Jackson & Cameron, 2010; Rios & Rocco, 2014; Skilbred et al., 2016; Strolin-Goltzman et al., 2016; K. Wright, 2013), monitoring school attendance (Jackson et al., 2005; Skilbred et al., 2016), and providing conditions conducive to educational success, including cognitive stimulation and a desk and computer to study at (Berger et al., 2015; Jackson et al., 2005; Skilbred et al., 2016; Strolin-Goltzman et al., 2016). Some foster carers supported young people to read and write regularly, including for pleasure (Hines et al., 2005; Mendis et al., 2015; Morton, 2016). A number of studies also described the specific needs of children in care in school and suggested that specific knowledge and advocacy skills were required for school-based involvement

to be effective (Jackson et al., 2005; Morton, 2016; Rios & Rocco, 2014; Skilbred et al., 2016; K. Wright, 2013). Finally, some young people received financial support from their carers to pursue their education, a particularly tangible form of involvement (Jackson et al., 2005; Jackson & Cameron, 2010).

The reviewed studies suggest that many carers are actively involved in supporting the education of children in care and that their behaviours and attitudes to education matter to young people. This contrasts with earlier research which found that education was seldom viewed as a priority for social workers and carers (Blome, 1997; Conger & Rebeck, 2001; Jackson & McParlin, 2006). The lack of research on the involvement of carers may suggest that these views and attitudes are still prevalent (Jackson & Höjer, 2013). In the next section, I examine the evidence from existing research about the relationship between carer involvement and children's educational outcomes. I draw on the findings from the qualitative literature to interpret these findings.

4.3.4 Carer involvement in the education of children in care: findings from research about its relationship with educational outcomes.

Studies identified in the systematic search on involvement of carers were broadly consistent: aspirations and home-based involvement predicted better attainment, but evidence on school-based involvement was mixed. The findings from included studies are organised by involvement type and supplemented with the evidence drawn from qualitative research. The included studies are presented in Tables 5 to 7 above.

There is some good evidence that aspirations are associated with better school performance across studies, reflecting the findings from research about children in the general population (Fan & Chen, 2001; Hill & Tyson, 2009). Cheung et al. (2012), Flynn et al. (2013) (which both use the same dataset as I do in Study Two), Tilbury et al. (2014) and Wise et al. (2010) all found significant and small to medium effects of aspirations on outcomes ($\beta = .25$ to .50). Cheung et al. (2012) used a multilevel model to account for clustering at the level of the placement. Findings indicate that 15% of the variance in outcomes is accounted for by differences between placements. The study examined aspirations at the placement (mean across placement) and individual level and found that both predicted higher school performance. Moreover, the inclusion of aspirations in the model accounted for 47% of the variance at the placement level. In Flynn et al. (2013) aspirations at time 1 (T1) predicted school performance a year later (T2) even after prior attainment was accounted for. This indicates that aspirations are associated with future attainment and progress, even where progress is negligible (as it was in the study in question).

Research has also shown that attainment can predict parental aspirations (Kirk, Lewis-Moss, Nilsen, & Colvin, 2011), so attainment at T1 may be an important confounder in the relationship between aspirations at T1 and attainment at T2. That aspirations continue to predict attainment even after prior attainment is accounted for in Flynn et al. (2013) highlights the important role that carer aspirations play in educational success. Lastly, in Kang (2004) aspirations predicted reading but only in a subsample of children who didn’t have (mainly learning) disabilities. While the above three studies controlled for special educational needs (SEN), it may be important to test for the interaction between SEN and aspirations to determine how aspirations work for children with and without disabilities. Kang also controlled for carers’ level

of education, another potentially important confounding variable (Desforges, 2003). However, this was not a significant predictor of children's reading or maths performance. This echoes the findings of other studies (Heath et al., 1994; Zima et al., 2000). Taken together, these studies demonstrate that aspirations are important for teenagers in care, as samples were either exclusively (Cheung et al., 2012; Flynn et al., 2013) or predominantly aged 10 and above (Kang, 2004; Wise et al., 2010).

Evidence from the qualitative literature also points to the importance of aspirations for children in care, which was mentioned in almost every study. High aspirations, encouragement and expectations as well as carers' positive attitudes to education in general were seen as key to encouraging children and young people (Acoff, 2014; Jackson et al., 2005; Jackson & Cameron, 2010; Mendis et al., 2015; Morton, 2016; Rios & Rocco, 2014; K. Wright, 2013). In some cases, participants described their carers as role models, inspiring them to work hard and succeed (Morton, 2016; Rios & Rocco, 2014). For example, in Mendis et al. (2015, p.488), one young person stated: "I guess [my respite carer's] influence in my life was incredibly profound. It was she who gave me all the books to read ...She knew that the pathway for most of the children in my situation was not that they would finish school ... She was very focused on making sure that I did have an education...as I got older she said, 'you know, you will have a university degree".

Foster parents who valued education were influential (Acoff, 2014; Jackson et al., 2005; Jackson & Cameron, 2010; Morton, 2016; Rios & Rocco, 2014; K. Wright, 2013). Moreover, Jackson and Cameron (2011), Jackson et al. (2005) and Rios and Rocco (2014) found that involvement did not hinge on the level of education of foster parents, but rather the value they placed on education for success. In Wright (2013) young people expressed this clearly: "My foster mother did not have the education to

know what was needed for college. The agency social worker had to help her" (p.65). Another participant added: "I am happy to have my foster mother, Ms. Patricia, who believes in college and education." (p.68). Those carers who were educated to university level were, however, able to use their experience and connections to support young people. This evidence mirrors the findings of Hill and Tyson (2009), where academic socialisation, which they define as "personal involvement which includes attitudes and expectations about school and education and conveying the enjoyment of learning" (p. 741), was the strongest predictor of educational outcomes. Academic socialisation may be particularly important for children in care as their education is likely to have been neglected by their birth parents. Crucially however, what care experienced children and young people say is that having someone believe in them was the single most important key to their ability to succeed in education (see for example Bentley, 2013; Driscoll, 2013; Harker, Dobel-ober, Akhurst, Berridge, & Sinclair, 2004). So aspirations may play a particularly important role for children in care, in ways that are qualitatively different to children in the general population.

Evidence on home-based involvement from seven quantitative studies and four interventions was mixed. This mirrors the findings of reviews on parental involvement in the general population; where inconsistencies were attributed to the diversity of definitions and measurement tools (Desforges, 2003). Such inconsistencies also contribute to the diversity of results in the present review. Indeed, as previously stated, no two studies used the same definitions or measures. In Cheung et al. (2012) home-based involvement (sum score of 'If I have problems at school, my caregivers are ready to help', 'My caregivers encourage me to do well in school' and 'How often do your caregivers check your homework or provide help with homework?') and the home literacy environment (number of books the young person

has access to) both significantly predicted school performance and accounted for 44% of the variance at the placement level. Pears et al. (2012) also found that girls who had the (general) support of a carer had fewer academic difficulties in the transition from primary to secondary school. In Kang (2004), level of carer supervision reported by the young people predicted reading scores of children without disabilities, above and beyond carer expectations. However, there was no evidence that carer supervision mediated the relationship between expectations and reading scores. Level of carer supervision reported by carers (slightly different questions to those asked of young people) was not associated with reading scores, nor was carers' involvement in educational activities (this included one item about frequency of contact with school). Increasing targeted foster carer supervision of young people, through the MTFC intervention, also failed to affect the attendance or rate of exclusion of young people at risk in foster care (Green et al., 2014). Although this was a randomised controlled trial, the results may be a consequence of the study design, which among other shortcomings, was insufficiently powered. Tilbury et al. (2014) found that carer support with study (reported by young people) was not correlated with school achievement and in Wise et al. (2010) frequency of discussions about school activities did not predict any of the three educational outcomes either.

Evidence on help with homework was mixed, much like in the general population (Hill & Tyson, 2009; Jeynes, 2007). While Burley and Halpern (2001) and Roy and Rutter (2006) found that help with homework predicted higher attainment, Tilbury et al. (2014) and Wise et al. (2010) found no evidence that they were associated. These conflicting results might reflect methodological weaknesses (for example very small sample sizes in Roy and Rutter (2006)) or contextual variation in the individual studies. However, it is also likely that young people who need help

with homework are those who have greater academic difficulties, thus distorting the immediate relationship between help with homework and school performance (Hill & Tyson, 2009). Evaluations of tutoring for children in care, in this case, reading interventions, can disentangle these effects because they control for baseline attainment (Flynn et al., 2012a; Gately, 2014; Osborne et al., 2010; Vinnerljung & Hjern, 2011). Taken together, these studies found that reading interventions are effective with children in care, however, risk of bias was high. Significantly, three did not include a control group.

In qualitative studies, children were positive about home-based involvement and carers felt they played an important role in this regard too. This included establishing structure and discipline with regards to school (Jackson et al., 2005; Rios & Rocco, 2014), homework, and supporting young people to develop good study habits (Jackson & Cameron, 2010; Rios & Rocco, 2014). In Rios and Rocco (2014, p.74), one young person explained: “We moved in and in a month I had all As. My grade point average went from 2.2 to 3.0. […] [My foster mother said] "What do you mean Cs and Ds? I'm not having this.... You got to do your homework. No TV and no phone until you do your homework." Honestly, I think that if I had not gone into foster care, I wouldn't have gone to college. At that time, college was like a foreign language to me.” In Morton (2016) one participant’s foster parent created a daily schedule, she explained: “homework time, 1 – 3 hours every day. You have to have a set time every day, then do chores. This is how it was at [foster carer]’s house and that is how I got to keep my 4.0.” (p.104).

Carers monitored and expected good school attendance (Jackson et al., 2005), and supervised or helped with homework and tutored young people (Jackson et al., 2005; Jackson & Cameron, 2010; Rios & Rocco, 2014; K. Wright, 2013). In Wright

(2013), one young person explained: “My major required a lot of math. When I was in school, math was not my subject. I was able to get through it with my foster mother [who tutored me]” (p.68). Some carers also encouraged and read with young people while others encouraged them to write regularly (Hines et al., 2005; Mendis et al., 2015; Morton, 2016). In Hines et al. (2005) one young person talked about the support of her kinship carer: “my aunt would always say, why don’t you be a writer. ’Cause I would always write her poems. She loved poetry. ‘Write me another poem.’ […] So I would sit there and write things for her. She loved that. She’s like, ‘Gosh, you know you should just be a writer’. And so that would motivate me, and so, of course, I kept writing things” (p.389). In Morton (2016), regular reading was a requirement: “I always read for like 30 minutes because it was required in my foster home” (p.104). Another participant had a similar experience: “Even when we didn’t have homework, they would give us worksheets after school and we, all of us girls, had to sit down and read for 30 minutes a night, no matter what” (p.104). Finally, participants described the importance of having adequate space (for example desk space) and resources (for example a computer or other materials) thus creating conditions conducive to educational success (Jackson et al., 2005; Jackson & Cameron, 2010; Rios & Rocco, 2014).

School-based involvement in quantitative studies was not consistently linked to educational outcomes, much like in the general population. Using the same dataset (but different samples) Cheung et al. (2012) and Flynn et al. (2013) found that being involved in more school activities did not predict school performance. However, in Pears et al. (2010) school-based involvement was associated with higher attainment, after controlling for IQ among other variables. These discordant findings might be explained by the characteristics of the study samples. For example, the latter study

focuses on very young children only, whereas the former two are concerned with teenagers in care. This is in line with the findings of studies of children in the general population and strengthens the argument for a theoretical framework of parental involvement exclusive to teenagers, put forward by Hill and Tyson (2009).

In the qualitative literature, school-based involvement that appeared to be effective was often specific to the fostering circumstances. Many foster carers were required to advocate on behalf of children and young people (Jackson et al., 2005; Morton, 2016; Rios & Rocco, 2014; K. Wright, 2013). For example, in Rios and Rocco (2014), one participant's foster mother challenged the school's decision to place her in special education classes so that she could study towards a high school diploma allowing her to then apply for, and ultimately access, university. Another carer in the study met regularly with school staff so that the young person received all the support he needed and was entitled to. In Morton (2016), one young person expressed gratitude for her carer's advocacy in school: "[my carers] fought hard for transport for me to go to school, otherwise I would have had to stay at [school name]. I knew if I stayed I would not be able to graduate. My caseworker told me that no matter what school I went to, I would not graduate" (p.104). Other, more general, school-based involvement was described in Wright (2013): "my foster mother and her son took me down to the college, and we met with the departments that help foster children enrol in college. I was able to take a test to help me with picking my classes" (p.60). Another participant in the same study explained "the foster parent I had for 3 years met with my teachers monthly so that I could stay on track with my school work" (p.60).

Young people in qualitative studies also highlighted the way in which carers may have acted as barriers to success. For example, some participants described

carers who had low expectations and discouraged young people from pushing themselves, carers who were not involved in education, and poor quality placements which created barriers to carer involvement (Jackson et al., 2005; Rios & Rocco, 2014; K. Wright, 2013). Some foster carers were also unsure how to help (Jackson & Cameron, 2010; K. Wright, 2013). Young people attributed this to carers' low level of education, their lack of information about educational structures and functioning of institutions and the lasting influence of carers' negative school experiences. In Jackson and Cameron (2011), foster carers complained of the absence of support from social services. In Wright (2013), young people recommended foster carers should be provided with training on how to be more involved and the benefits of greater academic involvement. A key recommendation made by young people was that: "Foster parents and the foster care system need to be aware of the services and how foster children can benefit from these services" (Wright, 2013, p.64). Young people listed other sources of stress which impinged on their ability to do well, including placement disruptions at critical turning points (for example at exam times), mental health problems, academic difficulties stemming from past experiences, relationship problems, on-going conflict with the birth family, isolation and lack of emotional support (Jackson et al., 2005).

Finally, in reviewing these studies, it is important to reflect on their limitations. First of all, the bulk of the evidence from quantitative studies comes from cross sectional studies, so alternative explanations about the direction of prediction cannot be ruled out (Kirk et al., 2011; Melkman et al., 2016). Moreover, even where longitudinal analysis is conducted, for example in Pears et al. (2012), analyses remain largely descriptive. Only Flynn et al. (2013) sketch out some evidence that aspirations play a role in predicting future outcomes, albeit with only two time points.

Secondly, an important number of variables, key to understanding involvement, are absent from these analyses. These include information about birth parents and carers, such as level of education and socio economic status, as well as characteristics of children who play a key role in determining how parents or carers are involved in their education (Desforges, 2003). Such information, particularly about birth parents, is notoriously difficult to obtain however, and rarely found in research in this field (O'Higgins, Sebba, & Gardner, 2017; O'Higgins et al., 2015). Moreover, there is far more qualitative evidence available than was identified for this review; studies were only selected for inclusion if participants were high achievers. However, young people in care who did not succeed will also have many insights into what their carers did and didn't do and how this may have contributed to their school experiences. Finally, this review did not include studies on schools' and social workers' perceptions of carer involvement and its effects (see for example, Altshuler, 2003). Such studies may also provide rich insights into what carer involvement is and the role in plays in children's outcomes.

4.3.5 Summary of carer involvement for children in care

The research evidence on the involvement of carers and the role this plays in the education of children in care is nascent. What does exist indicates that carers can play an important role in the educational journeys of young people in care, particularly with regards to aspirations and academic socialisation more generally. However, current research is limited so that it is not possible to establish whether carer involvement is a protective factor for the education of children in care and whether, in

the face of the adversity these young people experience, it can promote better outcomes.

4.4 Research questions, rationale and contribution of the present study

Given the scale of the problem, Study Two does not seek to explore every aspect of carer involvement. Moreover, as it is an analysis of secondary data, it is limited by the data available. Rather, this thesis aims to contribute to the emerging evidence by asking four focused questions. These are:

1. How and how much are carers involved in the education of children in care?
2. Is carer involvement at time 1 a risk or a promotive *correlate* or *factor* for school performance trajectories?
3. Is time-varying carer involvement a risk or promotive *factor* for school performance?
4. Is carer involvement a risk-based or interactive protective factor for school performance of children in care with special educational needs?

The thesis aims to address these questions by undertaking secondary data analysis of a Canadian dataset on children in care. Participants are teenagers in foster or kinship care for four years continuously. The thesis focuses on teenagers exclusively as they are considered particularly educationally vulnerable (O'Higgins et al., 2017). Involvement is also qualitatively different for teenagers so this focus is warranted (Hill & Tyson, 2009). Moreover, focusing the study on a more homogeneous group of young people with respect to developmental stage and care history may lead to more

robust findings. The methodology is described in detail in the next chapter, and the risk and protective factors approach is the one described in Chapter 2 and is therefore not repeated here.

The remainder of the thesis is organised as follows: Chapter 5 outlines the methodology for Study Two, Chapter 6 presents the findings of the statistical analyses, Chapter 7 discusses the findings in light of the literature and outlines their limitations, Finally, Chapter 8 concludes the thesis.

Chapter 5. Methodology for Study Two

The findings of the systematic review conducted for this thesis (Study One) suggested that carers play an important role in promoting educational outcomes for children in their care. To explore this, Study Two uses secondary data analysis to examine the relationship between what carers do and children's school performance. Critically, it asks whether carer involvement is a promotive or protective factor for children in care. This chapter outlines the methods used to answer this question.

The research questions for the study are as follows:

1. How and how much are carers involved in the education of children in care?
2. Is carer involvement at time 1 a risk or a promotive *correlate* or *factor* for school performance trajectories?
3. Is time-varying carer involvement a risk or promotive *factor* for school performance?
4. Is carer involvement a risk-based or interactive protective factor for school performance of children in care with special educational needs?

To answer these questions descriptive statistics were used to explore the data and provide a profile of the study sample; secondly, a latent growth model was estimated to examine whether carer involvement predicts the course of children's school performance over four time points. Thirdly time-varying covariates and cross-lagged paths were added to the latent growth model to examine the relationship between carer involvement and school performance in more depth and investigate direction of prediction. Finally, a moderation analysis was conducted to explore

whether carer involvement is a protective factor for school performance of children with special educational needs.

Multivariate analyses for investigating risk and promotive factors, or resilience traditionally use linear or logistic regression models and interaction analyses to identify protective factors. For the longitudinal analyses in this thesis, I elected to use growth models within a structural equation model framework instead; these have multiple advantages over regression models which are outlined below. This analytic approach is also particularly suited to a resilience framework which is concerned with individual variation in response to stress and the factors which help mitigate its impacts.

This chapter describes the dataset, study sample, measures, ethics and strengths and limitations of the data. Finally, the chapter outlines the statistical methods employed and their limitations. The findings are presented in Chapter 6.

5.1 Context and data source for Study Two: The Ontario Looked After Children Project's Database

This study uses data on 690 children in care in Ontario (Canada) over a period of four years from 2010-2014. The dataset selected for this thesis was provided by the Ontario Looked After Children Project (hereafter OnLAC). This dataset brings together annual social work assessments of children who have been in care for a year or more (as mandated by the Ontario Ministry of Children and Youth Services since 2006). The assessment tool is the Assessment and Action Record (AAR), which can be found in full in Appendix P. I chose this dataset for three main reasons. First, the dataset includes information on foster and kinship carers, which was required to

examine carer involvement. Secondly, the dataset allows for longitudinal analysis to be carried out, which is essential in order to identify risk and protective factors. Moreover, gathering four years of data is not feasible within the scope of a doctoral thesis. Third, the OnLAC dataset offered both several years of data as well as large enough samples sizes required for the study to be sufficiently powered. The OnLAC dataset was the only data source that provided the required information and which I was able to access (see Appendix D for details of other datasets considered).

Study Two used pre-existing data to address the research questions; as such it is considered secondary data analysis. While there is no single, accepted definition of secondary data analysis, it is broadly understood to be the investigation of data that was collected prior to the current research and usually by a different researcher (Heaton, 2012; Vartanian, 2010).

Secondary data analysis, of the type used in this thesis, provides access to more data – in scope and volume – than would be feasible to collect in primary research for a doctoral thesis. This made longitudinal data analysis with a relatively large sample possible, answering the critical need for more such research in this field (Stone, 2007). Secondary data analysis is also significantly more cost effective than primary research.

There are also disadvantages to conducting secondary data analysis, however. These include research being restricted to the data available and encountering potential problems with the quality of the data collected as well as missing data (Vartanian, 2010). However, the sensitive nature of this research means primary data collection in this field is fraught with difficulties (Dixon et al., 2014; Mezey et al., 2015). An independent researcher who has no established relationship with respondents may not be able to collect the required data or data of better quality. The

advantages of secondary data analysis, in this case the opportunity to carry out longitudinal data analysis with a relatively large sample size, therefore outweigh the disadvantages.

The assessment tool (AAR) in OnLAC is administered by child welfare workers as a "conversational interview" to children and young people and to their caregivers (Flynn et al., 2011). The AAR was developed as part of the Looking After Children developmental approach to child welfare services, which originated in England and Wales (Kufeldt, McGilligan, Klein, & Rideout, 2006). The AAR assesses the needs and outcomes of young people in seven developmental domains: health, education, identity, social and family relations, social presentation, emotional and behavioural development, and self-care skills. These domains are at the heart of the Looking After Children approach. Because OnLAC is used for children in care only, there are no data for children before they enter care or after they have returned to birth families. However, if a child re-enters care, it is possible to match new information to historical entries with respect to previous periods in care. The AAR has eight age-appropriate versions and is available in several languages. It is also regularly reviewed based on on-going feedback received from a range of stakeholders, including a youth council of care experienced people. The version of the AAR used in this thesis is the product of extensive consultations undertaken between 2008 and 2010 (Flynn et al., 2011).

Because of the involvement of researchers in the development of the AAR, the questionnaire is structured and includes a detailed user manual of over 150 pages (Flynn et al., 2011). This manual provides information on the coding and scoring of individual items and composition and scoring of multi-item scales in the instrument. Researchers used data from year 10 of the project (2010- 2011) to calculate the normative and psychometric information furnished on the multi-item scales: internal

consistency coefficients (Cronbach's alpha), means, standard deviations, and percentile norms (Flynn et al., 2011). Test-retest reliability of (some) single items has been examined, which were found to vary across items from low to high (Flynn & Biro, 1998). There are no validated measures in the AAR with the exception of the Strengths and Difficulties Questionnaire, which is a measure of social and emotional well-being (R. Goodman, 2001). The AAR therefore has significant weaknesses as an assessment tool; this is discussed further in the present chapter and in the discussion chapter.

The AAR questionnaire is just over 70 pages long; half the questions are multiple choice and half are free form. The AAR records demographic and background information on the child and his or her care history as well as information on the characteristics of the placement. The questionnaire then charts the needs of the child in a range of domains, as previously listed. Questions are directed in turn at the child welfare worker, the young person and the primary carer. It is structured so that young people do not have to sit through the entire assessment if it is not appropriate or if they do not wish to. The questionnaire records who participated in its completion, the number of meetings required to complete it and whether this was face-to-face or not. The present study uses data from children in year 10 of the project (2010-11) through to year 13 (2013-14).

At Time 1 (T1) of the present study (2010-2011), AARs for nearly 87% of the 690 participants were completed by the social worker, the foster carer and the young person together (table 8)[8].

[8] See Appendix E for a guide to how raw data were recoded

Table 8: Who Participated in the AAR at T1?

	Frequency	Percent
FC + SW + CYP	611	88.60
SW + FC	39	5.70
SW + CYP	23	3.30
FC + CYP	11	1.60
CYP only	1	.10
SW only	1	.10
Missing data	4	.60
Total	690	100.0

(SW = social worker, FC = foster carer, CYP = child or young person)

Where young people did not participate, it was because they refused or did not have the capacity to take part. Reasons for non-participation of foster carers or social workers are not recorded by questionnaires. Including instances where data was missing, nearly 95% of young people participated at least partly in the completion of the AAR at all four time points. Just over 91% of interviews were conducted face-to-face and with a social worker.

Education, relationships and well-being are at the heart of the Looked After Children approach and are key priorities for service improvement in Ontario, and as such, they are a central feature of the AAR. This makes the dataset particularly suitable for analysis for this thesis. A full copy of the AAR for 12 to 15 year olds is included in Appendix P.

A number of variables were recoded to aid analyses. A full description of raw data and computations is presented in Appendix E.

5.2 Strengths of the data

OnLAC has a number of significant strengths. First of all, the dataset was developed in collaboration between researchers and practitioners. It is also regularly reviewed and updated every year by researchers and staff at the University of Ottawa following focus groups with practitioners. Staff at the University of Ottawa regularly 'clean' the data, checking, for example, for inconsistencies from one year to the next and speaking to practitioners to correct these. The dataset therefore meets the needs both of research and practice. Secondly, OnLAC is a rich dataset with a significant body of information about young people in care, in a range of domains (including health, education, identity, family and social relationships). It contains significantly more information about young people than the Local Authority Returns in England for example. It is also unlikely that this volume of data could be collected by an independent researcher. Thirdly, because it is a statutory requirement to complete the AAR, it is available for all children in care. Fourthly, OnLAC requires the participation of the young person and their carer, giving them a voice in the assessment and care planning process. This is important as young people may interpret their experiences differently to the adults and professionals around them. As the study is about teenagers (rather than young children who may not be able to articulate their thoughts and feelings), it seems all the more important to include their perspectives. Multiple respondents also means greater triangulation of data, increasing the validity of some aspects covered by the questionnaire.

5.3 Limitations of the data source

The data have some important limitations. One significant limitation is the lack of any standardised measurement tools, aside from the Strengths and Difficulties

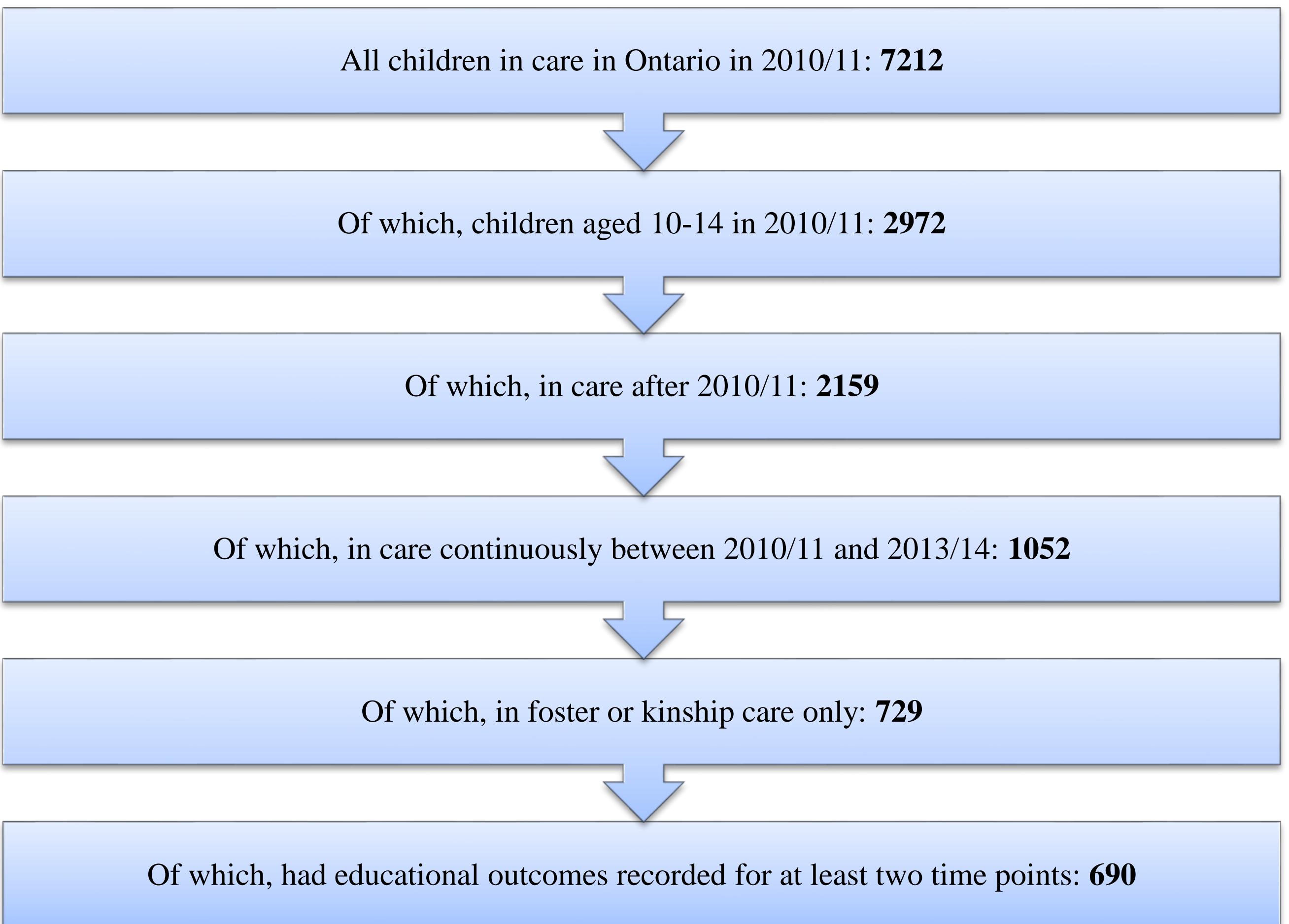
Questionnaire. In particular, the lack of a standardised measure for educational outcomes is an important limitation for the present study. The AAR may also be subject to important bias. The questionnaire was developed to make it as user friendly as possible for social workers. In so doing, the data does not require social workers to access case files or records. Questions about how long the child has been in care or the number of placements he or she has had are therefore subject to recall bias. Social desirability bias may also affect the data. For example, carers may feel compelled to demonstrate that they are exemplary, for fear that children are removed from their care. Children may also complete biased assessments if they wish to demonstrate positive behaviour in order to be returned home or if on the contrary they wish to sabotage their placement by stating that it is of poor quality. Finally, the questionnaire is long (70 pages) and if data collection is not planned carefully, respondents may not complete it with sufficient care. It is not clear that these limitations would be overcome if a researcher, independent of social services, collected data in confidence. Indeed, they may face greater barriers in collecting any data at all, as other researchers have found (Dixon et al., 2014; Mezey et al., 2015). The findings are interpreted in the light of these limitations in the discussion chapter. I also make recommendations about future measures and data collection on and for foster carers in the conclusion.

5.4 Study sample

Children in care are a diverse population with wide ranging needs, so investigating risk and protective factors for the entire population of children in care is more informative when it focuses on a more homogenous group. This thesis focused

on a sample of teenagers in kinship or foster care, who were in care continuously over a period of 4 years (reflecting the available data). A flowchart describing how children and young people were selected into the study is presented below in Figure 1.

Figure 1: How children were selected for the study



The decision to focus on teenagers was motivated by the findings of the systematic review in Study One (Chapter 3) and the literature review for Study Two (Chapter 4). Study One indicated that older young people in care are more likely than younger children to have academic difficulties. The decision to study teenagers also means the study is focused on a group of young people at similar stages in terms of biopsychosocial development. Then, as highlighted in the literature review, Hill and

Tyson (2009) argue that parental involvement is qualitatively different for teenagers, so their experiences should be analysed separately from other young people.

Each time point in the analysis represents an assessment point, which is repeated every year for as long as a child is in care. At Time 1, children were aged between 10 and 14 years and at Time 4, they were 14 to 18. The upper age limit was chosen because all participants were still under 18, so formally in care at the end of the analysis.

The study is concerned with carer involvement so only children in kinship or foster care were included and those in other placements types (at any of the four time points) were excluded. Children who were not in care for four years continuously were also excluded from the study sample. Children who move in and out of care have different characteristics and needs to those who are in care continuously (L. Evans, 2001; Sinclair, Baker, Lee, & Gibbs, 2007). Therefore, imputing values for missing data items when young people are absent from the dataset was deemed inappropriate and those young people were excluded from the analysis. The discussion chapter of the thesis examines the extent to which the findings may be relevant to other children in care.

5.5 Data used and measures

This section presents the dependent and independent variables which were used in this study.

5.5.1 Dependent variable: school performance

The literature on the education of children in care has paid little attention to the conceptualisation and measurement of educational issues and outcomes (Stone, 2007). Because of this, there is no consensus on what the most appropriate measure(s) of educational success is for this population (O'Higgins et al., 2017; Stone, 2007). Some recent research has explored how different measures of educational success predict long term outcomes, including employment and well-being for care experienced people (Forsman et al., 2016; Okpych & Courtney, 2014). Of these measures, Forsman et al. (2016) provide strong evidence that poor school performance, as measured by low grade point average in key school subjects (reading and maths), predicts greater psychosocial problems at follow up (age 30 to 35). In that study, after controlling for covariates, participants with poor school performance had a 64% increased risk of having mental health problems and 70% risk of suffering economic hardship. Drawing on this evidence and as the present study is limited to the data available in OnLAC, school performance was chosen as the outcome of interest.

The questions in the OnLAC dataset which relate to school performance are as follows:

The foster carer is asked the following question: "School Performance: Based on your knowledge of [young person]'s school work, including his/her report cards, how is he/she doing in the following areas at school this year:

- Reading and other language arts (spelling, grammar, composition)
- Mathematics
- Science
- Overall"

Answers for the four questions are on a 3-point scale: poorly or very poorly (1), average (2), well or very well (3). There is also an option to indicate 'does not take the subject'.

The foster carer is also asked: "Overall, in comparison to his/her age group, is [the young person]:

- Ahead by one or more grade levels
- At grade level
- Behind by one or more grade levels"

The social worker is asked:

- "Objective 1: The young person's educational performance matches his / her ability." Possible answers are: performance matches ability, is somewhat below ability or is seriously below ability.

Finally, the young person is asked: "how well do you think you are doing in school?" To which they can answer: "well or very well", "average", "poorly or very poorly".

That the outcome measure is not standardised or validated is a significant limitation of the data for this analysis. Moreover, it is also recognised that the small distribution of possible scores may also limit variability in scores, a significant limitation for understanding variation across time. It was therefore important to examine the distribution of scores carefully. For the purpose of the present analyses, I treated the variables as continuous (see limitations section 5.9).

Skew and kurtosis were assessed for each single item question by looking at raw values of skew and kurtosis statistics and the associated standard errors. There are several rules of thumb to assess normality (Tabachnick & Fidell, 2014). If skew or kurtosis statistics are smaller than -1 or greater than 1, then data are non-normal. This rule of thumb suggested that data were not significantly skewed nor did data suffer from kurtosis, with the exception of the question asked of social workers. Across the four time points, social workers were more likely to state that children's performance somewhat matched or matched their abilities. A slightly more stringent test for normality states that in data that are normally distributed the value of skew or kurtosis statistics divided by the standard error should be smaller than $+/-2$. Using this rule of thumb, only the social worker questions showed skewness. However, the data appeared to have some kurtosis (they were leptokurtic). This reflects the fact that the majority of answers to each question were centered around the mean. See Appendix F for the descriptive statistics for each outcome item.

For the purpose of the present analysis, two different dependent variables were created, as follows:

- First outcome (Outcome 1): Carer reported school performance: a composite measure of the four questions asking how well the young person is doing in reading, maths, science and overall.
- Second outcome (Outcome 2): a composite multi-informant measure of school performance using data provided by carers (five questions), social workers (one question) and young people (one question), using all questions above.

To answer research question 1 of Study Two a sum score for each outcome was used. Scores ignored missing data, which is recognised as a limitation for these

findings. For research questions 2 to 4 of Study Two, latent variables of the educational outcome at each time point are used in the multivariate models and missing data was imputed using full information maximum likelihood in M*plus* (see section 5.6).

The decision to use these particular two measures is based on previous research, which used similarly constructed measures of school performance (discussed below in section 5.5.1.1). This allows the results of this study to then be compared to those of past research. While some of the individual items for the second outcome are not normally distributed, almost all the items at the four time points for the first outcome were. Moreover, for research questions 2 to 4 of the thesis, summary factor scores were used for both outcomes measures, as outlined in detail below. By default these are standardised and therefore normally distributed. All analyses are conducted using both measures of school performance.

In order for research findings to be credible and internally valid, measurement tools need to have strong reliability and validity. As these measures are not validated, I provide a detailed critical appraisal of both outcome measures' reliability and validity (Terwee et al., 2007). The next sections describe this process.

5.5.1.1 Assessing reliability of outcome measures

Reliability refers to the stability of a measure, that is how much scores change when tests are repeated (when no change is expected), or when the measure is administered by different people or in different contexts. Reliability therefore includes test-retest reliability, inter-rater reliability, and internal consistency. Internal consistency is a measure of correlation between the items of the questionnaire,

providing an indication of how homogenous they are and thus whether they are measuring the same concept. Reliability is part of the assessment for validity; it is a necessary but not sufficient property for a valid test (Breakwell, Hammond, Fife-Schaw, & Smith, 2006; Bryman, 2012; Sullivan, 2011; Velentgas, Dreyer, & Wu, 2013). Because the outcome measures for the present study are not validated, there are no data, external to this study, which can be presented to demonstrate reliability in my first and second outcome measures. Instead, reliability is assessed with the data available.

For the purpose of this analysis, internal consistency is measured by computing Cronbach's alpha (Terwee et al., 2007). A Cronbach's alpha between .80 and .95 is usually accepted as an indication of strong internal consistency (Kline, 2016). For the present study, Cronbach's alpha was high for both outcomes at every time point, as indicated in Tables 9 and 10 below.

Table 9: Cronbach's alpha for School Performance reported by foster carer (primary outcome)

	Cronbach's α
Time 1	.90
Time 2	.91
Time 3	.90
Time 4	.91

Table 10: Cronbach's alpha for School Performance reported by foster carer, young person and social worker (secondary outcome)

	Cronbach's α
Time 1	.85
Time 2	.85
Time 3	.84
Time 4	.85

The two outcome measures appear to be reliable, however this does not ensure their validity, which is examined and appraised in the next section.

5.5.1.2 Assessing validity of outcome measures

Validity refers to the accuracy of measurement; that is, how well the assessment tool actually measures the outcome of interest (H. Goldstein, 2015). However, validity is not a property of the tool itself, but rather of the interpretation or specific purpose of the assessment tool with particular settings and learners (H. Goldstein, 2015; Sullivan, 2011). Validity includes face validity, content validity, concurrent and construct (or structural) validity among others (Prinsen et al., 2016; Sullivan, 2011; Velentgas et al., 2013).

Face validity is the degree to which users or experts perceive the item of interest to measure what it intends (Velentgas et al., 2013). In this respect, both outcomes appear to have face validity. First of all, the AAR was developed by researchers in collaboration with social workers and policy makers in child welfare. These questions were specifically designed to measure school performance. Secondly, data from the AAR has been used in several research projects to measure school performance (Cheung et al., 2012; Flynn & Biro, 1998; Flynn et al., 2013; Tessier et al., 2018). Other studies using different datasets with populations in different contexts have also used carer reported estimates of how well children are performing academically (Fernandez, 2008; Iglehart, 1994; Pears, Kim, Buchanan, & Fisher, 2015; Pears et al., 2013, 2012; Wise et al., 2010; Zima et al., 2000). These include questions from the School Competence Scale of the (parent) Child Behaviour Checklist (Achenbach, T.M. & Rescorla, 2001), which consists of the same questions found in the AAR.

Content validity is the degree to which the measure accurately and comprehensively measures what it intends (Velentgas et al., 2013). Both outcome measures in this study may suffer from weak content validity, because they involve carer reported questions (as well as two questions reported by the young person and the social worker for the second outcome) and do not require precise reporting of school performance (for example exact marks). Foster carers and social workers may lack information about the child's school performance if they don't know the child well (as in the case of new foster carers) or have no relationship with the school, for example. Recall bias may also affect their answers. In the case of the second outcome, young people may not be reliable respondents, because of recall and social desirability bias (Weems, Taylor, Marks, & Varela, 2010). However, Teye and Peaslee (2015) found that children (in the general population) were able to report the general direction of their grades well, though not their exact grades. In the AAR, respondents are asked to report how well they are doing on a scale of 1 to 3, rather than their exact grade. Such a small distribution may limit significant measurement error. Other researchers have not found children in care's self-reported academic outcomes a cause for concern (Font & Maguire-Jack, 2013).

It is not possible to estimate the magnitude of measurement error without an objective measure with which to compare it. Data from other studies provides some indication of what this might be, however. In a sample of early teenagers in care, Pears et al. (2012) compared carer reported school performance against pupil percentile rankings for standardized test scores on reading and found that these were significantly correlated across the sample ($r = .32$); this was deemed acceptable to confer validity to the measure. In a sample of 202 children in care in Ontario (of all ages) Hickey found a strong correlation between the Woodcock-Johnson (WJ) III

broad math and broad reading scores[9] and carer reported assessments of how children were doing in reading (r (200) = .675) and maths (r (200)= .433); these were the same questions used in OnLAC (personal communication, see Appendix G). The WJ III is a test of cognitive ability, developed to predict academic achievement (Schrank, McGrew, & Woodcock, 2010; Woodcock, McGrew, & Mather, 2001). Reliability in previous samples has been found to be strong ($\alpha > .90$) (Woodcock et al., 2001). While scores on the WJ III are not measures of school performance *per se*, they are intended as a tool to predict school achievement. The strong correlations in Hickey's work suggest that carers in Ontario are able to estimate the academic abilities of the children they care for. This provides some evidence of content validity for both outcomes.

Construct validity is the degree to which a measure accurately measures a construct, by summarising or explaining various aspects of the entity measured (Velentgas et al., 2013). To test construct validity (and internal consistency) confirmatory factor analysis was carried out for both outcome measures (Terwee et al., 2007).

Factor analysis examines whether a set of observed indicators reflects a smaller number of unobserved underlying constructs called factors. To do this, factor analysis looks at the observed interrelationships – shared variance – between the individual items in a measure (Field, 2009; Kline, 2016). If shared variance across the items is high, this suggests that together they are reflecting a common underlying factor. In terms of construct validity, factor analysis tells us that if the scores on multiple items

[9] Broad math is a cluster score made up of the following subtests: math calculation, math fluency (speeded math), applied math problems (word problem). Broad reading is a cluster score made up of the following subtests: letter-word identification (word reading), reading fluency, and reading comprehension.

are strongly correlated, these items are likely measuring the same construct (Field, 2009).

There are two approaches to factor analysis: exploratory factor analysis (EFA) is used when the researcher makes no *a priori* hypothesis about the number of underlying factors, whereas confirmatory factor analysis (CFA) assesses whether a given set of indicators represents a hypothesised underlying concept (Bryman, 2012; Kline, 2016). Because previous studies have used both outcomes before and this exercise aims to confirm the validity of both outcomes in this sample, I conducted confirmatory factor analysis.

Confirmatory Factor Analysis

Confirmatory factor analysis (CFA) tests specific hypotheses against the data. That is, CFA identifies a set of indicators expected to form a construct and then confirms whether that structure holds when examining the sample data (Field, 2009). Here, CFA is used to assess whether the suggested factor structure is aligned with the study data. In particular, the CFA will reveal whether the items load onto the factors in the same way, or whether some are of greater significance than others. CFA also tests each factor's construct validity (Kline, 2016).

CFA was conducted for both outcomes at every time point using M*plus* v. 7.31. I specified the estimator MLR, as the data are not all normally distributed (by specifying this, M*plus* uses maximum likelihood estimation with robust standard errors) (L. K. Muthén & Muthén, 2017). Standard model fit indices were used to assess how well the model fit the data, these are (Kline, 2016; Little, 2013):

- Comparative Fit Index (CFI) and Tuckler-Lewis Index (TLI) above .90 and .95 are considered acceptable and excellent respectively
- Root Mean Squared Error of Approximation (RMSEA) and Standardized Root Mean Residuals (SRMR) values under .08 are both deemed acceptable.
- *p*-values for the χ^2 test of model fit should be above .05, however this test is particularly sensitive to large sample sizes, so where *p* is significant, this is not considered a cause for concern.

While there is controversy on the use of model fit indices (Kenny, 2015; Kline, 2016), these provide a useful guide to examine whether the model estimated fits the data well. In this thesis, model fit indices are used to guide the estimation of models in parallel with other strategies. This includes fitting a model that is guided by clear research questions and hypotheses. Moreover, where fit indices suggest a poor fitting model, modifications are made on the basis of theory, not only the model modifications suggested by the M*plus* output.

Tables 11 and 12 below show model fit indices for confirmatory factor analysis for both school performance outcomes.

Table 11: Model Fit for carer reported school performance (outcome 1)

	χ^2 (df)	**CFI**	**TLI**	**RMSEA**	**SRMR**
Time 1	7.070 (2), $p = .029$	.994	.982	.062	.013
Time 2	8.293 (2), $p = .015$	.985	.956	.068	.018
Time 3	7.269 (2), $p = .026$	.993	.979	.063	.014
Time 4	2.862 (2), *ns*	.999	.997	.025	.009

The CFA achieved good fit for outcome 1 as shown in the Table above. This suggests that the four items used to measure school performance by the foster carer loaded well onto the latent construct at each time point, suggesting good construct validity. This was unsurprising to the extent that the questions were all reported by the same respondent.

Table 12: Model fit for school performance reported by the foster carer, young person and social worker (outcome 2)

	χ^2 (df)	**CFI**	**TLI**	**RMSEA**	**SRMR**
Time 1	43.95 (14), $p < .001$	.981	.971	.056	.028
Time 2	41.39 (14), $p < .001$	.983	.974	.053	.031
Time 3	80.34 (14), $p < .001$	.953	.930	.083	.050
Time 4	61.93 (14), $p < .001$	.967	.951	.071	.044

The CFA also achieved good fit for outcome 2 as shown in the table above. This suggests that this multi-informant measure comprising of seven items is adequate to measure school performance.

Finally, concurrent validity examines the relationship between the test of interest and other variables that are hypothesised to be related (Breakwell et al., 2006; Tabachnick & Fidell, 2014). A number of variables, not included in the main analysis, were selected from the AAR to test concurrent validity. Correlations were checked between the factor scores of both outcome measures at all time points and two variables ('does the child have a learning difficulty?' and 'has the child been assessed for a possible learning difficulty?'). Correlations were all significant, in the direction expected and magnitude ranged from r (660) = - .31 to r (664) = -.52. This is in line with expectations; indeed we would expect children who have a learning difficulty to have lower grades.

This section has presented the two main outcomes used for this study. The first outcome, composed of four carer reported items appeared to show good validity and reliability. The second outcome, a multi-informant measure using data provided by carers, social workers and young people showed acceptable validity and reliability and its limitations will be taken into consideration in the substantive analyses and interpretation of findings.

5.5.1.3 Measurement invariance of outcome measures

Both outcome measures are composite measures made up of four and seven items respectively. This section tests the assumption of measurement invariance.

It is important to assess whether the measurement of school performance is similar across time and individuals. This is called: testing measurement invariance. Specifically, measurement invariance tests investigate whether constructs are stable, that is, understood and interpreted in similar ways, in different – for example, cultural – groups (Byrne, 2012). However, it is also important to test the stability of constructs over time (Little, 2013). Measurement invariance is a key assumption of longitudinal data analysis, including latent growth models and auto-regressive cross lagged models (Curran & Willoughby, 2003; Geiser, 2013). Where this assumption is met, individual differences in stability and change in the construct of interest over time are meaningfully interpreted and not confounded with differential changes in the measurement of the construct (Curran & Willoughby, 2003; Little, 2013).

The statistical definition of measurement invariance is as follows: an observed score is said to be measurement invariant if a person's probability of an observed score does not depend on his/her group membership (or time point), conditional on

the true score (Wu, Li, & Zumbo, 2007). That is, respondents from different groups (or answering questions at different time points), but with the same true score, will have the same observed score. For longitudinal analyses, this means a young person's true score should not depend on the time point at which the data was collected.

Testing measurement invariance involves testing configural invariance in confirmatory factor analysis, before running four progressively stricter tests which impose equality constraints on the measurement model parameters. In the first, factor loadings are constrained equal across time points and intercepts are allowed to vary (see Table 13). In the second, factor loadings are allowed to vary and intercepts are constrained equal across time points (model 2 in Table 13). In the third test, the factor loadings and intercepts are constrained to be equal (see Table 13) and in the last (strong invariance) residual variances are constrained equal across groups (labelled "strong" in Table 13) (van de Schoot, Lugtig, & Hox, 2012).

In the context of this study, these tests check that the indicators for each outcome measure do not significantly change in their relationship to the latent construct 'school performance' in any critical way over the four time points.

The confirmatory factor analysis was tested for both outcome measures and is shown in section 5.5.1.2 of this chapter. CFA was adequate for both outcome measures. The tables below present the four measurement invariance test results' model fit indices for both school performance outcomes. The M*plus* syntax for measurement invariance for the first outcome is in Appendix H.

Table 13: Measurement Invariance Model Fit for carer reported school performance (outcome 1)

Model	Chi-sq, df	CFI	TLI	RMSEA	SRMR
1 (Metric)	131.03 (83) p <.001	.992	.988	.029	.028
2	120.62 (74) p <.001	.992	.987	.030	.027
3 (Scalar)	139.35 (83) p =.002	.992	.990	.026	.030
4 (Strong)	185.09 (113) p <.001	.987	.987	.030	.031

Table 14: Measurement Invariance Model Fit for multi-informant school performance (outcome 2)

Model	Chi-sq, df	CFI	TLI	RMSEA	SRMR
1 (Metric)	696.22 (323) p <.001	.959	.952	.041	.072
2	667.07 (302) p <.001	.960	.950	.042	.071
3 (Scalar)	736.23 (83) p <.001	.954	.949	.042	.074
4 (Strong)	903.06 (337) p <.001	.942	.942	.045	.076

The configural, weak, and strong measurement invariance model output show good model fit for each measurement invariance test for both school performance constructs. The χ^2 *p*-values for all measurement invariance models were significant, but this is not considered a cause for concern given the other acceptable fit indices and the sample size (Byrne, 2012; Kenny, 2015).

The measurement invariance assumption is met for both educational outcomes, which increases our confidence that any change seen in the outcome over time should represent real change rather than measurement instability.

5.5.2 Independent variables: carer involvement

The independent variables of interest in this thesis are those relating to carer involvement. This section and the next describe these variables and the study covariates.

All the variables in this study are located at the individual (age, gender, ethnicity, SEN and behavioural difficulties) or micro-level level (age at first entry into care, reason for entry into care, length of time with current carer, number of placements, placement type and carer involvement); these are the two spheres of influence of the ecological framework that this study investigates.

5.5.2.1 Variables describing carer involvement in young people's education

There were 13 variables in the AAR, measured at all four time points, which described some aspect of carers' involvement. Not all of these variables were retained for the analyses, as the quality of the data was not of sufficient quality to analyse.

Variables used in analyses:

The following variables were available and used for analyses:

- How often do you and the young person talk about future plans [with respect to education]? [TalkFuture] Answers are on a four-point Likert scale (less than once a month or rarely, one or more times a month, one or more times a week, daily).
- How often do you and the young person talk about his/her school friends and activities? [TalkSchool] Answers are on a four-point Likert scale (less than once a month or rarely, one or more times a month, one or more times a week, daily).

- Caregiver's involvement in school activities: During the current or last school year, have you done any of the following? [SchoolInvolve] Carers are asked to tick any of nine options (for example visited young person's class).
- Number of books the young person has access to. [BooksAccess] Answers are on a four-point scale from 1 (none) to 4 (more than 25).
- How often do you check the young person's homework or provide help with homework? [Homework (FC)] Possible answers are: no homework, never or rarely, less than once per month, once or more per month, once or more times per week, daily.
- [Impt grades] How important is it to you that the young person has good grades? Answers are on a four-point Likert scale (not important at all, somewhat important, important, very important).
- [Aspire] How far do you hope the young person will go [academically]? Answers are ordinal and recoded into a smaller number of categories (other or do not know, finish secondary school, apprenticeship, further education or higher education). In previous research with OnLAC data, this variable was used as a continuous variable (Flynn et al., 2013). In another recent paper, it was recoded as a continuous variable where each category was coded according to the number of years of education (Tessier et al., 2018), as follows:
    - Secondary or high school graduate: 12 years;
    - Private career college: 14 years;
    - Apprenticeship: 15 years;
    - University degree: 16 years;
    - More than one university degree: 18 years;

However, this coding considers only the number of years of education and not the qualitative difference between qualifications. But different diploma types have also been shown to be associated with different outcomes for children in care (Okpych & Courtney, 2014). Here, there may be significant differences between qualifications from a private career college (which offer diplomas in business, health services and information technologies, for example) and an apprenticeship, which are not reflected in the number of years of study. Therefore, for the purposes of this analysis, I used this variable as a continuous variable to check correlations with other variables. But it was kept as a categorical variable and dummy coded for inclusion in longitudinal models. Studies on aspirations use a similarly worded question to measure parental aspirations (see for example Khattab, 2015).

Variables available in the AAR but not used in any analysis

A number of variables in the AAR had virtually no variance (at any time point), so that they resembled a constant. For this reason, these were dropped from the analysis completely. These included the following questions

Carer reported questions:

- Does the young person have a satisfactory place to do homework? [yes / no]
- How often do you and young person talk about school work or behaviour in class? Answers are on a four-point Likert scale (less than once a month or rarely, one or more times a month, one or more times a week, daily).
- Does the young person have access to a computer at home? [yes / no]

Young person reported questions:

- My caregivers encourage me to do well at school [yes / no]
- If I have problems at school my caregivers are ready to help [yes / no]

Social worker reported questions:

- Carers are actively involved in helping young person succeed in school? [yes / no]

Data may lack variance because of the limited range of answers available (for example only yes or no) or because of possible bias, including social desirability bias. For example, carers may feel compelled to answer that they are actively involved in helping the young person succeed in school (first question above), because it may be a requirement of the fostering role. Similarly, it may be a requirement of placements that they provide young people with a satisfactory place to do homework (question 2). This suggests a tension between different functions – assessment and research – of the data collection instrument.

Overall, the quality of the questions is low: some questions are vague so may not be interpreted in the same way by all respondents, the number of points on the Likert scales is very small, reliability is unknown and it is not clear that the questions measure what they intend. It was surprising therefore to find that other studies analysing carer involvement used very similar questions (Hill & Tyson, 2009; Kang, 2004; Wijedasa & Selwyn, 2011; Wise et al., 2010). The implications for the findings are discussed in the discussion chapter. I also make recommendations about future measures and data collection on and for foster carers (Chapter 7).

5.5.3 Covariates

In statistical terms, covariates are variables that are used as statistical controls to examine the partial or semi-partial influence of an independent variable on a

dependent variable (Little, 2013). In this study, selection of covariates was guided by past research, available data and the relevance to the research questions. The covariates selected for this study were age, gender, ethnicity, special educational needs, age at first entry to care, reason for entry to care, placement type, instability (in terms of care placements), length of time with current carer and behavioural difficulties. The full details and coding for each variable are in Appendix E.

Age, gender, age at first entry into care, placement type, length of time in care were checked for accuracy across the four years of data, but otherwise used as provided in the dataset.

A binary variable was computed for ethnicity to represent children who were from First Nations, Métis or Inuit (FNMI) backgrounds and those who were not (see Appendix E for details).

I computed a special educational needs (SEN) variable by identifying young people whose social worker listed at least one long term condition which was said to affect their learning, from the following list:

- attention deficit disorder (ADD),
- "learning disability"
- "developmental difficulties",
- foetal alcohol spectrum disorder (FASD)
- cerebral palsy.

The variable was triangulated with other variables from the AAR. For example, one question asks whether the young person has been "assessed for possible learning-related difficulties (ADD / learning disability / unsatisfactory progress / FASD)"; this found that on average 95% of young people identified with SEN had in fact been

assessed. This increases our confidence in the reliability and validity of the SEN variable in this study.

In the questionnaire, the proposed list of long-term conditions includes eleven other categories which relate to physical health (for example, heart problems) and one category called "Emotional, psychological, or nervous difficulties". While definitions of SEN often to include emotional problems, for the purpose of this study, behavioural problems were measured using the Strengths and Difficulties Questionnaire (see below). It is recognised that there may be some overlap between the SEN category and behavioural problems.

Behavioural problems were measured by the Strengths and Difficulties Questionnaire (SDQ) (R. Goodman, 2001). For the purposes of these analyses, I use the four subscales of the SDQ: emotional problems, conduct problems, hyperactivity problems and peer problems. The SDQ is a validated questionnaire, including for children in care, and showed good internal consistency in this sample for conduct problems ($\alpha = .76$), hyperactivity problems ($\alpha = .86$), peer problems ($\alpha = .71$) and acceptable internal consistency on the emotional problems scale ($\alpha = .67$). Moreover, the factor structure of the Strengths and Difficulties Questionnaire was examined through factor analysis and the four factor structure of the questionnaire was verified (see Appendix I for details).

Reason for entry is recorded by the social worker, who can select multiple reasons from a list of maltreatment types. At T1, one reason for entry was provided for 31% of young people, two reasons were indicated for 30% of the sample, 22% had three reasons and 15% had four or more reasons (M = 2.18, SD = 1.20). Severity or frequency of maltreatment is not recorded. Reason for entry was organised into non

overlapping categories based on findings from research on children in care (Petrenko et al., 2012). For details of how this variable was recoded, please see Appendix E.

For a full review of past research findings on the relationship between the covariates and educational outcomes, please see the findings of the systematic review in Chapter 3 of the thesis.

Here again, the quality of the variables is not without its problems. Data reported by carers and social workers are likely to contain errors because of recall bias, particularly those referring to administrative information such as number of placements and age at first entry into care. The ethnicity variable also has limitations because of the structure of the questionnaire (which reflects the Canadian census); for example respondents can tick more than one ethnicity and can also identify themselves as “Canadian”. Despite these limitations, these measures are commonly used in studies on children in care. I reflect on the implications for the findings of the study in the discussion. I also make recommendations about future data collection in the discussion (Chapter 7) for Study Two.

A number of relevant covariates are absent from the analysis because they are not recorded in the AAR. These include for example the level of education or socio-economic status of the carer and / or birth family, which may play a critical role in the relationship between carer involvement and school performance (Gorard et al., 2012; Sylva et al., 2014).

How the covariates and predictors are modelled for this study is discussed below in section 5.7.

5.6 Missing data

Missing data is a common problem with secondary data analysis, particularly in longitudinal data (Bijleveld & Kamp, 1998). Given the length and nature of the questionnaire and its intended respondents, it was expected that missing data would need to be investigated carefully. Because missing data can bias analysis results, it is important to pay attention to missing data patterns and to recognise missing data mechanisms (Enders, 2010). Missing data patterns refer to the location of missing and observed values across the dataset, whereas mechanisms describe the potential associations between measured variables and missingness (the probability of missing data) (Enders, 2010).

Across the variables used in the analysis, missing data proportions ranged between 0 and 13%. The table in Appendix J gives the missing data rates for each analysis variable. Across the whole dataset, missing data was 4.5%.

Preliminary tests were carried out to establish the mechanisms of missing data (Enders, 2010). Little's test in SPSS tests the hypothesis that data is missing completely at random (MCAR). The *p*-value in this case was significant ($p < .001$), indicating that the null hypothesis, that data is missing completely at random, does not hold. Little's test is not strong for missing data patterns, but it was not expected that the data would be missing completely at random. Here, data are likely to be missing at random (MAR), that is missingness on a given variable Y is associated with some other variable(s) in the analysis but not with the value of Y itself (Enders, 2010). It is not possible to rule out that data are missing not at random (MNAR), however.

There are a number of strategies for dealing with missing data, including (but not limited to) listwise and pairwise deletion, single and multiple imputation and maximum likelihood approaches (Enders, 2010; Graham, 2012; Graham & Coffman, 2012). The first research question of this study used descriptive statistics only, in

order to present the characteristics of the children and carers in the sample and describe what carers do. Missing data is an important part of this descriptive process. Therefore, to answer this question, missing data is reported and pairwise deletion is used in bivariate correlation analyses.

Listwise and pairwise deletion are problematic however because parameter estimates are likely to be biased as a result and reasonable standard errors cannot be directly estimated (Enders, 2010; Graham & Coffman, 2012). Single imputation, for example mean substitution, is problematic because this reduces the variability of the data, which also produces biased parameter estimates (Enders, 2010). These methods were therefore disregarded for longitudinal analyses.

Two strategies, considered state of the art for dealing with missing data (Schafer & Graham, 2002), were considered for the present study: multiple imputation and maximum likelihood estimation. In M*plus* multiple imputation is a two step process: in the first step, multiple datasets are imputed and combined. In the second step the analysis is performed on an aggregate dataset. Multiple imputation (MI) uses the variables in the study data set to estimate missing values, but other – auxiliary – variables can be used if these are associated with the variable in question or missingness, or ideally both. Maximum likelihood estimation, or full information maximum likelihood (FIML), uses available data to compute a log likelihood function for each individual in the dataset, so that all the available data are used (Enders, 2010; Graham & Coffman, 2012). While there is much debate about which approach is preferable, the consensus appears to be that they produce very similar results (Allison, 2012; Enders, 2010; Graham & Coffman, 2012; Schafer & Graham, 2002; see also M*plus* discussion fora on missing data[10]). Multiple imputation is considered

[10] See for example: http://www.statmodel.com/discussion/messages/22/2440.html?1425099486

computationally more complex, and the use of auxiliary variables may bias estimation of the imputed variables. On the other hand, in M*plus* the FIML approach only addresses missing data on variables that are specified as dependent variables. So, where data is missing on the covariates, these cases are deleted; this may therefore bias the model estimates. The M*plus* User Guide (L. K. Muthén & Muthén, 2017) recommends specifying the mean or variances of covariates so that they are treated as dependent variables and FIML is applied to missing data on these variables.

Analyses were conducted using FIML; however, I also estimated the multivariate model in research question 2 using MI to compare results. When auxiliary variables were not used for multiple imputation, results were virtually identical (there were small differences in the second or third decimal of the estimate or *p*-value in some analyses).

I also conducted two sensitivity analyses with respect to missing data:

- Listwise deletion: this is a complete case analysis
- Manual imputation where missing data on the individual items of the educational outcomes variables are imputed as 0, representing the lowest possible score young people could obtain.

The findings of all three models are presented in the findings chapter (Chapter 6). These analyses also inform the discussion about the quality of the data and implications for the development of databases on carers.

5.7 Statistical approach

The overarching research question for Study Two is as follows: Is carer involvement a promotive factor for children in care? To answer this question, four sub-questions were examined.

The following sections describe the statistical approach used to answer each of these questions. Each section heading states the research (sub)question.

5.7.1 Method for research question 1: What do foster and kinship carers do to support the school performance of the children they care for?

To answer the first research question, I used descriptive statistics to explore what foster and kinship carers do and how this is related to educational outcomes in bivariate analyses. I examined frequency counts, means, standard deviations, variance, cross tabulations, mean differences and correlations. I also used analysis of variance (ANOVA) to compare the school performance of different groups of children.

The statistical techniques used to answer this research question make a number of assumptions about the data. Indeed, *t*-tests, ANOVA and Pearson's correlation are parametric tests that are normally computed for continuous, normally distributed data. Furthermore, ANOVA requires observations to be independent and different groups to have homogenous variance. When data are not normally distributed nor continuous, other tests should be used (Field, 2009).

To answer question one, I use only parametric tests. This is justified in two ways. First the outcome variable has only a small amount of kurtosis, so it approximates a normal distribution. Moreover, the size of the sample means that

parametric tests are suitable. Finally, in the ANOVA where the assumption of equal variances is not met I use a Welch test and the Games-Howell post hoc test.

Parsimonious models are preferred in structural equation modelling which I used for research questions 2, 3 and 4. This means that non-significant paths are usually removed in the final model estimation. Therefore, it is important that covariates and predictors are selected based on theory, explicit hypotheses and results from preliminary statistical analyses. All the covariates and predictors were examined in their relation to the school performance outcomes in correlation analyses in research question 1. Where variables did not correlate with the outcomes, they were excluded from subsequent longitudinal analyses.

5.7.2 Method for research question 2: Is carer involvement a risk or a promotive *correlate* or *factor* for school performance trajectories?

To answer this question, I employed two strategies. In the first, I used bivariate analyses as a preliminary strategy to identify whether carer involvement appears to be a risk or promotive correlate or factor for school performance. In the second, I used a multivariate latent growth model to ask the same question.

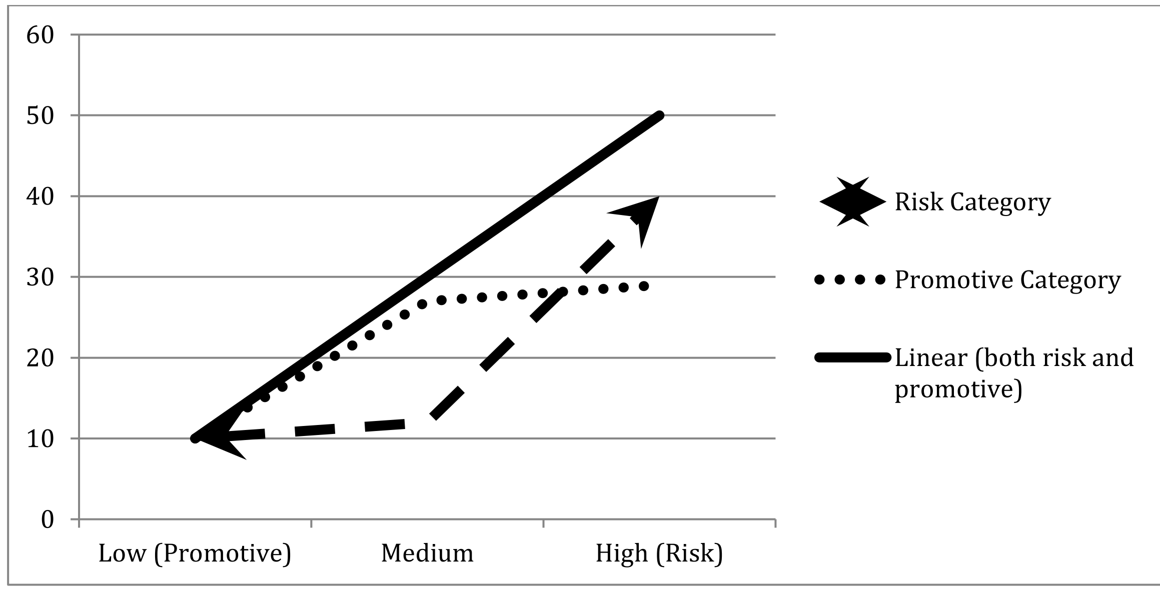
5.7.2.1 Bivariate analyses

For the bivariate analyses, I used the methods outlined in detail in Farrington, et al. (2016) and Farrington, et al. (2008). This method uses bivariate analyses of sample data to estimate whether a variable is likely to be a risk or a promotive variable. First, a dichotomous measure is identified to represent a negative outcome (for example

poor school performance) or a positive outcome (good school performance). Secondly, variables hypothesised to be risk or promotive are trichotomised as follows: 25% of young people at high risk (for example, low carer involvement), 50% of young people at average risk (average carer involvement) and 25% of young people at low risk (high carer involvement).

In Farrington, et al. (2008), to identify risk variables the odds of offending was compared in the 25% of young people at high risk (from peer delinquency) and the 50% of young people at average risk. Where the percent of young people with a negative outcome is high in the high risk quarter but not low in the low risk quarter, and the odds ratio is significant and above 2, the variable is defined as a risk variable (see Figure 2). Conversely, where the percent of young people with a negative outcome is low in the low risk quarter but not high in the high risk quarter, and the odds ratio is significant and above 2, the variable is a promotive variable (see Figure 2). Analyses may show that a variable is both a risk and a promotive variable, if the predictor is linearly related to the outcome. Finally, the Cochran-Armitage test is computed to check for linearity. Farrington et al. (2016) take the same approach but compare the 25% of young people at high risk to the rest of the sample (50% at average risk and 25% at low risk). The latter approach is preferred in this study as the "average" categories are not necessarily meaningful; therefore I sought to compare children at the highest level of risk to children at very low risk. Figure 2 below illustrates these hypothetical examples.

Figure 2: Prediction of negative outcome for three hypothetical predictors



For this analysis, the outcome was dichotomised as follows. The school performance variables were dichotomised to represent low school performance (bottom 30%) and high school performance (upper 70% of sample). Upon inspection of the raw data, the sample (roughly) split along a 30%-70% grouping; 70% of young people had a mean school performance score of 1 or more and 30% had a score lower than 1 (a score of 1 represents "average" on every question used for the school performance measure). Factor scores were preferred to mean scores as these account for the different weight each indicator (question) contributes to the overall latent score (see factor analysis in section 5.5.1.2). Therefore I dichotomised the outcome as follows: 30% of young people with the lowest factor scores were categorised as low performers, the remaining 70% were categorised as having average or good school performance. I used both school performance measures at time 1 and time 4, to test cross-sectional and longitudinal relationships.

Next, the main variables of interest (carer involvement) which were not already dichotomous and which were correlated with school performance (identified in

research question 1) were trichotomised. This was done by splitting the sample into (where possible) 25% low risk, 50% of young people who were medium risk and 25% of young people in a high risk category.

Trichotomisation for each variable is shown in Table 15 below

Table 15: Trichotomisation of study variables which correlated with school performance and which were not already dichotomous

Variable	**Low risk (promotive)**	**Medium**	**High (risk)**
	(*n*, %, score range)		
Importance of getting good grades (carer)	*n* = 391 (58.3%) (3: very important)	*n* = 205 (30.6%) (2: somewhat important)	*n* = 75 (11.2%) (0-1: not important)
Aspirations (carer)	*n* = 224 (34.1%) (4: higher education)	*n* = 240 (36.5%) (3: further education)	*n* = 193 (29.4) (0-2: other, finish school, apprenticeship)

To identify whether these variables were promotive variables, the percentage of young people with low school performance in the low (promotive) category is compared to the percentage of young people with low school performance in the rest of the sample (medium and high). To identify whether they are risk variables, the percentage of young people with low school performance in the high (risk) category is compared to the percentage of young people with low school performance in the rest of the sample (medium and low). Significant odds ratios above 2 are examined to identify whether variables act as promotive or risk.

Traditionally, the majority of studies which aim to identify risk and protective factors have also used a dichotomous outcome, representing high and low risk categories (Kraemer et al., 2005). This approach is used for bivariate analyses as explained and is then complemented with a multivariate analysis that uses continuous

measures of school performance. Trichotomised predictors are retained so that the relationship between risk and promotive variables and the outcome can be examined.

5.7.2.2 Multivariate models

In this second approach, I used latent growth modelling with a structural equation model. Growth modelling provides a description of educational trajectories and their predictors.

A latent growth model (LGM) uses data from repeated measures to estimate unobserved developmental trajectories (Curran, Obeidat, & Losardo, 2010; T. E. Duncan & Duncan, 2009). Done in a structural equation modelling framework, LGMs estimate latent constructs for each component of the specific trajectory function of interest; in this study I estimated trajectories of school performance. In the case of a linear model, trajectories are characterised by two latent factors: an intercept and a slope. The intercept represents a defined point in the trajectory, in this study the starting point, and the slope represents a linear rate of change over time. Trajectories are not limited to linear patterns however and quadratic or exponential functions can also be modelled. Independent variables are added into LGMs to explore the relationship between these variables and the intercept and slope.

A key feature of an LGM is its ability to simultaneously model intra-individual and inter-individual trajectories. The inter-individual, or fixed effects, model estimates means and variances across the sample of individual children. For the present study, this means the LGM will estimate a mean trajectory to represent the course of school performance across the sample of children for the duration of the study. The intra-individual model estimates individual trajectories, that is, each

child's unique trajectory is modelled using the characteristics of their observed data over time. This is a random effects model. In this study, this means some children might have very low school performance at time 1 whereas others may be performing well. Over time, school performance might remain stable for some children, while it may improve for others. Statistically, this is represented by variance parameters for the intercept and slope. The model also provides the covariance between the intercept and slope, representing the degree of association between the initial score and rate of change over time. Residual variances are also estimated for each of the repeated measures. These reflect the variability in each time specific measure which is not accounted for by the underlying trajectory factors (Curran & Willoughby, 2003). Latent growth models can therefore account for diverse trajectory types for a sample of children. They are therefore particularly suitable to estimate individual responses to stress as well as the factors which promote positive outcomes.

Such modelling is a significant advantage of LGMs, in contrast to other traditional longitudinal analysis methods, such as repeated measures ANOVA or regression. Indeed the parameter estimates in these approaches represent the relationship between repeated measures pooled across subjects in the sample (Curran & Willoughby, 2003; T. E. Duncan & Duncan, 2009). Moreover, differences between individuals are treated as error variance. In LGMs, inter-individual variance represents the heterogeneity in the sample. This is a particularly important strength of the method given the heterogeneity which exists in the population of children in care (Holmes, Yoon, Berg, Cage, & Perzynski, 2018; Sebba et al., 2015).

LGMs are characterised by several sets of equations. An initial growth model, for any given individual, can be expressed as:

$$y_{it} = f(\lambda_t) + \varepsilon_{it} \quad (1),$$

where y_{it} is the dependent variable *y* for individual *i* at time *t*; λ_t is the value of time at $t = 1, 2, \dots, T$, where *T* is the total number of repeated observations; $f(\lambda_t)$ represents the relationship between time and the outcome of interest as a general function; ε_{it} is the residual for individual *i* at time *t*. Equation (1) is a broad representation of LGMs, where an observed value for a given measure for a particular child in the sample at a specific time point is some function of the passage of time plus an individual- and time-specific residual. A linear trajectory for an intra-individual model is represented as

$$y_{it} = \alpha_i + \beta_i(\lambda_t) + \varepsilon_{it} \ (2),$$

where y_{it} and ε_{it} are defined as in equation (1) and $\lambda_t = 0, 1, \dots, T-1$ represents the number of repeated observations; α_i is the intercept of the underlying trajectory for individual *i* and β_i is the slope of the trajectory for that same individual. In these models, the repeated observations are (at least in part) linearly related to time. To model a quadratic trajectory, a quadratic component is added to the equation.

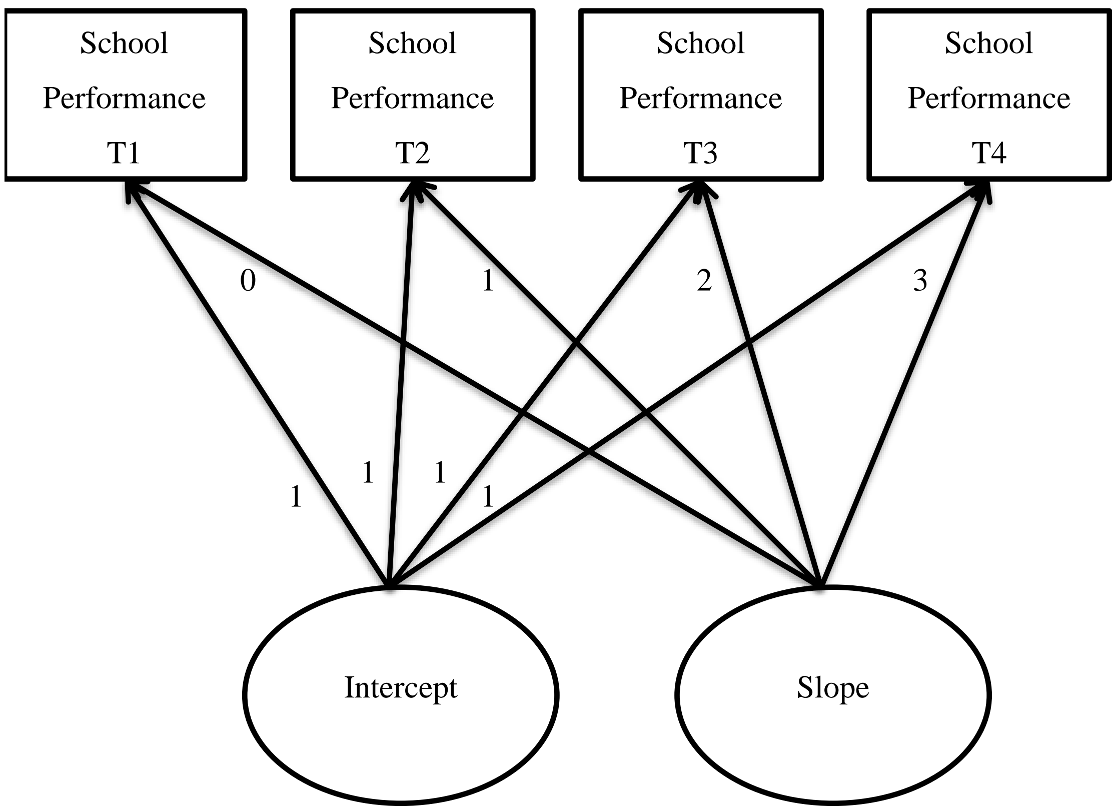
To model individual variability, the parameters of the trajectories are treated as random variables so that the trajectories can be described by the following equations:

$$\alpha_i = \mu_\alpha + \zeta_{\alpha i} \ (3a)$$

$$\beta_i = \mu_\beta + \zeta_{\beta i} \ (3b),$$

where μ_α and μ_β are the intercept and slope pooling across individuals and $\zeta_{\alpha i}$ and $\zeta_{\beta i}$ are the deviations of each individual from the group mean. For linear models, we can then estimate the key parameters for the sample data: the mean starting point (intercept), mean rate of change (slope) across the four time points, the variance around the intercept and slope, the covariance between the intercept and slope and the time-specific residual variances. To estimate the final model, we define the LGM by setting the four factor loadings on the intercept factor equal to 1 (we have four time points, so $T = 4$) and the four factor loadings on the slope factor equal to λ_{t-1}, where $t = 1, 2, 3, 4$. The model is presented below in figure 3 (here school performance is represented as an observed variable; but in the final model a latent variable is constructed).

Figure 3: Latent growth model for school performance at four time points (shown without predictors)



We code time to begin with zero, so the intercept reflects the model implied values of the outcome measure at the initial period of measure. All together this LGM will estimate nine parameters: the mean intercept and slope (fixed effects), a variance for each latent factor, a covariance between the latent factors and a residual variance for each repeated measure (random effects).

Next, the analytical technique selected for this study was a latent variable structural equation model (SEM). This means that repeated measures were modelled as latent, rather than observed (by using a mean score for example). This was done for two main reasons. First, because the outcomes in this study were not validated instruments and secondly because the outcomes were computed by combining four

and seven indicators respectively. This SEM approach enables the analysis of latent factors, which are underlying constructs that are believed to exist but are difficult to observe and measure without error (e.g., carer reported school performance). SEM's ability to model latent factors introduces another benefit of SEM over multivariate parametric tests such as ANOVA; namely, one assumption of ANOVA, regression, and other general linear models is that "all predictors are perfectly reliable (no measurement error)" (Kline, 2016, p. 32). By contrast, latent variable models, which account for measurement error, are ideal for addressing some of the measurement error issues which arise as a result of the lack of valid outcomes in this study. As the CFA and the measurement invariance models confirmed the latent factor structure of both school performance outcomes, latent growth modelling with latent outcomes can be employed to analyse the school performance trajectories of the sample.

A latent growth model in which only the trajectories are estimated, and no exogenous variables are included, is called an unconditional LGM. In the present study, an unconditional model describes the course of school performance over four time points for the sample. The mean intercept and slope represent the average trajectory for the sample and the variance indicates the amount of individual variability around the trajectory parameters. LGMs can be expanded to include covariates and predictors to explain this individual variability. Such a model can demonstrate whether characteristics of the child, their placement or their experiences are associated with trajectories that start higher or lower (at the intercept) and increase more steeply versus less steeply (by examining the slope). The M*plus* syntax for the latent growth model used in research question 2 is presented in Appendix K.

For this research question, only covariates and predictors measured at T1 are included in the model. Variables that predict the intercept will be conceptualised as

risk or promotive correlates. This is because the intercept measures school performance at T1, therefore such relationships represent cross-sectional relationships only. For example, if the carer reported importance of getting good grades (low risk, i.e. very important) predicts the intercept (in a positive direction), this means that this variable is a promotive correlate for school performance, after controlling for other covariates. Variables which predict the slope (which represents progress over time) may be characterised as risk or promotive factors as this would show evidence of a temporal relationship between the variables. For definitions of risk, promotive and protective correlates and factors used in this thesis, please see Chapter 2 of the thesis.

5.7.3 Method for research question 3: Is time-varying carer involvement a risk or promotive *factor* for school performance?

This research question examined the relationship between time varying measures of school performance and time varying measures of carer involvement, here: carer aspirations. This stands in contrast with research question 2 which looked at the relationship between carer aspirations at T1 only and school performance over time. The analysis in research question 2 indicated whether carer aspirations is a correlate of school performance (by examining the relationship with the intercept) or a risk or promotive factor (by examining the relationship with the slope), the direction of prediction cannot be determined. By adding time-varying measures of carer involvement into the model, this approach allows me to examine the relationship between carers' aspirations and school performance in a smaller time frame (one year, rather than over four years), explore how this relationship develops over time and finally to consider the direction of prediction between carer aspirations and school

performance. In so doing, this analysis uses a different approach to question 2 to determine whether time-varying carer aspirations are a promotive factor for school performance of children in care.

To do this, carer aspirations at T1, T2, T3 and T4 were included in the model by adding paths from carer aspirations at T1 to school performance at T2, from carer aspirations at T2 to school performance at T3 and from carer aspirations at T3 to school performance at T4. Paths were also added in the other direction, from school performance at T1 to carer aspirations at T2, from school performance at T2 to carer aspirations at T3 and from school performance at T3 to carer aspirations at T4, to account for the fact that school performance is likely to influence decisions carers make about aspirations for young people. The model also accounted for contemporaneous effects (also called occasion specific paths) by correlating carers' aspirations and school performance at the same time points. The model is represented in Figure 4. Note: second level paths (from indicators of school performance to the latent construct) of the growth model were not included in this figure, for clarity. In the diagram, circles represent latent constructs, whereas squares represent manifest items.

Figure 4: Latent growth model with time-varying predictors representing carers' aspirations

Gender
SEN
Emotional
Conduct
Hyper activity
Peer
Carers' Asp T1
Carers' Asp T2
Carers' Asp T3
Carers' Asp T4
Slope
Intercept
School Perf T1
School Perf T2
School Perf T3
School Perf T4

This model shares similarities with cross-lagged auto-regressive (CLAR) models. The underlying theoretical assumption of an auto-regressive model is that previous values of a given variable are the best predictors of future values of that same variable (Geiser, 2013). In the present study, this means that past school performance is the best predictor of future school performance and past carers' aspirations are the best predictor of future aspirations. In a traditional CLAR model (a model which doesn't include a latent growth model), cross-lagged paths would represent the relationship between school performance and carers' aspirations over time, after the effect of past school performance on future performance and past aspirations on future aspirations have been accounted for. The aim of the cross-lagged model is to explain the residual variability that is not accounted for by the auto-regressive effects (between repeated measures of carer aspirations and school performance) (Geiser, 2013). In the present model, the inclusion of time-varying measures of carers' aspirations to the latent growth curve model meant that the repeated measures of school performance were estimated by the underlying trajectory (estimated in research question 2) plus the time-specific influence of carers' aspirations (Berry & Willoughby, 2017; Curran & Willoughby, 2003).

5.7.4 Method for research question 4: Is carer involvement a risk-based or interactive protective factor for school performance of children in care with special educational needs?

This research question aimed to identify whether carer involvement variables, specifically carers' aspirations, acted as protective factors, either *risk-based protective* factors or *interactive protective* factors (Farrington et al., 2016; Sameroff, Bartko,

Baldwin, Baldwin, & Seifer, 1998). Risk-based protective factors are variables which predict a good outcome in a group of children at risk. Interactive risk factors are variables which interact with a risk factor to suppress its effect. Said otherwise: in the absence of an interactive protective factor, the likelihood of a negative outcome is higher in the at risk group; when the protective factor is present, the likelihood of a negative outcome doesn't go up in the presence of risk. Farrington et al. (2016) suggest that the effect of the risk should be eliminated altogether, but an interaction may still be significant even if this isn't the case. For example, the effect may simply be attenuated (Luthar et al., 2000).

In this section, I tested whether high carer aspirations could act as a protective factor for school performance for a group of children in care at high risk of low performance: children with special educational needs. Given the likely severity of some special educational needs, which might impede any school performance, it was not expected that high aspirations could nullify the effect of special educational needs on school performance. Nevertheless, it was hoped that high carer aspirations would predict better school performance for SEN children; in this case carer aspirations would be a risk-based protective factor. If carer aspirations predicted better school performance in the sample of children with SEN but not the sample of children without SEN, high carer aspirations would be termed an interactive protective factor. Previous research has found that the relationship between high aspirations of carers and educational outcomes was not significant for children with SEN (Kang, 2004).

In order to examine this proposition, a two-step approach was used. In the first, a bivariate analysis was carried out which followed the methods used in Farrington et al. (2016). This technique used the binary school performance variable and the trichotomised predictor variables outlined in 5.7.2.1 To identify whether carers'

aspirations were a risk-based or interactive protective factor, the odds of low school success for children whose carers had high aspirations and those whose carers didn't were compared using odds ratios across two groups: children with SEN and children without SEN. If the odds ratio in the SEN group was significant, this would indicate that carer aspirations were a risk-based protective factor. If the odds ratio was significant in the SEN group but not the non-SEN group, ANOVA was carried out to verify whether any interactions were significant (Farrington et al., 2016; Gutman, Sameroff, & Cole, 2003; Sameroff, 1999). This analysis was carried out using school performance at T4, because the aim was to identify whether carers' aspirations were a protective factor, not just a protective correlate.

In the second step, I examined whether the results from the bivariate analysis could be replicated in the latent growth model. That is, whether carer aspirations acted as a protective factor for children with SEN, to predict better school performance. Again, if carer aspirations predicted higher starting trajectories or greater progress over time in the SEN group, this would identify carer aspirations as a risk-based protective factor. If the interaction between carer aspirations and SEN status was significant, so that SEN status moderated the influence of aspirations on school performance, carer aspirations would be termed an interactive protective factor. To test the interaction, I computed a multiple group latent growth model in M*plus* (see syntax in Appendix L), as outlined by the M*plus* user manual chapter 14 (B. O. Muthén & Curran, 1997; L. K. Muthén & Muthén, 2017). This approach was used rather than using an interaction term as a predictor in a conditional model, because this would assume that the parameters that define the trajectory model are invariant across levels of the predictors (Curran & Hussong, 2003). Using SEN as a grouping variable, I employ a four-step process. In the first step, I estimated the same latent

growth curve model from research question 3 but only for the sample of children who all had SEN (n = 427) (model 1a). In the second step, the same model was then run for children who had no SEN (n = 231) (model 1b). The third model (model 2) used the full study sample and the grouping command (for SEN) in M*plus*; both models run simultaneously and all structural parameters were freely estimated (that is, they were not constrained to be equal across groups). Finally, a model was estimated with the full study sample using the grouping command, in which regression paths from the intercept and slope to carer aspirations were constrained across both groups (SEN and non-SEN) (model 3). This model constrained the regression estimates to equality.

If model fit deteriorates at each step, this suggests that models may be different in both groups: this is equivalent to testing the interaction of SEN status and carer aspirations. To examine whether the interaction is significant, I tested whether the second and third model were significantly different from each other using the Chi-Square Difference test and specifically the Satorra-Bentler scaled chi-square difference test (L. K. Muthén & Muthén, 2017; Satorra & Bentler, 2010). To do this, first the difference test scaling correction cd is computed:

$$cd = (d0 * c0 - d1 * c1)/(d0 - d1),$$

where $d0$ is the degrees of freedom in the nested model (the more restrictive model), $c0$ is the scaling correction factor for the nested model, $d1$ is the degrees of freedom in the comparison model, and $c1$ is the scaling correction factor for the comparison model.

This is followed by the Satorra-Bentler scaled chi-square difference test *TRd*, computed as follows:

$$TRd = (T0 * c0 - T1 * c1)/cd,$$

where $T0$ and $T1$ are the MLM, MLR, or WLSM chi-square values for the nested and comparison model, respectively. For MLM and MLR the products $T0*c0$ and $T1*c1$ are the same as the corresponding ML chi-square values. The resulting value is a chi-square and its significance can be tested using the Chi-Square Table of critical values. If the difference is not significant, the two models are not significantly different from each other and therefore, the interaction is not significant. In this case, the effect of carer aspirations on school performance trajectories would not be significantly different for children with SEN and children who don't have SEN.

The hypothesis tested here was that high carer aspirations acted as a risk-based protective factor not an interactive protective factor.

The analysis divides the sample into multiple subgroups, some of which may be small, therefore it may suffer from a lack of power. This is therefore considered an exploratory analysis and its findings will be interpreted with this in mind.

5.8 Statistical norms and parameters for this thesis

5.8.1 Statistical significance thresholds used in the thesis

P-values represent the probability of obtaining the observed result (or a more extreme result) when the null hypothesis is true. A very small *p*-value ($p < .001$) therefore indicates a very small probability of obtaining the results computed when

the null hypothesis is true. Statistical conventions means that *p*-values under 0.05 are considered statistically significant (Field, 2009).

5.8.2 Explanation and definitions of model fit indices used in this thesis

Chi-square test of model fit tests the validity of the proposed model. It does this by testing the null hypothesis that the model as currently estimated is not significantly different from the model of perfect fit. Where the associated *p*-value is significant this suggests that the models are significantly different and that the proposed model may not be a good fit.

The TLI and CFI, are incremental indices of fit. In these, no reference model is used in determining the amount of improvement in model fit. CFI is assessed by comparing the size of chi-square and associated degrees of freedom of the baseline model and hypothesised model. It is normed in that its values vary between 0 and 1. The TLI is non-normed, but assessed in the same way as the CFI, with values close to 1 being an indication of good model fit. The TLI penalises overly complex models.

The RMSEA and SRMR are absolute fit indices and do not rely on a reference model to determine the extent of model improvement. In contrast, the CFI and TLI decrease as model fit deteriorates, so that values closer to 1 indicate good model fit. The RMSEA is sensitive to the number of degrees of freedom in the model. The advantage of the RMSEA is that it is sensitive to model misspecification, generally yields appropriate conclusions regarding model quality and it provides confidence intervals. These confidence intervals are sensitive to the sample size and parameters of the model, so a model with a small sample size and a large number of parameters estimated will result in large confidence intervals.

The SRMR represents the average residual value derived from the fitting of the variance-covariance matrix, or framed otherwise, it is the average discrepancy between the observed sample and the hypothesised correlation matrices and a smaller value indicates a better fitting model.

5.9 Limitations of the statistical approach in the present study

5.9.1 Using ordinal variables as continuous

Several of the variables in this study are ordinal and not continuous, however they are treated as continuous in the analyses. Structural equation models (SEM) make a number of assumptions about data, for example in confirmatory factor analysis, the manifest variables or indicators are assumed to be normally distributed and the model is estimated using the maximum likelihood (ML) approach. However, if variables are ordinal the assumption of normal distribution does not hold. So, ML method may not be appropriate. Ignoring this can lead to problems with parameter estimates (factor loadings and factor correlations), standard errors and chi-square. The standard error depends on the model, on the method of estimation and on the sample size. If the model is misspecified this can affect the standard errors. The ML usually underestimates standard errors, but this will also depend on sample size and the number of categories in the ordinal variable (Yang-Wallentin, Jöreskog, & Luo, 2010).

SEM can, however, allow specification of ordinal variables as continuous. For this, M*plus* provides different options, commands and estimators to account for limitations described above. Instead of using the Maximum Likelihood estimator

(ML) for example, the M*plus* user guide suggests using the WLSMV estimator (mean and variance adjusted Weighted Least Squares estimator). However, in the presence of missing data, this estimator uses pairwise deletion. Given the presence of missing data in this study, this was considered unacceptable.

Yang-Wallentin et al. (2010) and Skrondal and Rabe-Hesketh (2004) both examine how models perform using different estimators. They find that ML performs just as well as weighted least squares approaches, such that standard errors and chi-square are not significantly biased. They conclude that ML is a reliable approach for confirmatory factor analysis with ordinal variables and thus the ML estimator can be used in M*plus*.

Moreover, M*plus* has an additional estimator which is robust to non normality: MLR. This estimator uses a maximum likelihood approach, computes standard errors and chi-square test statistics for parameter estimates that are robust to non-normality and uses the full information maximum likelihood approach to missing data (L. K. Muthén & Muthén, 2017). This approach is therefore preferred for the present analyses, while its limitations should be kept in mind when interpreting the findings of the study.

5.9.2 Multiple statistical tests

Due to the nature of the study, a large number of statistical tests were performed; this increases the chance of a Type 1 error (false positive). There are a number of strategies for dealing with this, including using Bonferroni corrections or adopting a stricter p-value threshold, for example $p < .01$ or $p < .001$. For the purposes of this study, I report all significant findings at the $p < .05$ level, as this is the convention.

However, as well as the *p*-value I will use other information when I interpret the findings, including the size of the effect, the quality of the data and the precision of analyses.

5.9.3 Establishing power for each model

Establishing power and identifying an adequate sample size in longitudinal SEM is complex (Wolf, Harrington, Clark, & Miller, 2013), however if models are not sufficiently powered, non-significant effects may not be reliable. The QuantPsy (http://quantpsy.org/rmsea/rmsea.htm) website provides an automated algorithm to calculate power based on the *p*-value, sample size, the degrees of freedom and the RMSEA. This calculation is necessarily limited, as power can also be affected by the number, timing and balance of longitudinal observations, the shape of their distributions, model size and missing data among others (Wolf et al., 2013). I recognise that the power calculation provided by the QuantPsy website is therefore limited and used only as a guide.

5.10 Ethics

The University of Oxford does not require ethical approval when conducting secondary data analysis with datasets that have no identifying information on participants (CUREC, 2017). However, because of the sensitive nature of the data and its participants, ethical approval was sought from the University of Oxford Department of Education (see Appendix M). The application included information about how the data would be stored and shared, and how the findings would be

communicated. Moreover, ethical approval was sought from the Ontario Children's Aid Societies, who own the data (application available upon request).

5.11 Methodological summary

This chapter has presented the data source, its strengths and limitations, before describing the sample, measures, ethics and data analysis strategy. In summary, Study Two uses secondary data analysis obtained from OnLAC to explore the role of foster and kinship carers in the educational experiences of 690 children in care continuously for four years. Specifically, the study describes how and how much carers are involved in the education of children in care, it asks whether carer involvement at time 1 is a risk or a promotive *correlate* or *factor* for school performance trajectories, whether time varying carer involvement is a risk or promotive *factor* for school performance and finally whether carer involvement is a risk-based or interactive protective factor for school performance of children in care with special educational needs. In order to answer these questions, I used descriptive and bivariate statistics, as well as a latent growth curve model. The next chapter presents the findings of these analyses.

Chapter 6. Results for Study Two

This chapter presents the results for Study Two, which examines what carers do and how this is associated with school performance over time of teenagers in care. Specifically, it investigates whether carer involvement is a protective factor for children in care. It does this by answering the four research questions outlined in the methodology:

1. How and how much are carers involved in the education of children in care?
2. Is carer involvement at time 1 a risk or a promotive *correlate* or *factor* for school performance trajectories?
3. Is time-varying carer involvement a risk or promotive *factor* for school performance?
4. Is carer involvement a risk-based or interactive protective factor for school performance of children in care with special educational needs?

The results are presented for each question separately below. The definitions of risk, promotive and protective correlates and factors are outlined in Part One (Chapters One and Two) of the thesis.

6.1 Research question 1: How and how much are carers involved in the education of children in care?

The first research question is predominantly descriptive and aims to build on the existing research evidence describing what carers do. The study was limited to the questions available in the Assessment and Action Record (AAR) of the Ontario Looked After Children (OnLAC) database. Research question 1 was answered by

examining frequencies and descriptive statistics of the carer data available in the AAR as well as their relationship with children's school performance. This was done using SPSS v.24.

6.1.1 Characteristics of the sample

6.1.1.1 Characteristics of the children and young people

As shown in Table 16 below, of the 690 young people in the study sample, 383 (56%) were boys and 307 (44%) were girls. At the first time point (T1), they were aged between 10 and 14 (M = 12.65, SD = 1.38)[11] and 117 (17%) were from First Nations, Métis or Inuit (FNMI) ethnic backgrounds. There were 427 young people (62%) with a long-term condition, including foetal alcohol syndrome disorder, cerebral palsy or a learning difficulty. This figure is higher than in previous studies (see for example Flynn, Tessier, & Coulombe, 2013; Luke, Sinclair, & O'Higgins, 2015; Wise, Pollock, Mitchell, Argus, & Farquhar, 2010), although some research has found a similar lifetime prevalence, particularly among older youths in care (McMillen et al., 2005).

[11] See Appendix E for detail of how raw data was recoded

Table 16: Demographic characteristics of the study sample

	Frequency	**Percentage**
Gender (male)	383	55.5
Age at T1		
10	101	14.6
11	129	18.7
12	146	21.2
13	171	24.8
14	130	18.8
Ethnicity		
Other	569	82.5
FNMI	117	17.0
Long-term condition at T1		
SEN - any	427	61.9
ADD[12]	265	38.4
Cerebral palsy	9	1.3
Developmental disability	109	15.8
FASD[13]	61	8.8
Learning disability	239	34.6

(*Note:* percentages for long-term conditions do not add up to 100 as some young people may have several conditions)

Mean age at first entry into care was 4.80 years (*SD* = 2.98) reported at T1 and this ranged from entry at birth to entry just over a year prior to the first time point (see Table 17). The survey does not ask how many periods living in care the young person has had.

[12] ADD is Attention Deficit Disorders
[13] FASD is Fetal Alcohol Spectrum Disorders

Table 17: Age Group First Entry into Care (reported at T1)

Age at entry	Frequency	Percentage
0 and 4 years old	378	54.8
5 and 9 years old	263	38.1
Over the age of 10	47	6.8
Missing	2	.3
Total	690	100.0

Across the four time points, the majority of children were in foster care (82%) compared to kinship care (17%). At Time 1 (T1) young people had spent an average of 7.38 years (*SD* = 3.09) in care and 4.74 years (*SD* = 3.16) with their current carer. The mean number of changes in placement or caregivers prior to the placement children were in at T1 was 4.22 (*SD* = 2.37). Section 6.1.3 examines the correlations between the variables describing young people's characteristics.

Reason for entry was as follows: 180 (26%) children entered care because of physical abuse, 164 (24%) for emotional abuse, 130 (19%) for neglect only, 74 (11%) for neglect and another reason, 49 (7%) for sexual abuse, and 33 (5%) for behavioural problems (Appendix E provides details of how the raw data was analysed).

The AAR asks carers to complete the Strengths and Difficulties Questionnaire (SDQ) which is a measure of social and emotional well-being (R. Goodman, 2001). In this study, I used four subscales: conduct problems, hyperactivity, emotional problems and peer problems. The factor structure of the SDQ for the study sample was examined in factor analysis and a four factor structure was found to be adequate (for details see Appendix I). Teenagers in the study sample had mean scores for each subscale as described in Table 18 below. The Table indicates what "borderline" scores are; scores lower than this are considered "normal" whereas scores above this are "high or very high".

Table 18: Mean SDQ scores on subscales for study sample (maximum score is 10)

	Mean (*SD*)
Conduct (“borderline”=3)	2.74 (*2.48*)
Hyperactivity (“borderline”=6)	5.10 (*2.96*)
Emotional (“borderline”=4)	2.74 (*2.31*)
Peer (“borderline”=3)	2.54 (*2.30*)

All four mean scores are within the range defined as “normal behaviour” as per SDQ guidelines (R. Goodman, 2001). However, on closer examination a significant number of young people have high or very high scores on all four subscales, which may indicate the presence of psychopathologies (R. Goodman, Ford, Corbin, & Meltzer, 2004). These scores are also significantly higher than children in the general population but similar to other young people in care (Ford et al., 2007; Geltman et al., 2005; R. Goodman, 2001, 2016; Meltzer et al., 2003; Wise et al., 2010). I present scores for the four SDQ subscales below to provide a comparison with norms (non-care populations) for Great Britain and the USA (norms for Canada were not available), and scores from a previous sample of children in care in Ontario, also aged between 11 and 15 at the time of the survey (Marquis & Flynn, 2009), in Tables 19 to 22 below (R. Goodman, 2016).

Table 19: SDQ Conduct problems subscale (% in each category)

	Study Sample	Ontario children in care	GB norm	USA norm
Normal	59.4	65.5	77.8	80.9
Borderline	11.0	9.1	10.1	7.8
High or very high	29.3	25.4	12.3	11.3

Table 20: SDQ Hyperactivity problems subscale (% in each category)

	Study Sample	Ontario children in care	GB norm	USA norm
Normal	57.4	57.4	80.1	85.9
Borderline	7.4	18.1	7	4.4
High or very high	34.9	24.5	12.9	9.7

Table 21: SDQ Emotional problems subscale (% in each category)

	Study Sample	Ontario children in care	GB norm	USA norm
Normal	73.2	61.9	80.6	83.9
Borderline	9.1	22.7	7.2	6.2
High or very high	17.2	15.4	12.2	9.9

Table 22: SDQ Peer problems subscale (% in each category)

	Study Sample	**Ontario children in care**	**GB norm**	**USA norm**
Normal	61.7	66.7	77.0	79.5
Borderline	11.0	8.5	10.4	9.5
High or very high	26.8	24.8	12.6	11.0

The above tables demonstrate high levels of behavioural problems in the study sample, slightly higher in fact that a previous sample of children in care in Ontario (Marquis & Flynn, 2009).

Young people in the present study sample were selected because they were in care for four consecutive years, so it was anticipated that they would represent a relatively stable group compared to the wider population of children in care. Compared to the population of all 10-14 year old children in care in Ontario in 2010, children in the study sample were slightly more likely to be girls (44% compared to 40%), had fewer special educational needs (68% compared to 72%), were slightly younger (by a year), entered care younger (by just over a year), had spent slightly more time in care (and with their current carer) and had a more stable care history (by at least one less move)[14]. Both groups had the same proportion of young people from First Nations, Métis or Inuit backgrounds. Moreover, young people in the study sample were only placed in kinship or foster care, whereas those in the wider population of children in care were also placed in residential care and other placement

[14] Differences were significant for age at T1 ($t(2839)=15.85$, $p<.001$), age first entry ($t(2641)=8.19$, $p<.001$), length of time with current carer ($t(2802)=-7.31$, $p<.001$) and instability ($t(2718)=5.27$, $p<.001$).

types. Implications for external validity are reviewed in the discussion chapter (Chapter 7).

6.1.1.2 Characteristics of the carers

All young people in the study sample were in foster or kinship care. The primary carer of participants was more likely to be female (90%) than male. At T1, the majority of carers had more than three years experience of fostering, see Table 23. This profile is similar to those of foster carers in the UK (McDermid, Holmes, Kirton, & Signoretta, 2012; Ofsted, 2017). In 83% of placements, the carer and young person were of the same or similar ethnicity; 62% of FNMI children had a carer of the same or similar ethnicity. Finally, 95% of carers reported receiving some kind of fostering training (general training on being a foster carer).

Table 23: Study carers: years fostering

	Frequency	Percentage
Less than 1 year	17	2.5
1 to 3 years	80	11.6
4 to 9 years	296	42.9
10 years or more	274	39.7
Missing	23	3.3
Total	654	100.0

6.1.2 What do carers do?

Carers are asked a number of questions in the AAR about their attitudes to and behaviours with respect to children's education and school experience. A number of

questions, as previously explained in the methodology, had insufficient variance to explore; I reflect on this in the discussion and conclusion chapters. The remaining questions are examined here. The approach is exploratory as there is currently limited research, and no standardised or validated measurement tools to assess carer involvement (see Chapter 4).

The following questions are reported by the carer. Each question has been attributed an identifier (in square brackets) to simplify the presentation of results.

- [TalkSchool] How often do you and the young person talk about his/her school friends and activities? Answers are on a four point Likert scale from 0 (less than once a month or rarely) to 3 (daily).
- [TalkFuture] How often do you and the young person talk about future plans? Answers are on a four point Likert scale from 0 (less than once a month) to 3 (daily).
- [AccessBooks] Number of books the young person has access to. Answers are on a four point scale from 0 (none) to 3 (more than 25).
- [Homework (FC)] How often do you check the young person's homework / provide help with homework / other school assignments? Answers are on a six point scale from 1 (never or rarely) to 5 (daily).
- [Impt grades] How important is it to you that the young person has good grades? Answers are on a four point Likert scale from 0 (not important at all) to 3 (very important).
- [Aspire] How far do you hope the young person will go (academically)? Possible answers are: Other or not known, finish secondary school, apprenticeship, further education, higher education. This variable is usually treated as continuous in other studies (Cheung et al., 2012; Flynn et al., 2013;

Lee et al., 2016; Wise et al., 2010). In this study I treat it as a continuous variable for the purpose of descriptive statistics but in the main analysis, I will use it as a categorical variable (see Chapter 5).

- [SchoolInvolve] Caregiver's involvement in school activities: During the current or last school year, have you done any of the following? Carers are asked to tick any of nine options. These are:
    - Spoken to, visited, or corresponded with young person's teacher
    - Visited young person's class
    - Attended a school event in which young person participated, for example, a play, sports competition, or science fair
    - Volunteered in young person's class or helped with a class trip
    - Fundraising
    - Helped elsewhere in the school, such as in the library or computer room
    - Attended a parent-school association, home and school liaison committee
    - Activities that promote the young person's culture
    - Other activities

  The final value is a sum score ranging from 0 to 9.

The young person is asked the following question:

- [Homework (YP)] How often does your carer help you with homework? Answers are on a four point scale from 1 (never or rarely) to 3 (all the time).

The descriptive statistics for each question are listed in Table 24 below.

Table 24: Carer involvement: what do foster carers do (T1)? Descriptive statistics

	Missing	**Mean**	**Median**	**Std. Dev**	**Range**
[Talk School]	6	2.73	3	0.53	0-3
[Talk Future]	21	1.51	1	0.87	0-3
[Access Books]	6	2.70	3	0.68	0-3
[Check Homework (FC)]	54	3.83	5	1.70	1-5
[Check Homework (YP)]	46	2.41	3	0.97	1-3
[Impt grades]	19	2.45	3	0.75	0-3
[Aspire]	33	2.81	3	1.20	0-4
[School Involve]	9	3.51	3	1.74	0-9

Correlations between T1 and T4 data were statistically significant at the $p < .001$ level for most of the above questions, and ranged from $r(350) = .16$, $p = .003$ ([TalkSchool]) to $r(598) = .57$, $p < .001$ (carer aspirations), suggesting some variation over time.

The size of the correlations may be linked to missing data (removed for computation of correlations). Indeed, T4 [TalkSchool] had 335 missing data points, help with homework (carer reported) had 366 missing data points and school-based involvement had 331 missing data points (of a possible 690). It is not known why the data is missing, but non-completion may be a sign of declining carer involvement as children age, particularly towards late teenage years. Moreover, *t*-tests revealed statistically significant mean differences between scores at T1 and T4 for help with homework (carer and young person reported questions) and school-based involvement which both decreased, and [TalkFuture] which increased. The latter finding may reflect an increase in discussions about plans for further or higher education. Therefore, of the eight carer measures analysed, three have a statistically significant

decrease from T1 to T4, four show no significant change, and one measure ([TalkFuture]) increases from T1 to T4. Overall, this suggests that carers are less involved in young people's school work as they become older teenagers.

Cross-sectional correlations between the variables at T1 describing what carers do were small (smaller than .20), when they were significant. For example, the correlation between help with homework (reported by the young person) and carer aspirations was $r(614) = .18$ ($p < .001$), suggesting that if carers have higher aspirations for young people they are more likely to help with, and perhaps be involved with, school work. The only exception to this was the correlation between carer reported importance of getting good grades and carer aspirations, where the size of the correlation was of medium strength ($r(648) = .38$, $p < 001$).

The low level or absence of significant correlations between these variables suggests that carer involvement in education is multidimensional, as has been observed in research in the general population and with children in care (Hill & Tyson, 2009; Kang, 2004). For this reason, factor analysis of the different carer involvement dimensions was not carried out (Kang, 2004).

6.1.3 Is carer involvement associated with children's characteristics and their care history?

The longitudinal analyses in Study Two (see sections 6.2 and 6.3 below) aim to account for variables which are key in the literature on children in care and which were identified in the systematic review in Chapter 3. These are the covariates for the study, they are: age, gender of child, (minority) ethnicity, special educational needs, placement instability and behavioural difficulties (measured by the four subscales of

Strengths and Difficulties Questionnaire). I also include other variables in the analyses that may be linked to carer involvement: age at first entry into care, placement type, length of time with current carer and reason for entry (Cheung et al., 2012; Flynn et al., 2013; Kang, 2004; Wise et al., 2010). This section examines whether what carers do is associated with the covariates, that is with the characteristics of young people. Correlations are presented in Table 25, below. Because of the size of the correlation table, variables that have no relationship with other variables were not presented in the tables (reason for entry neglect, reason for entry sexual abuse, reason for entry physical abuse).

The frequency of homework support (reported by carers and young people) was negatively associated with age, further suggesting decreased involvement as young people age. Young people had more access to books the more time they had spent in their current placement. Carers reported talking to young people about school activities less if they had entered care because of behavioural problems. Carers talked with young people about their plans for the future slightly less frequently with those who had special educational needs or behavioural problems. Carers were involved in more school activities with young people who had special educational needs, those who had spent more time in the placement and with children who were not in care because of behavioural problems. However, as children grew older, involvement decreased. Carers were more likely to report that getting good grades was important for young people who didn't have SEN and had fewer behavioural problems. Moreover, kinship carers were more likely than foster carers to say that getting good grades was important. Finally, carers reported having higher aspirations for girls, for young people who didn't have SEN, for those who entered care because of emotional abuse, for those who didn't enter care because of behavioural problems and for those

who had lower scores on the four SDQ subscales. Kinship carers also reported slightly higher aspirations than did foster carers.

Other correlations were not statistically significant. These associations suggest some heterogeneity in the sample with respect to carer involvement.

Table 25: Correlations: carer involvement and young people's characteristics and care histories

	TalkSchool	TalkFuture	BooksAccess	Homework (FC)	Homework (YP)	Impt Grades	Aspire	School Involve
Gender	.044	.073	.001	.011	.017	.006	.095*	-.023
Ethnic	.049	.079*	-.002	.020	-.028	.041	.057	-.024
SEN	.008	-.085*	.027	-.032	-.056	-.249***	-.446***	.094*
Age	-.003	.045	-.001	-.171***	-.273***	.034	.007	-.181***
AFE	.012	.071	-.024	-.023	-.043	.043	.046	-.138***
Placement	.006	.032	-.061	-.006	-.009	.083*	.155***	-.019
Stable	.059	.002	.044	-.003	-.043	.070	.082*	.034
LTCC	.031	.026	.081*	-.026	-.020	-.038	-.040	.112**
ROther	-.033	.011	.038	.033	-.034	.047	.031	.002
RNegOnly	-.013	-.080*	.051	-.076	-.037	-.049	-.054	.020
REmot	.023	.045	-.062	.037	.058	.046	.103**	-.027
RBeh	-.077*	-.034	.020	-.041	-.054	-.071	-.102**	-.077*
SDQE	.012	-.082*	-.004	-.061	-.069	-.123**	-.137***	.021
SDQC	-.031	-.062	-.029	-.034	.023	-.138***	-.224***	-.014
SDQH	.032	-.098*	.019	-.057	.014	-.230***	-.395***	.065
SDQP	-.043	-.126**	-.037	-.012	-.031	-.246***	-.337***	-.025

Note: Gender: boys=0, girls=1; Ethnic is ethnicity: other=0, FNMI=1; SEN: no=0, yes=1; AFE is Age first entry into care; Placement:1=foster care, 2= kinship care; Stable is number of placement changes since birth; LTCC is Length of time with current carer; ROther is reason for entry other; REmot is reason for entry emotional abuse; RBeh is reason for entry behavioural problems; SDQ: E – emotional, C – Conduct, H – hyperactivity, P – peer problems.
*Denotes significance at $p < .05$, ** denotes significance at the $p < .01$, level *** denotes significance at the $p < .001$ level

6.1.4 Is carer involvement associated with educational outcomes at T1 and T4?

This section examines cross-sectional associations between carer involvement and school performance. The outcomes here are factor scores saved from the confirmatory factor analyses of the two outcomes (carer reported (SP1) and multi-informant (SP2) measures), see methodology (Chapter 5).

Table 26 shows correlations between the two school performance outcomes and carer involvement at T1 and T4. Only the carer reported importance of getting good grades and aspirations were significantly and positively associated with both outcomes at both time points.

Table 26: Correlations: carer involvement and school performance (SP) at T1 and T4

	Talk School	**Talk Future**	**Books Access**	**Home-work (FC)**	**Home-work (YP)**	**Impt Grades**	**Aspire**	**School Involve**
SP 1 T1	-0.04	0.07	0.07	0.01	-0.01	0.29***	0.42***	0.01
SP 2 T1	-0.04	0.07	0.07	0.01	-0.01	0.29***	0.43***	0.01
SP 1 T4	-0.00	0.05	-0.04	0.08* (p = .048)	0.03	0.23***	0.28***	0.01
SP 2 T4	0.00	0.06	-0.03	0.08* (p = .037)	0.03	0.21***	0.28***	0.02

Note: SP: school performance *Denotes significance at $p < .05$, *** denotes significance at the $p < .001$ level

Because “carer aspirations” is an ordinal variable, I also conducted a one-way ANOVA to examine differences in school performance across levels of the variable. This revealed significant differences in carer reported school performance between groups ($F(4, 133.79) = 41.10$, $p < .001$) (the assumption of equality of variances was violated, therefore the Welch F-test is reported). The Games-Howell post hoc test showed statistically significant differences between carer aspirations for higher

education and every other category and aspirations for further education and every other category ($ps < .001$)[15]. School performance was not significantly different between groups of young people whose carers said they hoped young people would finish secondary school, do an apprenticeship or follow any other paths. Findings were virtually the same for the second outcome, with only very small differences in *p*-values.

As highlighted in Table 26, there appeared to be a very small correlation between carer reported help with homework and outcomes at T4, though not at T1. However, the correlation coefficient was very small and the *p*-value relatively large. Other types of involvement were not related to school performance. This lack of association is considered in the discussion chapter. The remaining analyses will only examine the relationship between carer reported importance of getting good grades and carer aspirations and school performance.

6.1.5 How is carer involvement associated with school performance and children's characteristics?

In this final section, I examine correlations between carer reported aspirations and importance of getting good grades (predictors), the covariates and both school performance outcomes at T1 and T4. This sets the scene for the longitudinal analyses of research questions 2 and 3. Table 27 shows the correlations with the first outcome only.

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[15] In post hoc tests, the largest effect size was the difference in school performance of young people whose carers had aspirations they would go to university and those who hoped they would do an apprenticeship d=1.37 (p<.001). The smallest effect size was the difference in school performance of teenagers whose carers hoped they would go to further education and those who hoped they would do an apprenticeship d=0.61 (p<.001). By convention, effect sizes above d=.6 are considered large.

As indicated by the significant correlations in Table 27, having a special educational need and having behavioural problems (on any of the four subscales of the SDQ) was associated with significantly lower school performance at T1 and T4, with the exception of emotional problems which was not correlated with T4 school performance. Other significant correlations indicated that boys have lower school performance at T1 but this is even more marked at T4.

Ethnicity, age, placement type, length of time with current carer and historical instability were not associated with either school performance outcome at T1 or T4. It was not surprising that placement type was not a significant predictor, given the findings of the systematic review in Study One (Chapter 3). The same may be said for length of time with the care, instability

Table 27: Correlations: school performance, carer involvement and young people's characteristics

	SP1 T1	SP1 T4	Impt Grade	Aspire	Gender	Ethnic	Age	SEN	AgeEntry	Placement	Stable	TwCC	SDQE	SDQC	SDQH
SP1 T1	1														
SP1 T4	.348**	1													
ImptGrade	.290**	.225**	1												
Aspire	.421**	.282**	.375**	1											
Gender	.091*	.147**	0.006	.095*	1										
Ethnic	0.032	0.018	0.041	0.057	0.025	1									
Age	0.072	0.025	0.034	0.007	0.066	0.024	1								
SEN	-.354**	-.284**	-.249**	-.446**	-.177**	-0.028	0.18	1							
AgeEntry	-.013	-.011	.043	.046	.053	-.109**	.235**	-.183*	1						
Placement	0.063	0.018	.083*	.155**	0.051	-0.042	-0.031	-.201**	.097*	1					
Stable	0.022	0.004	0.07	.082*	0.048	0.04	0.046	0.013	.006	-.093*	1				
TwCC	0.04	-0.004	-0.038	-0.04	0.001	0.054	.099**	.100*	-.465**	0.011	-.320**	1			
SQDE	-.189**	0.007	-.123**	-.137**	0.05	-0.056	0.01	.204**	.058	0.008	.139**	-.104**	1		
SDQC	-.283**	-.207**	-.138**	-.224**	-0.043	-0.074	-0.023	.260**	-.077*	-.110**	0.016	0.042	.265**	1	
SDQH	-.374**	-.249**	-.230**	-.395**	-.153**	-0.053	-0.066	.493**	-.152**	-.143**	-0.019	.077*	.350**	.514**	1
SDQP	-.266**	-.130**	-.246**	-.337**	-.086*	-0.019	-0.005	.350**	-.019	-.110**	0.044	-0.034	.373**	.443**	.444**

Note: SP=School performance; Impt Grades is carer reported importance of getting good grades; Aspire is Carers' aspirations; Gender: boys=0, girls=1; Ethnic is ethnicity: other=0, FNMI=1; SEN: no=0, yes=1; AgeEntry is age at first entry; Placement: 1=foster care, 2=kinship care; Stable is number of placement changes; TwCC is time with current carer; SDQ: E – emotional, C – Conduct, H – hyperactivity, P – peer problems.
* indicates significant at the $p < .05$ level and ** indicates significance at the $p < .001$ level.

Not included in Table 27, I compared the school performance of young people who entered care for different reasons using a one-way ANOVA. The *F* test was significant for T1 for both outcomes ($F(6, 170.90)=3.44$, $p=.003$; the assumption of equality of variances was violated, therefore the Welch *F*-test is reported). But the Games-Howell post hoc test only identified significant differences between the highest performing (the 73 children who entered care because of neglect and any another reason excluding physical, sexual or emotional abuse) and the lowest performing children (the 29 children who entered care because of behavioural problems). Moreover, the effect size was also very small (partial eta squared=.003) (Cohen, 1998). Given the small effect size and the fact that the difference is between two small groups only, reason for entry is not retained as a covariate for the further analyses.

For the subsequent longitudinal analyses in sections 6.2 and 6.3, only variables which have a significant relationship with school performance are retained as control variables: gender, special educational needs and SDQ subscale scores.

In summary, this section addressed the first research question; this was mainly descriptive and sets the scene for the subsequent longitudinal analyses. It found:

- In this sample and at T1, carers in the study sample talked to children about school and about the future, checked their homework, reported that getting good grades in school is important and have high aspirations for the young people.
- Only carer aspirations and carer reported importance of getting good grades were associated with educational outcomes and thus only these two carer involvement variables are retained for the subsequent analyses.

- Gender, SEN and SDQ scores were correlated with both school performance measures and with carer involvement variables and therefore were the only covariates retained for subsequent analyses.

The next section examines whether the study variables act as risk or promotive variables for school performance.

6.2 Research question 2: Is carer involvement at time 1 a risk or a promotive *correlate* or *factor* for school performance trajectories?

Few studies have examined how the school performance of children in care develops over time, yet this is important as research suggests that as young people become teenagers their educational achievement declines (see the findings in Study One). Longitudinal analyses are also important to examine and understand how relationships between variables develop over time; this also allows us to discover risk and protective factors. The aim of this question was to investigate whether carer involvement – here carers' aspirations and carer reported importance of getting good grades – acts as a risk or promotive correlate or factor.

First, bivariate analyses examined the associations between carer involvement and school performance at T1 and T4; this analysis was carried out to inform hypotheses for multivariate models.

Secondly, a multivariate model was estimated with a latent growth model conditioned on carer involvement variables. I fit an unconditional growth model to the

data; this described the course of school performance for the study sample over four years. Then, I examined whether carer involvement was associated with young people's trajectories, after controlling for a set of covariates.

Where appropriate, I followed the reporting guidelines suggested by van de Schoot, Sijbrandij, Winter, Depaoli and Vermunt (2017) for latent growth curve models. I used the term positive growth to describe upward trends, and decline to designate downward trends. Syntax for the conditional latent growth model is presented in Appendix K.

6.2.1 Bivariate relationship between carers' aspirations and school performance

Risk and promotive correlates are variables that have a cross-sectional association with the outcome. Whereas, a variable is a risk or promotive *factor* for a particular outcome if the variable of interest is associated with and precedes the outcome (Kraemer et al., 2005). Bivariate analyses were conducted to examine whether T1 carer involvement was a risk or promotive correlate for T1 school performance and a risk or promotive factor for T4 school performance, as per the methods in Farrington et al. (2016) and described in the methodology (Chapter 5, section 5.7.2.1).

The outcome was dichotomised to represent low school performance (lowest 30% of distribution) and average or high school performance (higher 70% of distribution). For details, please refer to the methodology chapter (Chapter 5) Carer involvement variables were trichotomised as follows:

Table 28: Trichotomisation of T1 carer involvement variables

Variables (carer reported)	Low (promotive)	Medium	High (risk)
	(n, % sample, score range)		
[Impt Grades] T1	*n* = 391 (58.3%) (3: very important)	*n* = 205 (30.6%) (2: somewhat important)	*n* = 75 (11.2%) (0-1: not important)
Aspirations T1	*n* = 224 (34.1%) (4: higher education)	*n* = 240 (36.5%) (3: further education)	*n* = 193 (29.4) (0-2: other, finish school, apprenticeship)

Results using the carer reported school performance (outcome 1) are presented in Tables 28 and 29; results with the multi-informant outcome (outcome 2) were almost identical and are presented in a separate appendix (see Appendix N). Table 29 shows the percentage of children in each of the risk categories for both carer involvement variables with low school performance at T1. For example, at T1 11.7% (*n* = 26) of children whose carers high aspirations had low school performance, compared to 28.5% (*n* = 68) of children at average risk and 57.5% (*n* = 107) of young people at high risk.

Table 29: Percentage of children in each risk group who have low school performance (outcome 1) at T1

	% Low Risk (Promotive)	% Medium	% High Risk (Risk)	OR (Prom) 95% CI	OR (Risk) 95% CI	Type
[Impt Grades] T1	24.2	33.3	66.2	2.26* (1.62-3.15)	5.21* (3.09-8.77)	Mixed
Aspirations T1	11.7	28.5	57.5	5.30* (3.37-8.34)	5.29* (3.66-7.69)	Mixed

Table 30 shows the results for school performance at T4. Here, 21.7% (n = 47) of children whose carers high aspirations had low school performance, compared to 34.5% (n = 81) of children at average risk and 49.5% (n = 90) of young people at high risk.

Table 30: Percentage of children in each risk group who have low school performance (outcome 1) at T4

	% Low Risk (Promotive)	**% Medium**	**% High Risk (Risk)**	**OR (Prom) (95%CI)**	**OR (Risk)**	**Type**
[Impt Grades] T1	28.8	36.8	54.3	1.74* (1.25-2.42)	2.57* (1.56-4.24)	Mixed
Aspirations T1	21.7	34.5	49.5	2.51* (1.72-3.67)	2.48* (1.74-3.53)	Mixed

Both tables also show whether the study variables were risk or promotive correlates, or if they appear to be both (that is, linearly related to school performance) they are classified as mixed. The promotive odds ratio (OR) compared the promotive ("best") category with the rest of the sample while the risk OR compared the risk ("worst") category with the rest of the sample. All odds ratios presented were significant at the $p < .05$ level. This means that both carer involvement variables acted as risk and promotive *correlates* and risk and promotive *factors*. This is an important finding, as it indicates that carer reported importance of getting good grades and aspirations are important predictors of future school performance at every level.

However, it is not clear that these relationships hold in a multivariate model. The second part of this question examines whether the above carer involvement variables predict children's school performance trajectories after controlling for a set of

covariates. Based on the findings from research question 1 and the bivariate analyses above, the hypothesis this model tested was as follows: carer involvement would predict school performance, at the level of the intercept and the slope. Examining the direct effect of carer involvement on the intercept indicates whether it is a risk or a promotive *correlate* for school performance whereas a significant relationship with the slope would suggest it is a risk or promotive *factor*.

6.2.2 Unconditional growth model: what is the course of the study sample's school performance?

First of all, an unconditional growth model (UGM) estimated children's average initial school performance (intercept) and growth trajectories (slope) without any predictors or covariates in the model. In this analysis, the dependent variable was modelled as a latent outcome. In the case of the first outcome, school performance was measured by four carer reported questions. For the second outcome, school performance was measured by seven questions reported by the carer, the social worker and the young person. Only the results for the first outcome are presented here; results for the second outcome, which were almost identical, are reported in Appendix N).

In this study, the intercept was set at the first time point of the data. This represents the first year for which data was available in this study, rather than entry into care for example. As AARs are completed every year, slope parameters for the four time points were set at 0, 1, 2 and 3. In addition to the mean intercept and slope, the UGM produced a number of other parameters, including the association between

the intercept and the slope and the intercept and slope variance. The latter parameters indicate whether there is heterogeneity in the sample.

As indicated in the methodology Chapter 5 the following fit indices are used to assess how well the model fits the data (model fit) (Kenny, 2015):

- Comparative Fit Index (CFI) and Tuckler-Lewis Index (TLI) above .90 and .95 are considered acceptable and excellent respectively
- Root Mean Squared Error of Approximation (RMSEA) and Standardised Root Mean Residuals (SRMR) values under .08 are both deemed acceptable.
- *p*-values for the χ^2 test of model fit should be above .05, however this test is particularly sensitive to large sample sizes, so where *p* is significant, this is not considered a cause for concern.

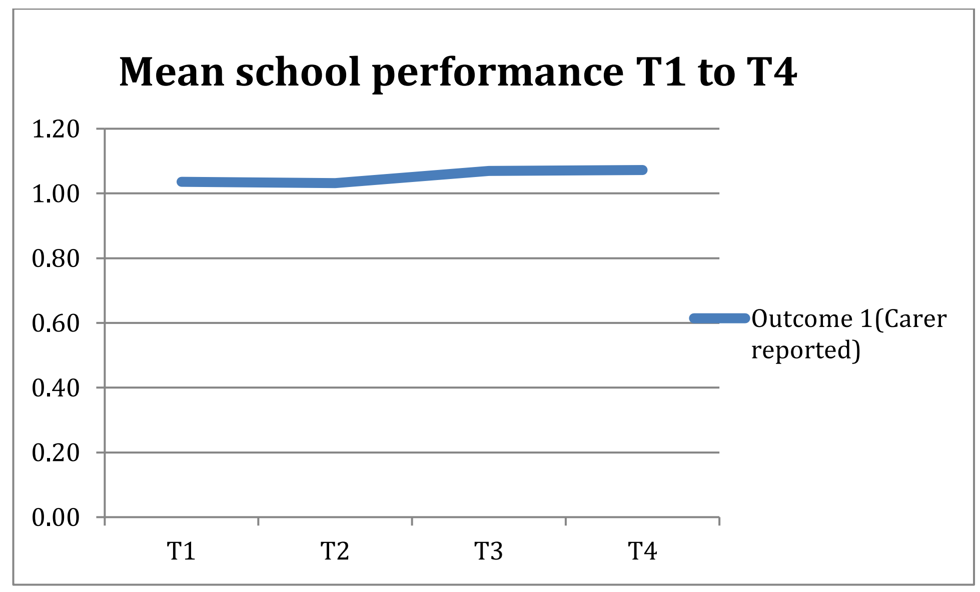
The unconditional growth model had good model fit with both outcomes ($\chi^2 = 141.27\ (97)$, *p*=.002, CFI=.992, TLI=.990, RMSEA=.026, SRMR=.032). The chi-square is significant, however this is not considered cause for concern as it may be due to the size of the study sample.

Because the outcome was specified as latent, the model did not estimate the mean intercept or slope (specifying the outcome as latent means the repeated means are equivalent to factor scores, which by default are standardised so that their mean is zero). When the model was estimated with the outcome as manifest (mean of raw scores on each indicator), the mean school performance for outcome 1 for the study sample was 1.03 (equivalent to "average performance") at T1 and there was a

significant, albeit very small, increase in scores over time (s = .015, *p* = .048). When the outcome is specified as manifest, estimates are subject to measurement error, as well as bias because missing data is ignored in the computation of the mean.

I also estimated the model with a quadratic (rather than a linear) slope, but this did not improve model fit and the quadratic parameter was not significant; therefore it was not retained. While we cannot rule out other slope shapes (Curran & Willoughby, 2003), the linear parameter appeared to provide an adequate estimate of the slope. The average school performance trajectory is depicted in Figure 5.

Figure 5: Average school performance (outcome 1) trajectory for the full study sample from T1 to T4



The model results for outcome 1 also indicated that the covariance between the intercept and slope was significant $(\cos(I, S = -.023, p < .001)$. This suggests that

there was a small association between better school performance and a lower rate of change. This may represent a ceiling effect or a regression to the mean effect. There was also significant variability in both the intercept ($s^2 = .178, p < .001$) and the slope ($s^2 = .014, p < .001$). These parameters point to heterogeneity in both the starting point (intercept) and the rate of change (slope) in school performance across the sample. Parameters were virtually identical using outcome 2 (see Appendix N). In the next section, I investigated the relationship between the two carer involvement variables and school performance trajectories, controlling for the covariates.

6.2.3 Conditional growth model: does carer involvement at T1 predict school performance trajectories after controlling for study covariates?

This model was a conditional growth model which estimated the direct (statistical) effect of carer involvement on school performance trajectories controlling for gender, special educational needs and SDQ scores on the four subscales. These covariates were selected because they were significantly correlated with the carer reported school performance outcome at time 1 (see section 6.1.5, this chapter). Carer involvement variables were trichotomised in order to examine the effect of low and high involvement separately and thus determine whether it operates as a risk or a promotive variable. This variable was then dummy coded and entered as a predictor in the growth model.

Here again, the results are presented for the first outcome only and reported for the second (multi-informant) outcome in Appendix N. Power (to detect poor model

fit) for this model was calculated to be 1.00 for p=.01 and 1.00 for p=.05 (Preacher & Coffman, 2006).

The conditional growth model had excellent model fit with outcome 1 (χ^2 =343.31 (237), p < .001, CFI=.985, TLI=.982, RMSEA=.025, SRMR=.030). Again, the chi-square was significant but this was not considered cause for concern because of the sample size. The unstandardised estimates are presented for the conditional latent growth model in Table 31 below. The model was estimated using FIML, so there was no missing data in analyses (see section 5.6 in Chapter 5).

Table 31: Unstandardised parameter estimates for school performance (outcome 1) model conditioned on parental involvement and covariates

Parameter	**Estimate**	**SE**	**Est/SE**	**p-value**
Estimate effects on intercept				
Gender (male=0)	0.02	0.03	0.61	0.543
SEN at T1	-0.09	0.05	-1.96	0.050
Emotional problems	-0.02	0.01	-2.24	0.025
Conduct problems	-0.02	0.01	-2.09	0.037
Hyperactivity problems	-0.02	0.01	-3.22	0.001
Peer problems	0.00	0.01	0.16	0.870
Carer aspirations (high)	0.20	0.05	4.53	0.000
Carer aspirations (low)	-0.14	0.05	-2.74	0.006
Imp Grades (high)	0.07	0.04	1.76	0.078
Imp Grades (low)	-0.14	0.06	-2.16	0.031
Estimate effects on slope				
Gender (male=0)	0.03	0.02	1.79	0.073
SEN at T1	-0.01	0.02	-0.61	0.541
Emotional problems	0.01	0.00	3.21	0.001
Conduct problems	0.00	0.00	-0.38	0.707
Hyperactivity problems	0.00	0.00	0.50	0.615

Peer problems	0.00	0.00	1.03	0.302
Carer aspirations (high)	-0.03	0.02	-1.37	0.171
Carer aspirations (low)	0.04	0.02	1.69	0.091
Imp Grades (high)	0.01	0.02	0.70	0.482
Imp Grades (low)	0.02	0.03	0.88	0.381
Residual Variances				
School Performance T1	0.09	0.01	6.35	0.000
School Performance T2	0.12	0.01	11.06	0.000
School Performance T3	0.11	0.01	9.96	0.000
School Performance T4	0.10	0.01	6.90	0.000
Intercept	0.11	0.01	7.80	0.000
Slope	0.01	0.00	4.32	0.000

Note: SE is standard error. Bold and italic lines are those where independent variables were significant predictors of the intercept or slope.

The model results indicated that children whose carers had high aspirations (for higher education) had higher starting trajectories (intercept), than children whose carers had average aspirations (for further education). Likewise, children whose carers had low educational aspirations (finish secondary school, do an apprenticeship or not know) had lower starting trajectories (intercept), than children whose carers had average aspirations (aspirations for further education). However, neither high nor low aspirations predicted the slope, or rate of change; that is aspirations did not predict accelerated growth (or decline) over time. Therefore high aspirations appear to act as a promotive correlate, and low aspirations as a risk correlate for school performance.

Carer reported importance of getting good grades only predicted school performance trajectories where carers reported that grades did not matter and young people thus had lower starting trajectories; therefore it appeared to act as a risk

correlate and not a promotive correlate. Like aspirations, carer reported importance of getting good grades (at either level) did not predict the model slope. The study aims to identify promotive and protective factors only, therefore, this variable is not explored further. The next section therefore focuses on high carers' aspirations only, as this was a promotive correlate in this multivariate analysis.

The parameter results also indicated that children with special educational needs (SEN) had lower starting trajectories (intercept), than children who didn't have SEN. Children with SEN made no progress over time (slope). Children with high scores on the SDQ emotional subscale had lower starting trajectories (intercept) than those with lower scores (0 to 3), but young people with greater emotional problems made greater progress over time than children with lower scores, suggesting that any initial gap may be closed by T4. However, higher hyperactivity and conduct problems scores also predicted lower starting trajectories but no progress over time. So young people with high hyperactivity scores in early teenage years may remain at risk over time.

Results for the second outcome (multi-informant) were virtually identical and are provided in Appendix N.

The hypothesis that carer reported high aspirations would predict better school performance at the level of the intercept was confirmed. However, carer aspirations did not predict positive growth (positive and significant slope). This suggests that carer aspirations, measured at T1 play an important role in predicting higher starting scores, above and beyond other variables which predict lower school performance. But high aspirations were not associated with progress over time. This casts doubt on the hypothesis that carer aspirations are not just a risk and promotive correlate, but a risk and promotive *factor*.

The intercept represents school performance at T1, so it was measured at the same time point as the carer aspirations variable used in the analysis. Therefore, the analysis demonstrates that carer reported importance of getting good grades acts as a risk correlate and carer aspirations, as a risk and promotive correlate. The model also demonstrates that this relationship exists above and beyond gender, SEN and behavioural difficulties. However, it does not provide evidence that it is a promotive or risk factor.

In summary, this analysis found that:

- Bivariate analyses identified that low carers aspirations were a risk correlate and risk factor for low school performance and high carers aspirations were a promotive correlate and promotive factor for low school performance of children in care.
- The same relationship was identified for carer reported importance of getting good grades.
- The unconditional growth model showed that the average school performance of children was relatively stable over time.
- Young people's school performance trajectories were heterogeneous
- For the most part, heterogeneity was at the level of the trajectories intercept, which was explained by the presence of SEN, high emotional, hyperactivity and conduct problems scores, carer aspirations and carer reported importance of getting good grades.
- Only emotional problems scores predicted change over time.

- Carers' aspirations are a risk and a promotive correlate for school performance in the multivariate model.
- Only carer reported *low* importance of getting good grades was a risk correlate for school performance in the multivariate model.
- Neither carer involvement variable predicts accelerated progress or decline over time, therefore, neither appeared to act as a risk or promotive factor.

The next section explores whether carer aspirations acts as a promotive *factor*, that is whether it has a temporal relationship with school performance. To do this, I included time-varying measures of carers' aspirations into the latent growth model. The main objective of Study Two was to identify promotive and protective factors. Therefore, I chose to examine only high carer aspirations, and not low aspirations or carer reported importance of getting good grades, as these were both identified as risk correlates.

6.3 Research question 3: Is time-varying carer involvement a risk or promotive *factor* for school performance?

In the analysis for research question 2, high carer aspirations predicted better school performance at T1. However, it did not appear to predict the rate of growth in school performance over time. Moreover, it is possible that carers had high aspirations for young people because they were already high performers. Therefore, prior achievement may confound the relationship between aspirations and future

school performance. It is also plausible that the direction of prediction travels from school performance to aspirations or it may be a bi-directional relationship (Desforges, 2003; Khattab, 2015; Kirk et al., 2011; Melkman et al., 2016). Research question 3 uses time-varying measures of carers' aspirations to examine the nature of the relationship between carers' aspirations and school performance in more depth and to determine whether time-varying measures of carers' high aspirations are a promotive factor. The question investigates high aspirations only (and not low aspirations, which was also a significant predictor of school performance), as this study aims to identify promotive and protective factors which can be modified and targeted in interventions with children in care.

6.3.1.1 Adding time-varying measures of carers aspirations to the latent growth model

To investigate whether carers' aspirations were a promotive factor for school performance, an auto-regressive model of time-varying measures of carers' aspirations and cross-lagged paths were added to the latent growth model of research question 2. The auto-regressive model allowed the influence of values at previous time-points to be taken into account, while cross-lagged paths were used to examine the association between two variables over time. The inclusion of time-varying measures of carers' aspirations meant that the repeated measures of school performance were estimated by the underlying trajectory (estimated in research question 2) plus the time-specific influence of carers' aspirations (Berry & Willoughby, 2017; Curran & Willoughby, 2003), see Figure 4 (Chapter 5). Second

level (indicators for school performance) of the growth model were not included in this figure, for clarity. In the diagram, circles represent latent constructs, whereas squares represent manifest items.

This section only presents findings for the first outcome; see Appendix N for outcome 2 estimates.

Power (to detect poor model fit) for this model was calculated to be 1.00 for p=.01 and 1.00 for p=.05 (Preacher & Coffman, 2006).

Model fit was excellent, despite a large and significant chi-square, although this is not considered cause for concern as the sample size is large (outcome 1: χ^2 =492.81 (256), p < .001, CFI=.971, TLI=.965, RMSEA=.036, SRMR=.050).

The model results showed that all auto-regressive paths were statistically significant, see Table 32. The auto-regressive paths between repeated measures of carers' aspirations were significant and relatively stable over time. This also means that carers' aspirations are largely predicted by previous aspirations. The parameter estimates of the trajectory remained similar to those in research question 2. All cross-lagged paths were also significant. Of particular interest to the research question, the cross-lagged paths from carers' aspirations to school performance were all significant suggesting that carers' aspirations predict future school performance even after controlling for prior attainment. Likewise, cross-lagged paths were significant in the other direction, so that higher school performance predicted higher carers' aspirations. This suggests the presence of reciprocal effects between school performance and carers' aspirations. However, the research question did not intend to estimate reciprocal effects so the specified model may not be adequate to identify these.

Some covariates in the model were also significant. In particular, SEN predicted the intercept of the trajectory model, so that children with SEN had lower starting trajectories; the presence of SEN was also associated with the trajectory slope so children with SEN appeared to make accelerated progress over the four time points relative to other young people who didn't have SEN. Finally, children who had SEN were more likely to have carers who had low aspirations. This points to a possible

moderating effect of SEN, which is tested in the next research question. Parameter estimates are shown in Table 32.

Table 32: Parameter estimates for the latent growth model with auto-regressive and cross-lagged paths with carers' aspirations

	β (standardised)	**SE**	**Est/SE**	***p*-value**
Auto-regressive effects				
Aspirations T2 on				
Aspirations T1	0.556	0.038	14.483	< 0.001
Aspirations T3 on				
Aspirations T2	0.614	0.039	15.720	< 0.001
Aspirations T4 on				
Aspirations T3	0.621	0.040	15.484	< 0.001
Cross-lagged effects				
School Perf T2 on				
Aspirations T1	0.110	0.032	3.475	0.001
School Perf T3 on				
Aspirations T2	0.169	0.035	4.884	< 0.001
School Perf T4 on				
Aspirations T3	0.255	0.047	5.470	< 0.001
Aspirations T2 on				
School Perf T1	0.161	0.029	5.573	< 0.001
Aspirations T3 on				
School Perf T2	0.137	0.031	4.398	< 0.001
Aspirations T4 on				
School Perf T3	0.134	0.029	4.677	< 0.001
Estimate effects on trajectory model intercept				
Gender (male=0)	0.023	0.036	0.638	0.524
SEN	-0.216	0.043	-5.034	< 0.001
Emotional problems	-0.018	0.010	-1.927	0.054

Conduct problems	-0.018	0.010	-1.810	0.070
Hyperactivity problems	-0.033	0.008	-4.197	< 0.001
Peer problems	-0.011	0.010	-1.106	0.269
Estimate effects on trajectory model slope				
Gender (male=0)	0.023	0.015	1.504	0.133
SEN at T1	0.043	0.019	2.194	0.028
Emotional problems	0.013	0.004	3.143	0.002
Conduct problems	-0.002	0.004	-0.396	0.692
Hyperactivity problems	0.005	0.003	1.560	0.119
Peer problems	0.007	0.004	1.660	0.097
Estimate effects on Aspirations T1				
Gender (male=0)	0.020	0.033	0.617	0.537
SEN at T1	-0.413	0.045	-9.224	< 0.001
Emotional problems	-0.001	0.008	-0.126	0.900
Conduct problems	-0.002	0.008	-0.296	0.767
Hyperactivity problems	-0.012	0.007	-1.840	0.066
Peer problems	-0.018	0.008	-2.401	0.016

Model results also indicated that a large proportion of the variance in the school performance measures was explained by both the trajectory in the model and the effect of carers' aspirations. This is presented in Table 33 below.

Table 33: R^2 for repeated measures of school performance

	β (standardised)	**SE**	**Est/SE**	***p*-value**
School performance T1	0.640	0.048	13.380	0.000
School performance T2	0.545	0.030	18.120	0.000
School performance T3	0.537	0.033	16.261	0.000
School performance T4	0.612	0.049	12.437	0.000

Overall, the findings of this model indicate that carer aspirations play an important role in predicting future school performance even after prior performance is accounted for. While the unstandardised estimates are presented here, they are roughly equivalent to standardised estimates because school performance measures are factor scores and carer aspirations is a dichotomous measure; they are certainly of the same magnitude. While there is no hard rule in social work literature for assessing the magnitude of effects, Cohen (1988) suggests a standardised effect size of .20 to be small and .3 to be moderate. The What Works Clearinghouse suggests effect sizes of .25 to be "substantively important" in education research (What Works Clearinghouse, 2017). However, these guidelines were developed for trials so may not be applicable to the findings of observational studies. Nevertheless, these guidelines are a rough guide to assess the size of the estimates in this study. The effect sizes in this study are considered small to moderate but substantively important.

Some potentially important variables are not included in the model because they were not available in the dataset; these include variables that may explain carer aspirations, for example carers' level of education or socio economic status. Young people's attitudes and aspirations may also play a significant role and should be

included in future analyses. However, the findings from this analysis suggest that raising carer aspirations may result in higher school performance of teenagers in care.

In summary, this analysis found that:

- Carers' high aspirations acted as a promotive factor for school performance of children in care
- SEN appeared to moderate the model

These limitations and significance of these findings are discussed in the context of the literature in the next chapter.

6.4 Research question 4: Is carer involvement a protective variable for children in care and for children in care with special educational needs?

In this section, I investigated whether carers' high aspirations were a protective factor: either a risk-based protective factor or an interactive protective factor for children with special educational needs (SEN). A risk-based protective factor is a promotive factor which predicts a good outcome in the presence of risk. In the present study, this would mean that carer aspirations predict better school performance for children with SEN as well as children who don't have SEN. An interactive protective factor is a variable that interacts with a risk factor to predict a good outcome (Farrington et al., 2016; Sameroff et al., 1998). In this study, if carer aspirations

predicted better school performance for children with SEN but not children who don't have SEN, carer aspirations would be an interactive protective factor.

The proposed risk factor is SEN and the hypothesised protective factor for this analysis is carers' high aspirations (for higher education). Studies of risk factors vary in how they identify children who are at risk. While some use multiple and cumulative risk factors others focus on single risk factors (S. C. Duncan, Duncan, & Strycker, 2000; Farrington et al., 2008; Kraemer et al., 2005; Losel & Farrington, 2012; Ttofi et al., 2014). Lösel and Farrington (2012) suggest that when too many risk factors are selected to predict the outcome, this reduces the variance left to explore. However, they suggest that where protective factors are identified for children who are at high risk (as a result of multiple risk factors) of a negative outcome, this has important implications for practice.

As shown in research question 1, few variables were significant predictors of school performance. Variables which predicted lower school performance were the presence of SEN and high scores on the SDQ indicating behavioural problems. SDQ variables were not strong predictors of school performance in multivariate models described in research question 2 and 3 (see this chapter section 6.2 and Table 31). Furthermore, additional analyses showed for example, that while a continuous measure of hyperactivity problems predicted lower school performance, low hyperactivity scores were in fact a promotive factor whereas high hyperactivity scores were not a risk factor (see Appendix O).

Analyses until this point have found that having SEN acts as a significant risk factor for poor school performance for children in care (although it is accepted that not having SEN could be a protective factor). Moreover, the research reviewed in

Study One suggests that having SEN is a major risk factor for the school performance of children care (see Chapter 3). Moreover, because there is a high prevalence of SEN in children in care and because strategies to support these children are of interest to the field (Scherr, 2007; Stone, 2007), identifying protective factors for children with SEN is important. For these reasons, the risk category chosen for this analysis was SEN.

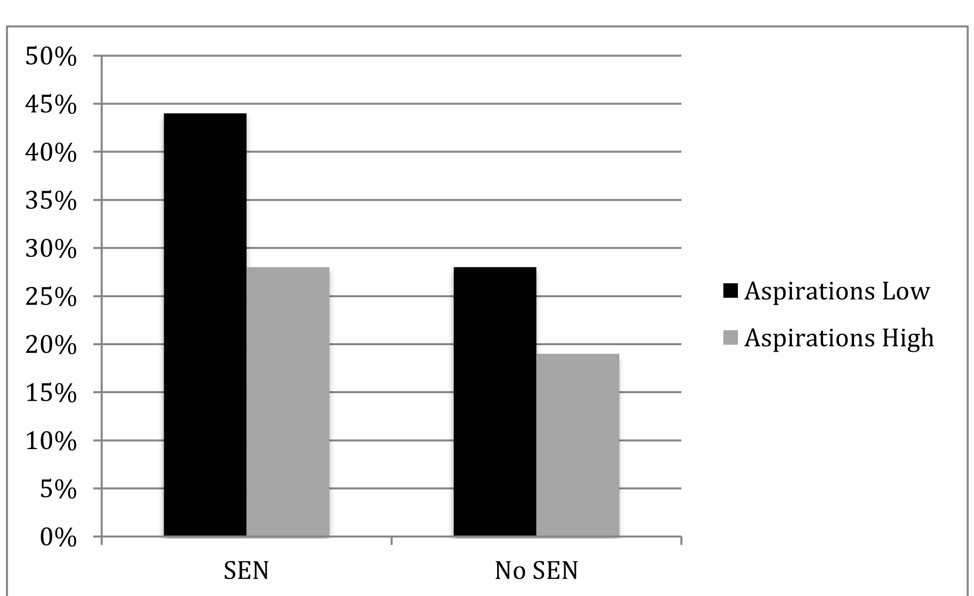
It is not clear from the data in this study that SEN necessarily precedes the hypothesised protective factor (carers' high aspirations); however this temporal relationship is normally required to identify a true protective factor. While developmental and learning disabilities usually manifest in early childhood, it is possible that they were only identified and diagnosed (if at all) in later years. The limitations of the SEN variable in terms of its validity are also acknowledged (this is described in the methodology chapter and discussed in the discussion chapter). Nevertheless, this analysis assumes that SEN precedes carers aspirations for the purpose of this study.

I present results for the carer reported outcome (outcome 1) below and results for the second outcome in Appendix N. The analyses for this research question may lack power because sample sizes were small when the sample was split into multiple subgroups. Underpowered studies run the risk of Type II (false negative) errors, that is they may fail to detect a significant effect when there is one. On the other hand very the results of analyses from very small samples may be influenced by the presence of outliers and will lack generalisability (Field, 2009; Tabachnick & Fidell, 2014). This analysis is thus intended as exploratory and should be examined in future and larger samples.

6.4.1 Bivariate analyses

Figure 6 shows the odds of low school performance at T4 for children with and without SEN and whose carers have high aspirations and children whose carers have low aspirations (at T1). The figure shows that 28% of children who have SEN and whose carers have high aspirations have low school performance at T4, whereas 44% of children with SEN whose carers have low aspirations have poor school performance. For children who didn't have SEN, 19% of children whose carers had high aspirations had poor school performance at T4, compared with 28% of children whose carers had low aspirations.

Figure 6: Percentage of children with low school performance at T4



It is clear from the picture that children who have SEN are at greater risk of school failure, as highlighted in prior analyses. However, the figure shows that children with SEN whose carers have high aspirations appear to have a better chance of succeeding, suggesting that carer aspirations may be a risk-based protective factor. If it is also an interactive risk factor then the difference between children with SEN whose carers have high aspirations and children with SEN whose carers don't have high aspirations should be significantly larger than the same difference for children who don't have SEN.

To determine whether carer involvement was a risk-based protective factor or an interactive protective factor, the odds of low school performance for children whose carers had high aspirations and those whose carers didn't were compared using odds ratios across two groups: children with SEN and children not identified as having SEN. Findings are presented below in Table 34.

Table 34: Percentage of children in each risk category for children with SEN and children who don't have SEN, with low school performance (outcome 1) at T4

	Children with SEN (*n* = 427)			**Children without SEN (*n* = 231)**		
Carer aspirations	High (*n* = 18)	Not high (*n* = 143)	Odds ratio	High (*n* = 27)	Not high (*n* = 21)	Odds ratio
Percentage failing	28%	44%	2.02*	19%	28%	1.64 (ns)

Among children with SEN, 28% of those whose carers had high aspirations had low school performance at T4, whereas 44% of those whose carers had low aspirations had poor school performance at T4; the odds ratio here was statistically significant (OR = 2.02; 95%CI 1.12 to 3.63). This difference was not significant for

children who didn't have SEN (OR = 1.65; 95%CI 0.85 to 3.16). In other words, the likelihood of low school performance was the same for children without SEN regardless of whether their carers had high aspirations or not. Whereas for children with SEN, those whose carers had high aspirations had a significantly lower likelihood of failing in school. This suggests that high carer aspirations is an interactive protective factor for school performance for children with SEN. This was further verified and confirmed by the results of an ANOVA, which found significant differences between groups ($F(3, 600) = 10.64$, $p < .001$).

6.4.2 Investigating whether carers' aspirations act as a protective factor for children with special educational needs

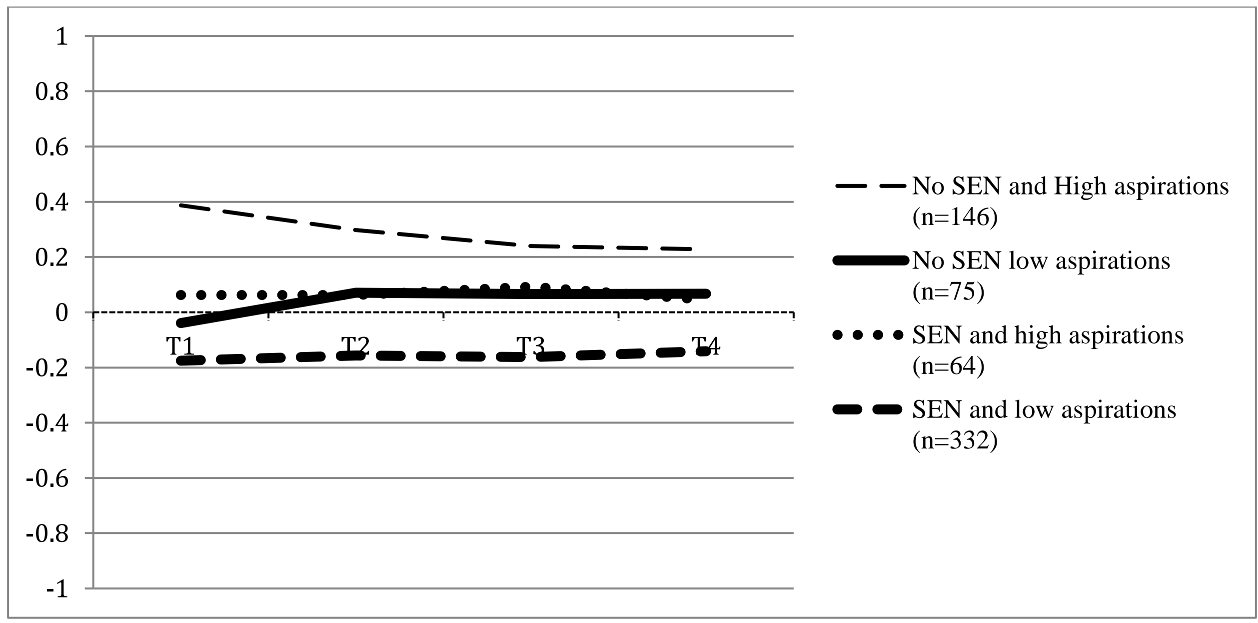
In the second step, I tested whether SEN was a moderator in the latent growth model with cross-lagged paths of research question 3 (see Figure 4). This is equivalent to testing for the presence of an interaction. To do this, I followed the three step method outlined in the M*plus* user manual (L. K. Muthén & Muthén, 2017). First, I specified the model in research question 3 for children with SEN ($n = 427$) and without SEN ($n = 231$) separately and compared the cross-lagged paths in both groups. Secondly, I specified the model using SEN as a grouping variable, allowing all parameters to be freely estimated (unrestricted model); again cross-lagged paths were compared. Thirdly, I constrained the parameters of interest – cross-lagged paths – to be equal (restricted model). I then compared the second and third model using the Satorra-Bentler chi-square difference test; this determines whether the unrestricted

and restricted models are significantly different. If the resulting value is significant, this would suggest that SEN was a moderator of the model.

Using the SEN variable as a moderator means that missing values on this variable are not imputed. Therefore, this analysis is done for young people who have SEN data only (n = 658), rather than the full sample (n = 690).

Another way to explore this question is to examine the raw school performance trajectories (using factor scores) of children according to whether or not they had SEN and the level of aspirations held by their carers. This is shown in Figure 7, below.

Figure 7: School performance trajectories of children by SEN and level of carer aspirations



As the figure shows, children without SEN and whose carers have high aspirations have higher starting trajectories, although these appear to taper off over

the four time points. Children with SEN whose carers have low aspirations have poor school performance trajectories. There appears to be little difference between the two groups in the middle. However, this figure clearly suggests that children whose carers have high aspirations have better school performance than those whose carers have average or low aspirations. This analysis tests whether these differences are significant.

To avoid further reducing power, no covariates were included in any model. However, only emotional and hyperactivity problems were significant in the single group model and these estimates were very small (see estimates in Table 31). Therefore, the addition of these variables as covariates would be unlikely to substantially affect the overall result.

The first row of Table 35 includes the model fit and cross-lagged estimates from research question 3 for comparison with the findings of the current analysis. The Table then presents the model fit for each of the four models listed above, as well as the regression estimates of the cross-lagged paths in each model. Note: in model 3 the estimates are constrained to be equal so they are the same for the sample of children with SEN and children not identified SEN.

Table 35: Model fit and regression estimates for cross-lagged paths between carer aspirations and school performance for each model

	Chi-square (df), *p*-value	CFI	TLI	RMSEA	SRMR	Cross-lagged paths carers' aspirations to school performance	Cross-lagged paths from school performance to carers' aspirations
Model in research question 3	492.81 (256) $p < .001$	.971	.965	.037	.50	T2 on T1: .110 $p = .001$ T3 on T2: .169 $p < .001$ T4 on T3: .255 $p < .001$	T2 on T1: .161 $p < .001$ T3 on T2: .137 $p < .001$ T4 on T3: .134 $p < .001$
Model 1a (SEN only, $n = 427$)	270.65(154) $p < .001$	.969	.962	.042	.057	T2 on T1: .160 $p = .008$ T3 on T2: .239 $p < .001$ T4 on T3: .266 $p < .001$	T2 on T1: .114 $p = .001$ T3 on T2: .082 $p = .005$ T4 on T3: .066 $p = .010$
Model 1b (no SEN, $n = 231$)	193.57(111) $p = .017$	.984	.980	.033	.060	T2 on T1: .117 $p = .001$ T3 on T2: .146 $p < .001$ T4 on T3: .232 $p < .001$	T2 on T1: .124 *(ns)* T3 on T2: .150 $p = .019$ T4 on T3: .246 $p < .001$
Model 2 (SEN grouping, parameters freely estimated)	475.79(314), $p < .001$	.974	.964	.040	.059	SEN: T2 on T1: .167 p =.007 T3 on T2: .248 p <.001 T4 on T3: .275 p <.001	SEN: T2 on T1: .110 p =.001 T3 on T2: .080 p <.001 T4 on T3: .063 p =.010
						No SEN: T2 on T1: .112 $p = .005$ T3 on T2: .141 $p = .002$ T4 on T3: .227 $p < .001$	No SEN: T2 on T1: .124 *(ns)* T3 on T2: .153 $p = .019$ T4 on T3: .250 $p < .001$
Model 3 (SEN grouping, parameters constrained)	486.57(320), $p < .001$	.973	.968	.040	.063	T2 on T1: .132 $p < .001$ T3 on T2: .178 $p < .001$ T4 on T3: .256 $p < .001$	T2 on T1: .112 $p < .001$ T3 on T2: .092 $p = .001$ T4 on T3: .094 $p < .001$

The Satorra-Bentler chi-square difference test produced a value of 2.03, with 3 degrees of freedom. Chi-Square Table of critical values indicated that this is not significant at the $p < .05$ level. This means that model 3 was not a significant improvement on model 2 and therefore that the interaction of SEN and carer

aspirations was not significant. This means that the effect of carer aspirations on school performance is not significantly different for children with and without SEN. This suggests that high carer aspirations is a risk-based protective factor but not an interactive protective factor. This contrasts with the findings of the bivariate analysis. The discrepancy may have occurred for a number of reasons; for example, in the growth model the inclusion of four time points, instead of just one in the bivariate analysis, may add greater precision to the model. But, low power means the results may not be reliable. However, the important finding in this analysis is that carers' aspirations appear to be a protective factor for the school performance of SEN children.

In summary, this analysis found that:

- High carer's aspirations are associated with future school performance outcomes for children in care with SEN, therefore making it a risk-based protective factor
- The interaction between high carers' aspirations and SEN did not appear to be significant in the multivariate model, therefore high carers' aspirations is not an interactive protective factor.
- The analysis may lack power, therefore this analysis is considered exploratory.

6.5 Sensitivity analyses

6.5.1 Missing data

A number of sensitivity analyses were carried out with respect to missing data patterns and for both outcomes:

- A complete case analysis (using listwise deletion)
- Missing values on the educational outcome were replaced with zero, to represent the lowest score (0-imputation),
- An analysis using all the data available and full information maximum likelihood (FIML)
- Multiple imputation (MI).

FIML and MI are considered state of the art strategies for dealing with missing data (see methodology Chapter 5); the estimates presented in this chapter emanate from analyses using FIML. The estimates produced using FIML and MI were identical, which was expected as no auxiliary variables were used for imputation. When listwise deletion or 0-imputation were used, the estimates were slightly different but not so important as to change the interpretation of the results. That is, high carer aspirations still predicted better school performance at the level of the intercept but not the slope and likewise with low carer aspirations.

6.5.2 Placement changes

During the four years of the study time frame, 180 young people changed placement. Aspirations may be associated with the quality of the relationship between the carer and the young person, or the length of time they have known each other. Therefore, I conducted sensitivity analyses to examine whether changing placement

significantly altered the model results. These found that changing placement during the course of the study did not significantly moderate the relationship between carers' aspirations and school performance.

6.5.3 Unequal time lags between assessment time points

The time lag between the various assessments was not identical for every young person, nor was it necessarily the same year on year. Therefore I conducted sensitivity analyses which controlled for each time lag (between time 1 and time 2, time 2 and time 3, and time 3 and time 4). Including time lags in the model did not alter the model results.

6.6 Study Two summary

The objective of Study Two was to identify protective factors for children in care and focused on carer involvement for children in long term kinship or foster care.

Research question 1 showed that carers appear to be quite involved in the education of children they support. However, only carer reported importance of getting good grades and aspirations were associated with school performance in cross-sectional and longitudinal correlations.

Neither carer involvement variables predicted accelerated growth or decline of school performance over time. However, both carer involvement variables predicted the level at which school performance trajectories started; although this time point is

not particularly meaningful as it represents the beginning of the study only, not, for example, entry into care. Moreover, carers' aspirations were both risk and promotive correlates at low and high levels, suggesting aspirations are important at any level. Therefore, research question 2 concluded that carer involvement was a promotive and risk *correlate*, but not a promotive or risk *factor*.

In the third part of the analysis, time-varying measures of carers' aspirations were added to the latent growth curve model to examine whether high aspirations were a promotive or risk *factor*. Study results showed that high carers' aspirations predicted future school performance outcomes even when past attainment is accounted for. School performance also predicted future carers' aspirations suggesting reciprocal effects between the two variables.

In the final research question, a moderation analysis using SEN was conducted. Results showed that high carers' aspirations acted as a risk-based protective factor but not an interactive protective factor. However, this analysis likely lacked power and findings should therefore be considered exploratory. The significance of this analysis is that it shows that carers' high aspirations may make a difference for children in care who are at high risk of school failure: children with SEN.

Chapter 7. Discussion for Study Two

The findings of Study Two suggest that carers' high aspirations act as a protective factor for the school performance of children in care, including children with SEN. This chapter discusses and appraises these findings in light of the existing literature.

The research questions for this study were as follows:

1. How and how much are carers involved in the education of children in care?
2. Is carer involvement at time 1 a risk or a promotive *correlate* or *factor* for school performance trajectories?
3. Is time-varying carer involvement a risk or promotive *factor* for school performance?
4. Is carer involvement a risk-based or interactive protective factor for school performance of children in care with special educational needs?

First, I provide a short summary of the findings for each research question and discuss their significance in the light of the literature. Secondly, I appraise the internal validity of the study by examining its strengths and limitations. Thirdly, I examine whether the conclusions are externally valid, that is whether they can be applied to other contexts. Finally, I present the implications for research, practice and policy.

7.1 Summary and discussion of findings for each research question

Study Two analysed the nature of the relationship between carer involvement and school performance in a sample of 690 teenagers in care in Ontario. Young people were in foster or kinship care only and in care for four years continuously. This constituted the study period. There were slightly more boys (55.5%), most young people were in foster care (83%) for the duration of the study and just over 60% of young people had a special educational need. In this section, I summarise the findings for each research question.

7.1.1 Research question 1: How and how much are carers involved in the education of children in care?

This research question examined the ways in which foster and kinship carers were involved in the education of the children they foster. Overall, they appeared to be quite involved with children in care and hold high aspirations for them. This is in line with what previous studies of children in care have found in Canada (Cheung et al., 2012; Flynn et al., 2013), Australia (Wise et al., 2010) the USA (Kang, 2004) and in survey data from England (Wijedasa & Selwyn, 2011).

The first research question examined the available variables in the dataset, which described some aspect of carer involvement in education. Only those that had enough variation to analyse are presented here. The list of questions is detailed in the findings chapter (Chapter 6, section 6.1.2).

Missing data patterns, *t*-test results and correlations patterns suggest that as young people become older teenagers, carers are less involved in their education; a similar trend has been identified with children in the general population (Eccles & Harold, 1993; Hill et al., 2004; Hill & Tyson, 2009). Hill and Tyson (2009) argue that current research may not adequately capture how parents are involved with teenagers and that a conceptual framework should be developed to describe this. Carer involvement variables were not highly correlated, suggesting carer involvement, like parental involvement, is a multi-dimensional concept, capturing school and home-based involvement as well as academic socialisation (aspirations and values), as has been demonstrated in previous work (Desforges, 2003; Epstein & Dauber, 1991; Grolnick & Slowiaczek, 1994; Hill & Tyson, 2009; Nye et al., 2006).

Carers appeared to be less involved in the education of young people with greater difficulties, for example SEN or behavioural problems, The exception to this was that carers were involved in more school related activities with children who had SEN than were carers of children who didn't have SEN. This may reflect the greater needs of SEN children in school (Hornby & Lafaele, 2011). Carers were also more likely to be involved in school-based activities if children had been in that placement for a longer period of time. Otherwise, length of time in care was not associated with carer involvement. This is surprising as it might be expected that carers become more involved the more they know young people.

Of the carer involvement variables, only carer-reported importance of getting good grades and carers' aspirations were correlated with school performance at T1 or T4. Help with homework, whether reported by the young person or the carer was not associated with school performance. This echoes past research, which found that

carers’ support with homework did not predict better educational outcomes for teenagers (Burley & Halpern, 2001; Tilbury et al., 2014; Wise et al., 2010), unlike for younger children (Roy & Rutter, 2006). This moderating influence of age is apparent in the general population too (Hill & Tyson, 2009). This suggests that help with homework may be less effective with teenagers and that this may not be a developmentally appropriate measure of parental involvement with these young people. Hill and Tyson (2009) have suggested that help with homework may be negatively correlated with outcomes if parents are more inclined to help children who experience difficulties in school. On the other hand, children who do well in school may be easier to support with homework help. The lack of a correlation may reflect this dual relationship with outcomes.

The study also found that school-based involvement of carers was not significantly associated with school performance, whether examining involvement versus no involvement or the amount of involvement in school-based activities. This finding is in line with previous research on children in care (Cheung et al., 2012; Flynn et al., 2013; Wise et al., 2010) and children in the general population (Castro et al., 2015; Jeynes, 2007). Evidence from qualitative research with children in care shows that carers’ involvement in school is important, but descriptions of effective support reflected the specific needs of children in care in schools: carers need to be able to advocate for children, they need specialised knowledge and must be able to communicate sensitively to school staff about children (Jackson et al., 2005; Rana, Johnson, Bates, Qin, & Saltarelli, 2012; Strolin-Goltzman et al., 2016; K. Wright, 2013). Like evidence on help with homework, research with children in care (Flynn et al., 2013) and children in the general population (Hill et al., 2004) provides some

evidence that the relationship between school-based involvement and school performance may also be moderated by age; older children do not seem to benefit from parents' or carers' school-based involvement. Research has suggested that this may be because parents (or carers) may choose to be less involved if they feel that teenagers are or should be more independent, they may feel less confident with academic materials adolescents are working with, or young people may not want their parents (or carers) to attend school (Desforges, 2003; Eccles & Harold, 1993; Hill et al., 2004).

Additionally, foster carers may face additional barriers to school-based involvement by virtue of their status as a carer: they may not have information about the children's educational history, may not be included in decisions by children's services or the school about children's education and finally, carers may lack specialised knowledge about the rights and entitlements of children in care which would allow them to advocate effectively (Boffey & Thomas, 2015; Harker et al., 2004; Whenan, Oxlad, & Lushington, 2009). Furthermore, evidence suggests a link between carers' lack of confidence about how to support children in school and the school performance of children (Wise et al., 2010). Therefore, the finding from this thesis does not suggest that carers should not be involved in school, but rather underscores the need for future research which explores effective strategies for school-based involvement of carers.

Finally, carer reported importance of getting good grades and carers' aspirations, termed academic socialisation by Hill and Tyson (2009), were both correlated with school performance; this reflects past studies with children in care (Cheung et al., 2012; Flynn et al., 2013; Kang, 2004; Tilbury et al., 2014; Wise et al., 2010) and

children in the general population (Castro et al., 2015; Fan & Chen, 2001; Hill & Tyson, 2009; Jeynes, 2007). Other indicators of academic socialisation, such as talking with children about school and about their future did not predict school performance. However, talking with young people about their plans for the future was positively correlated with carer reported importance of getting good grades and aspirations.

It was surprising to find that most carer involvement variables were not associated with school performance. Some of these findings echo research with children in the general population, as outlined above. The results of this analysis may therefore suggest that carers' involvement in the education of children they foster is similar to parental involvement for children in the general population: certain strategies, such as helping with homework, are not associated with children's attainment (Hill & Tyson, 2009; Walker et al., 2004). Indeed, this may be all the more true with children in care, as their academic difficulties are protracted and all the more challenging to affect (Stone & Zibulsky, 2015). Hill and Tyson (2009) also suggest that current measures of parental involvement are not developmentally appropriate for measuring what parents do with teenagers and the ways in which this is or isn't effective. As reviewed in the methodology section the instrument used for the present study uses similar questions to previous studies on children in care and children in the general population (see methodology Chapter 5). So perhaps, as Hill and Tyson (2009) suggest, the questions would not be suitable to capture carers' involvement in the education of teenagers. This may be the case with questions on school involvement and help with homework as these activities may be less relevant for

teenagers. However, at T1 young people in the study sample were aged 10 to 14 years old. So they are still on the cusp between childhood and adolescence.

There were several significant challenges to exploring carer involvement in depth in this study: several questions pertaining to carer involvement yielded data with no variation, risk of bias was high across the questions and the perspectives of important stakeholders in children's education, including teachers, were lacking. This is discussed in more detail in the section below on internal validity (see section 7.2). This suggests that questions in the research tool are therefore not optimal to understand carer involvement. Indeed, this is not its primary purpose. However, I argue that in order to understand what carers do to support the education of children they foster, a new theoretical framework should be developed. Furthermore, appropriate measures should be developed to capture what is done and the ways it is linked to school performance. This is discussed further in section on the implications for research (section 7.4.1).

7.1.2 Research question 2: Is carer involvement at time 1 a risk or a promotive *correlate* or *factor* for school performance trajectories?

This question investigated whether academic socialisation, here carer aspirations and carer reported importance of getting good grades, act as a risk or promotive variable for school performance. Detailed definitions of risk and promotive correlates and factors are provided in Chapter 2 (table 3). To do this, first I examined bivariate cross-sectional (to identify correlates) and longitudinal (to identify factors) associations between academic socialisation and school performance. Secondly, I

estimated the direct effects of academic socialisation on school performance trajectories using a conditional latent growth curve model. Both predictor variables, representing academic socialisation, were trichotomised (into low, average or high) so that the relationship between low levels and high levels of academic socialisation, and school performance could be examined, and thus determine whether academic socialisation acted as a risk or a promotive variable.

Bivariate analyses showed that high carer aspirations (aspirations for higher education) were a promotive correlate and a promotive factor for school performance. Low aspirations (finish school, undertake an apprenticeship or don't know) were also both a risk correlate and factor for school performance. Results were similar for carer reported importance of getting good grades.

In the growth model, high carer aspirations predicted higher starting trajectories (the model intercept), after controlling for gender, SEN and SDQ subscale scores. Low aspirations also predicted lower starting trajectories; both relative to a middle category (aspirations for further education). However, neither variable predicted the model slope (the rate of change), suggesting that T1 aspirations did not predict accelerated growth (or rapid decline) in school performance. Therefore in this multivariate model, aspirations acted as a risk and promotive correlate only. Regression estimates suggested a small to medium effect size of .20 (and .40 before controls) and comparable to what previous studies have found (Cheung et al., 2012; Flynn et al., 2013; Wise et al., 2010). Carer reported importance of getting good grades was also associated with the model intercept (starting point of the trajectory) but only when this was low ("not important at all" or "somewhat important"). Carer importance of getting good grades did not predict the model slope, again suggesting it

is not associated with accelerated progress (or decline). Effect sizes were slightly smaller than they were for aspirations.

As described above other research has identified consistent cross-sectional associations between carers' aspirations and school performance (Cheung et al., 2012; Flynn et al., 2013; Kang, 2004; Tessier et al., 2018; Tilbury et al., 2014; Wise et al., 2010), with effect sizes varying from ES = .20 to ES = .55. Few longitudinal studies have been carried out. One study included two time points and controlled for prior performance; this therefore examined progress (although it did not account for individual change) (Flynn et al., 2013). In this study, caregivers' aspirations were a significant predictor of school performance progress, but not average marks (one year lag). This sample included children in residential care however, where caregivers may change and questions about aspirations may be harder to capture. In Tessier et al. (2018) higher caregivers' aspirations predicted better school performance three years later. However, this was no longer significant when young people's mental health and internal developmental assets were accounted for. Internal developmental assets reflects young people's commitment to learning, positive values, social competencies and positive identity (Search Institute, 2017). Young people's educational aspirations were not significant but this may be because of the overlap between this variable and internal developmental assets. Few studies have used growth models to examine carer involvement and educational outcomes. Pears et al. (2012) found that carer support (defined broadly) predicted the rate of change but not the intercept for girls in care during the transition from primary to secondary school. In these three longitudinal studies caregivers' aspirations were significant predictors of progress.

This result therefore confirms the critical role carers play in supporting children's academic success, as identified in previous research. Moreover, it showed that academic socialisation, particularly aspirations, is an important predictor of future school performance at every level; this mirrors the findings from research on children in the general population (Hill & Tyson, 2009). However, this model showed that carers' aspirations are a promotive correlate, but not a promotive factor, as there was no relationship with the rate of change in the model. This means that carers' aspirations did not predict progress over the four years of the study.

The model presented for this research question is limited in that it cannot indicate the direction of the relationship between academic socialisation and educational outcomes. Therefore, the next research question expended the statistical model of research question 2, by adding repeated time varying measures of carer aspirations to examine the temporal relationship between carer aspirations and school performance more closely.

7.1.3 Research question 3: Is time-varying carer involvement a risk or promotive factor for school performance?

Research question 2 found that carers' high aspirations were a promotive correlate, but aspirations did not predict the slope. Therefore, I concluded from this analysis that it was not a promotive factor, as there did not appear to be a temporal relationship. It may be that carers' aspirations do not promote (accelerated) progress over time. Conversely, it may be unrealistic to expect carers' aspirations at one time point to predict school performance progress over the course of four years.

Research question 3 examined the relationship between carers' aspirations and school performance in more depth. To do this, time-varying measures of carers' aspirations were added to the model; this meant that the relationship between the two variables of interest could be analysed within a smaller time frame (one year, as opposed to progress over 4 years). Moreover, it allowed me to understand how this relationship develops over time and finally to consider the direction of prediction between carer aspirations and school performance. In so doing, this analysis used a different analytical strategy to explore whether time-varying carer aspirations are a promotive factor for school performance of children in care.

To do this, auto-regressive paths between time varying measures of carer aspirations and cross-lagged paths between high carer aspirations and school performance were added to the model of research question 2 (see Figure 4 Chapter 5). This model tested whether high carer aspirations predicted future school performance after controlling for school performance trajectories. It also tested whether school performance predicted future carer aspirations after controlling for past aspirations. Such a model allows us to understand the temporal relationship between aspirations and school performance better. The model also controlled for gender, SEN status and T1 SDQ subscale scores.

Bivariate analyses in the previous research question found that T1 carers' aspirations predicted T4 school performance. However, it is not clear that aspirations actually preceded the school performance outcome. Indeed, it may be the case that past school performance confounds the relationship between academic socialisation and future school performance. This would mean that when prior school performance is taken into consideration, the relationship between aspirations and future school

performance disappears, suggesting perhaps that parents or carers have high aspirations for children because they are already high achievers (Eccles, 2007; Kirk et al., 2011; Melkman et al., 2016). Thus a multivariate model with cross-lagged paths, as shown in Figure 4 (Chapter 5), was developed to test how aspirations and school performance develop in relation to each other over time.

Model results indicated significant cross-lagged paths in both directions, from carer aspirations to future school performance and from school performance to carer aspirations. The results suggest reciprocal effects between school performance and carers' aspirations. This was an observational, not an experimental study, therefore I do not assume a causal relationship between aspirations and school performance. I consider whether the relationship might be causal in section 7.2.3. However, the discussion below does not assume a causal mechanism. It was not surprising to see that school performance predicted carers' aspirations as aspirations for children are likely to be driven to a large extent by their past attainment. That school performance predicts carers' and parents' aspirations has also been documented in research (Eccles, 2007; Hill & Tyson, 2009; Kirk et al., 2011; Melkman et al., 2016).

The results also suggest that high carer aspirations predict future school performance even after controlling for past school performance and therefore that high carer aspirations act as a promotive *factor* for school performance of children in care. SEN and hyperactivity problems continued to predict the model intercept, whereas emotional problems were associated with the slope. In this model, SEN was also associated with the model slope, suggesting children with SEN make greater progress over time than children without SEN. However, as highlighted above, evidence from past research on the education of children in care to guide

interpretation of the findings in this thesis is somewhat limited. The next paragraphs explore how aspirations might work to promote better educational outcomes for children in care. To do this, I examine their unique circumstances drawing on some resilience research on children in the general population. This is important in order to move beyond just identifying variables which are associated with educational outcomes and focus on the specific underlying processes (Luthar, 2006; Luthar & Cicchetti, 2000; Rutter, 2000b).

Many young people in care grow up in environments that are detrimental to their intellectual development (as well as other developmental domains). Indeed, their early life experiences are often characterised by neglect and maltreatment and chaotic lifestyles which impact on cognitive development and later on school performance outcomes (Cicchetti & Toth, 2015; Dodge & Pettit, 2003; Eckenrode et al., 1993; Eckenrode & Rowe, 1995; Goemans et al., 2016; Kendall-Tackett & Eckenrode, 1996; Leiter & Johnsen, 1994; Shonk & Cicchetti, 2001). Moreover, poor parenting means children may not be supported to read or develop crucial study skills to enable them to get on in school (Brooks-Gunn & Markman, 2005; Cicchetti & Toth, 2005; G. J. Duncan et al., 2007; Hill, 2001; Hill et al., 2004; Masten et al., 2005). Equally, they may not develop the appropriate emotional responses to deal with academic challenges all children face in school (Cicchetti & Toth, 2015; Hill, 2001; Raver, 2003).

The transition from life with the birth family to a care placement may therefore alter the course of children's negative developmental pathways, including with respect to school readiness, attainment and educational resilience in general. For example, research on the aetiology and consequences of child maltreatment suggests

that the problems maltreated children experience in school can be traced to a central problem: their over concern with security and safety (Cicchetti & Toth, 1995, 2005). Researchers argue that children's feelings of insecurity, which may affect their mental health or manifest as behavioural problems, are a causal mediator from maltreatment to school adaptation. So, if children are provided physical and emotional safety through a foster or kinship care placement, this may disrupt the pathway from early adversity to poor educational outcomes. Indeed, in research on Romanian adoptees in England, young people who were removed from environments of extreme neglect at a young age and subsequently placed in stable families have shown few cognitive sequelae in adolescence and young adulthood, when matched to UK controls. However, other problems persisted (attention and overactivity) or emerged (emotional problems) during this time, particularly for those who were adopted after 6 months of age (Rutter et al., 2007; Sonuga-Barke et al., 2017). Clearly this is not the case for all children in care as research demonstrates that on average young people in care lag behind their peers in education (Stone & Zibulsky, 2015; Trout et al., 2008). However, recent evidence suggests that entering care may yield better outcomes than if the same children had remained with their birth parents (O'Higgins et al., 2015). Qualitative research has also recorded children's positive experiences of being in care and their view that the contrast between chaotic home environments with their birth parents and relatively secure care placements had positively contributed to their educational progress (Acoff, 2014; Berridge, 2017; Harker et al., 2004).

In other studies young people noted that the safety and stability of a placement was a critical factor in their academic success (Harker et al., 2003; Hass et al., 2014; Hines et al., 2005). This is particularly relevant for the young people in the present

sample who were in care continuously for at least four years; the majority were also in the same placement. In a longitudinal follow up of a sample of teenagers in care, Harker et al. (2004) also found that some young people didn't immediately understand or benefit from the safety of a placement in care. For example, some participants said that it took several years to see gains in their education as a result of the stability and care offered by a placement. This lends some weight to the findings from the present thesis which saw cross-lagged estimates increasing over time. However, 180 young people (26% of sample) were not in the same placement through the course of this study. Sensitivity analyses showed that changing carer during the course of the study did not significantly moderate the relationship between carers' aspirations and school performance. This echoes findings from Harker et al. (2004) in which young people said that placement changes did not necessarily affect their school performance provided they were well managed and carers continued to provide high levels of academic support. Therefore, placing children who have experienced significant adversity in safe and stable placements may already play an important role in promoting better school performance.

Qualitative research on children in care has also documented the singular role of carers' aspirations in children's education. Indeed, across the 13 qualitative studies identified in a systematic search of parental involvement for school performance of children in care for this thesis (see Chapter 4), a clear narrative emerged: to succeed, young people in care need someone who believes in them (Acoff, 2014; Harker et al., 2004, 2003; Jackson et al., 2005; Jackson & Cameron, 2010; Mendis et al., 2015; Morton, 2016; Rios & Rocco, 2014; K. Wright, 2013). In all these studies, young people stated that the most important contributory factor to their success was the

encouragement and support of a trusted adult, most frequently cited as the carer. Young people described carers who encouraged them to pursue education, set high standards, expected academic success and pushed them to do well in school.

Research on children in the general population finds that parental involvement and more specifically parents' aspirations communicates to young people the value of learning and may foster children's own engagement in school and education (DeFlorio & Beliakoff, 2015; Grolnick & Slowiaczek, 1994; Hill & Tyson, 2009; Rozek et al., 2017). Some research also suggests that parental involvement and high aspirations are associated with higher self-esteem self-efficacy in children (Eccles, 2007; Grolnick & Slowiaczek, 1994). These studies suggest that greater involvement conveys to children they are worthy of investment, boosting the development of self-belief which is critical to school engagement and ultimately, school success.

Findings from other studies also suggests that parents who hold high aspirations for their children are likely to be more involved in their education in other ways (Pomerantz et al., 2007). Correlation patterns (see Chapter 6, section 6.1) from this thesis suggest that this may be the case; carers may also be involved in the education of children in ways that are not captured by the assessment tool. Therefore, the relationship between carer aspirations and school performance may also reflect the influence of other aspects of increased parental involvement. However, in a sample of children in care, Kang (2004) found no evidence that the relationship between carers' aspirations and children's school performance was mediated by carer involvement.

Finally, in a critical review of the literature, Pomerantz et al. (2007) argue that positive parental involvement, including high aspirations, positive perceptions of a child's abilities, positive affect and a focus on processes and effort rather than ability

only, fuels a child's effort and in turn enhances their achievement. The authors also argue that children with a history of poor academic experiences may be particularly at risk from parental involvement which is characterised by controlling behaviours, negative affect or negative beliefs about the child's ability. They contend that positive parental involvement therefore may foster greater gains among academically vulnerable young people than among those who are not (Pomerantz et al., 2007). Such carer attitudes and behaviours are likely to be of critical significance to young people in care if they did not experience academic support from their birth parents. Indeed, this is what findings from qualitative research suggest.

Further qualitative evidence from research on children in care suggests that carers' aspirations may be associated with better future school performance because high aspirations may play a role in regulating children's behaviour (Harker et al., 2004, 2003). The detrimental relationship between behavioural problems, in particular conduct and hyperactivity and inattention problems, and educational outcomes has been well established (Frazier, Youngstrom, Glutting, & Watkins, 2007; Merrell, Sayal, Tymms, & Kasim, 2017). Research has also demonstrated that the prevalence of behavioural problems in children in care is high (Garland et al., 2001; Goemans et al., 2016, 2015; McMillen et al., 2005) and that this hinders their ability to make progress in school (Biederman et al., 2004; Frazier et al., 2007; Loe & Feldman, 2007; Scherr, 2007; Shaw et al., 2012; Stone, 2007; Trout et al., 2008). This is reflected in the current study, in that young people who had behavioural problems as measured by the SDQ had significantly worse school performance; indeed T1 SDQ scores on all four subscales correlated negatively with school performance at every time point (see findings Chapter 6).

If greater carer involvement can indeed attenuate behavioural problems, this could explain why higher aspirations predict better future school performance outcomes. This has been tested in models with children in the general population (Desforges, 2003). Reviewing several studies, Desforges (2003) argues that parental involvement which communicates interest in and commitment to children can have a positive effect on children's behaviour and school performance, even after other variables such as socio-economic status and family size are accounted for. This effect was stronger for younger children however. A number of studies not included in the review by Desforges (2003) examine the mediating role of behaviour for teenagers.

For example, Hill et al., (2004) examined the association between parental involvement, behaviour and school outcomes in a sample of young people age 12 to 15. They found that greater parental involvement at age 12 was associated with fewer behavioural problems (aggression, inattention and social problems) at age 13, which in turn was linked with higher school achievement at age 15. However, the indirect mediation path was not tested, so it is not clear that lower behavioural problems mediated the relationship from parental involvement to school performance. Nokali, Bachman and Votruba-Drzal (2010) examined within- and between-child associations between parent involvement and academic and socio-emotional trajectories for 1364 children. While this study found no effect of broadly defined parental involvement on school performance, there were significant effects of parental involvement on children's socio-emotional well-being. McNeal (1999) found that greater parental involvement was associated with lower school behavioural problems, such as truancy, two years later. While this is also a plausible, but untested, mechanism for the sample in this thesis, the effect in McNeal (1999) varied such that it only appeared to work

for families that were well off, white American and two parent households. Finally, research has documented evidence of reciprocal effects between parenting styles and behavioural problems (Dodge & Pettit, 2003) as well as between behavioural problems and academic outcomes over time (Masten et al., 2005); the suggestion from the results of the thesis and these findings of these studies is that there may be reciprocal effects between parental involvement, behavioural problems and school performance.

Quantitative studies on the education of children in care have not tested these relationships but available correlation tables suggest that higher aspirations are associated with lower behavioural problems (see for example Flynn et al., 2013). However, while the findings above suggest that greater involvement decreases behavioural problems, it is not clear that the relationship does not in fact work the other way around, that is, carers have lower aspirations because children have behavioural problems. The model in the current study controls for T1 behavioural problems, but rates and severity of behavioural problems change over time, particularly during adolescence (Bevilacqua, Hale, Barker, & Viner, 2017; Dodge & Pettit, 2003). In order to fully examine the effect of behavioural problems, time-varying measures of behavioural problems are required. This should be investigated in future research to understand possible mechanisms by which parental involvement helps children do better in school.

In light of this evidence, I propose that for many children, being in care may afford them security and stability conducive to positive adaptation and development; carers' high aspirations are a reflection of their commitment to the children they foster, and their education, and that, through various pathways, this may promote

better school performance outcomes. However, successfully reducing behavioural problems in teenagers, particularly those who have conduct disorders, is difficult (Bevilacqua et al., 2017; Fonagy et al., 2018). Therefore, this proposition needs to be tested in future samples if it is to be given any weight. Moreover, the study suffers from a number of limitations which cast doubt on this argument. This is explored further in section 7.2.2.

7.1.4 Is carer involvement a risk-based or interactive protective factor for school performance of children in care with special educational needs?

This research question considered whether carer aspirations are a risk-based protective factor or an interactive protective factor for the school performance of children in foster or kinship care with special educational needs. In other words, this analysis examined whether carers' high aspirations predicted better future school performance as it did in the previous analysis for all children in the sample. I did this using a two group modelling strategy. Model results indicated that the model held true for children with SEN, suggesting carer aspirations are a risk-based protective factor for the school performance of children with SEN. The SEN variable did not moderate the model however; meaning estimates were not significantly different for SEN and children without SEN. Therefore, carers' aspirations were not an interactive protective factor. However, it is likely that this analysis was not sufficiently powered in order to detect an effect. Therefore, this finding is not given undue weight. Here, I examine the possibility that carers' high aspirations are associated with better school

performance for children with SEN, that is, that aspirations are a risk-based protective factor.

Only one study examining carer involvement and aspirations for SEN children in care was identified in the literature. In contrast to the present study however, Kang (2004) found that carers' high aspirations were associated with better reading (but not maths) performance only for children who didn't have SEN. In that analysis, lower aspirations (compared to average or high aspirations) predicted worse school performance, whereas the effect of high aspirations (yes or no) was not significantly associated with reading outcomes. Moreover, this study was cross-sectional and may have lacked power to detect an effect among SEN children, who were a small subgroup of the study sample (n = 88). The SEN variable in the study was also defined differently, as it included children with a "learning disability, behavioral/emotional disability, educable mental handicap, severe/profound mental handicap, hearing impairment, visual impairment, other health impairment, physical handicap, trainable mental handicap, deaf/blind, speech/language impairment, autistic, traumatic brain injury, and partially sighted" (Kang, 2004, pp. 40–41). This may also explain the difference with the present study's findings.

Studies of children with learning disabilities in the general population find that many parents have aspirations for post-secondary education, particularly for young people with mild or moderate learning disabilities who are more likely to be schooled with peers who are not disabled (Camarena & Sarigiani, 2009). Nevertheless, the finding that carers' aspirations predict better school performance for children with SEN was surprising and is therefore explored here.

In the first instance, I considered the qualities of the SEN variable for this study to determine whether the findings are a reflection of poor validity. As described in the methodology chapter, the SEN variable was computed by identifying young people whose social worker listed at least one long-term condition, from the following list[16]:

- attention deficit disorder (ADD),
- “learning disability”
- “developmental difficulties”,
- foetal alcohol spectrum disorder (FASD)
- cerebral palsy.

These terms, used to capture the special educational needs of children, are somewhat vague and broad. These are not defined in the questionnaire and, “learning disability” and “developmental difficulties” do not reflect specific conditions. Therefore, it is not clear that the questions are interpreted in the same way by all respondents and that answers represent the same construct or condition across all young people. There is likely to be wide variation of difficulties among the SEN group of young people. That aside, intellectual disability is broadly characterised by “significant limitations both in intellectual functioning and in adaptive behaviour as expressed in conceptual, social, and practical adaptive skills” (Schalock et al., 2007,

[16] The question in the questionnaire is as follows: LONG-TERM CONDITIONS: In this question "long-term conditions" refer to conditions that have lasted or are expected to last 6 months or more and have been diagnosed by a health professional. Does ... have any of the following long-term conditions? The list has 16 possible options which include physical health ailments (see AAR in Appendix P).

p. 118). Severity varies; while this may be reflected in the above categories (developmental disability versus learning disability) the variable constructed for the purposes of this analysis does not.

Secondly, while the special educational needs category in the USA, Canada and England generally includes behavioural and emotional difficulties, SEN children in this study were identified from the above categories only. Children were not identified as SEN if their carers selected “emotional, psychological, or nervous difficulties”, from the list of long term conditions in the questionnaire. Emotional and behavioural difficulties were captured with greater specificity by the SDQ subscales score. However, as expected, there was substantial overlap between behavioural problems, as measured by the SDQ, and SEN. For example, the correlation between having SEN and hyperactivity scores was $r(655) = .493$ ($p < .001$).

Thirdly, while the SEN variable in OnLAC is reported by the social worker, other variables in the dataset can be used to triangulate the data. For example, one question asks whether the young person has been “assessed for possible learning-related difficulties (ADD / learning disability / unsatisfactory progress / FASD)”; this found that on average 95% of young people identified with SEN had in fact been assessed. This increases our confidence in the reliability and validity of the SEN variable in this study.

The implications then are as follows: the SEN variable captures a broad variety of learning related needs in the sample, which obscures information about severity. However, triangulation of the data suggests it has some validity and therefore that the SEN variable is a marker of children’s academic difficulties. How might aspirations promote better school performance for children with SEN then?

First of all, the finding may be related to the data. Indeed, young people with SEN start off with significantly lower scores, as described in the first three research questions. For this reason, they have more scope for progress over the course of the study. The school performance measure is not particularly sensitive and there is not a huge amount of variance. So, for children who don't have SEN, there may be a ceiling effect and therefore the outcome measure may not be able to adequately capture any progress, if indeed they make any progress at all. Therefore, the model may only be able to capture progress of children with SEN and not children who don't have SEN. The model in this analysis supports this hypothesis: in the SEN group, the mean slope parameter showed that the SEN group made progress over time, whereas this was not significant in the group of young people who didn't have SEN.

A second point related to the data concerns the sample sizes. Raw data shows that few young people with SEN had carers with high aspirations, $n = 65$ (10.4% of study sample) at T1, decreasing year on year to 39 (6.4%) at T4. Therefore, this analysis only concerns a small number of young people. Again, this highlights a potential lack of power, which may render the findings unreliable. For this reason, the finding is considered exploratory and should be replicated in further studies before it is given any weight.

If the findings do reflect a true effect, the young people in the sample of children with SEN may represent only those whose special educational needs are least severe. If aspirations work by regulating children's behaviour, higher aspirations may be particularly important for children with SEN as they have higher scores on assessments of behavioural problems. Where children have special educational needs

that are not behavioural aspirations are unlikely to have a dramatic effect. It is not clear from the data what the severity of SEN is in the sample.

Moreover, Hill and Tyson (2009) and Khattab (2015) argue that effective academic socialisation depends on parents' knowledge about how school works, the skills needed to be successful and opportunities available to children. Additionally, research shows that parents of young people who have SEN are likely to be more involved in their education, because their participation is required in the process of assessment, planning and implementation of support (Hornby & Lafaele, 2011). Therefore, the carers of SEN children may have access to more information and knowledge which empowers them and the children they support; this in turn may translate into higher aspirations and support to realise these aspirations. There is some evidence that this explanation holds in this sample, for example, carers were more likely to be involved in school-based activities if children had SEN, although this was a small effect ($t(494.09) = -2.46$, $p = .014$, at T1).

I now turn to considering the internal validity of the study, that is, its strengths and limitations.

7.2 Internal validity and limitations of the study

In this section, first I describe the strengths and limitations of the study and secondly, consider the internal validity of the study by using the Cambridge Quality Lists for risk factors.

This study has three noteworthy strengths. The first is the originality of the study, the second is the sophistication of the statistical approach and the third is the exhaustive analytical approach.

7.2.1 Strengths of the study

7.2.1.1 Originality and relevance of the study

This is one of the first longitudinal studies to focus exclusively on carer involvement for children in foster and kinship care and to identify promotive and protective factors for school performance. Its findings are also relevant to practice (see section 7.4.2 below).

First, a systematic search conducted for the literature review of Study 2 (see Chapter 4) identified 27 quantitative and qualitative studies on the relationship between carer involvement and school performance of children in foster or kinship care. To my knowledge no such systematic search (or review) has been carried out before. Given the unique circumstances of children in care it is important to understand how and whether carer involvement works to promote academic achievement. The findings from the included studies provide some insight into how carer involvement is conceptualised, measured and analysed. It suggests that there is no theoretical framework or measures specific to involvement for children in care and therefore highlights an important gap in the literature. For details see Chapter 4, section 4.3.

Secondly, the empirical analysis speaks to this gap in the literature by examining what carers do and specifically the role of carers' aspirations. As far as I have been able to ascertain this is the first study to use time varying measures of school performance and carers' aspirations simultaneously. Such analyses provide a far greater understanding than offered by previous studies of how these variables work together over time and ultimately elucidate some of the pathways underlying low educational attainment of children in care. In so doing, the study found that carers' high aspirations act as a promotive factor for children in foster and kinship care. Moreover, the finding held for children with SEN, that is carers' high aspirations also promote better school performance for children who have SEN. Carer aspirations therefore appears to be a risk-based protective factor for these children. These are important findings for future intervention research, see implications for research and practice, section 7.4 below.

7.2.1.2 Statistical approach

A second strength of this study is the sophistication of the statistical approach. This analysis is one of few to use prospective longitudinal data to examine the school performance of children in care; this is key to understanding how children's school performance develops over time. Such data are also necessary to identify promotive and protective factors. Longitudinal data analyses are difficult to carry out in this population, as attrition is high and children move in and out of care, further complicating modelling (Stone, 2007; Stone & Zibulsky, 2015). But as some of the

findings from this thesis demonstrate, results from cross-sectional analyses often differ substantially from those of longitudinal analyses. Yet current policies and practice tend to be informed by conclusions of cross-sectional analyses, as these dominate the field (Stone, 2007). The present analysis was made possible by the use of secondary data made available by the University of Ottawa, Canada.

Secondly, by examining the relationship between school performance and carer involvement using latent growth models, the analysis went beyond approaches that have been used previously in this field: linear and logistic regression, controlling for previous time points. In so doing, the analyses went beyond traditional techniques by modelling intra- and inter-individual differences in school performance as substantively interesting rather than as error variance. Additionally, by including time-varying measures of carer aspirations, its relationship with school performance over time was examined and high aspirations could be identified as a promotive factor for the full sample and a protective factor for children with special educational needs. The cross-lagged paths demonstrated that this relationship remained even after prior school performance was accounted for.

7.2.1.3 Exhaustive analytical approach

Exhaustive analytical approaches were used to optimise the data. First of all, while a significant weakness of the study – as discussed below – is the absence of standardised measures of educational outcomes, a number of steps were taken to address this. Two measures of school performance were used to make full use of

existing data including those provided by young people and social workers. This triangulated the data and may provide a more accurate estimate of children's school performance. The validity of the school performance measures was also tested in confirmatory factor analyses and longitudinal measurement invariance models before being entered into the latent growth curve model. Then, by modelling school performance as latent constructs, measurement error was minimised.

Secondly, missing data, common to longitudinal studies, was examined and analysed in substantial depth. Little's test suggested that the data was not missing completely at random. On this basis I assumed that data were missing at random. I analysed all models using both full information maximum likelihood and multiple imputation and found no difference between these approaches in the estimates produced. However, because it is not possible to determine the missing data pattern with absolute certainty, I could not rule out the possibility that the data was not missing at random. To explore this, I carried out a sensitivity analysis in which all young people with missing data on the educational outcomes indicators were assigned a zero, the lowest possible score. The assumption behind this analysis was that young people with missing data might not be entered for exams because of significant academic difficulties; this would meet the missing not at random assumption. I also examined model results using listwise deletion. The sensitivity analyses produced estimates that did not significantly alter the results.

This exhaustive approach strengthens the internal validity of the study, but this must be interpreted in light of the limitations.

7.2.2 Limitations of the study

The study has a number of limitations, grouped under the following three categories: the absence of certain variables for analysis, the quality of the data and limitations of the statistical approach.

7.2.2.1 Data available for analyses

The analyses were limited by the data available in the AAR. First of all, there is no data on children in the general population and as standardised measures of school performance are not available, no comparisons with the general population could be made.

Secondly, the AAR does not collect data on a number of variables, which may confound the relationship between school performance and carers' aspirations. Important variables highlighted in past research include the carers' level of education and socio-economic status, among others (Desforges, 2003; Hill et al., 2004; Hill & Tyson, 2009). Data on birth parents and early childhood experiences of children in care also play an important role in understanding their educational trajectories (O'Higgins et al., 2015; Stone, 2007), but the AAR does not record such data. Finally, the analysis would have benefited from data on the involvement in education of the child's social worker and teacher; research shows that the measurement of parental involvement is enhanced by multiple reporters (Pomerantz & Monti, 2007). However, until more research can clarify their role in children's education, this may be redundant.

7.2.2.2 Quality of the data

One of the main challenges of this analysis concerned the quality of the available data for analysis. Efforts are made by those who own and manage the dataset to improve the quality of the data, by reducing missing data, minimising entry errors and ensuring consistency across years, for example. However, this cannot make up for the shortcomings of the dataset. First of all, the data is not based on official social care or school records. Rather the tool is completed in a "conversational interview", that is, a discussion between the social worker, foster carer, young people and any other professionals involved in the child's life. Data are therefore at risk of bias, including recall and social desirability bias (Bryman, 2012). The risk of social desirability bias may be particularly high as the questionnaire serves a triple purpose: to assess the needs of children, to monitor children's outcomes and to carry out research. These may conflict as the requirements of fostering may mandate certain behaviours. For example, one question asks whether "caregivers provide high levels of support". Yet, providing high levels of support is likely to be a key responsibility of the fostering role and carers may not feel able to honestly answer the question, if the answer isn't a confident yes. Unlike in other research settings, carers are not granted confidentiality thus potentially impeding their ability to answer questions openly. This may distort some of the analyses. While this disadvantage is likely to be

outweighed by the breadth and depth of the data collected, the findings of the analyses must be viewed through this lens.

Secondly, data on carer involvement was limited and its quality may have been compromised by social desirability bias or other biases, as discussed above. There is no standardised tool for measuring parental involvement however so this problem is common to research on parental involvement more generally (Hill & Tyson, 2009; Westmoreland et al., 2009). Relative to previous research, this study also considered a broad range of data on the involvement of carers in the education of the children they foster (Cheung et al., 2012; Flynn et al., 2013; Tilbury et al., 2014; Wise et al., 2010). However, this data may not be sensitive enough to capture what foster carers do, as well as the frequency and intensity of their involvement. This highlights the urgent need for more research in this domain.

Finally, with the exception of the Strengths and Difficulties Questionnaire, there were no validated or standardised assessment tools in the AAR questionnaire. This may limit the validity and reliability of the data and analyses. This is particularly of concern for the school performance measures, which were reported by the carer (and young person and social worker) and described average performance in certain key subjects, rather than marks or exam scores. However, as a number of other studies have used similar data to record school performance the findings of the present study can be compared to others (Cheung et al., 2012; Flynn et al., 2013; Pears et al., 2015; Tessier et al., 2018). While there has been very little debate on the most appropriate educational outcome measures for research with children in care (Stone, 2007), the data used for this thesis is at risk of significant bias; the data may also suffer from

inaccuracies. Future iterations of the AAR should consider including standardised assessment tools or school records.

7.2.2.3 Limitations of the analytical and statistical approach

The analysis was also limited in scope to meet the requirements of the doctorate; some analyses were therefore outside the scope of the research questions. However, other variables available in the AAR may play an important role in explaining the school performance of children in care, including children's behaviours, attitudes to education and aspirations. Peers and social networks may also play an important role, particularly for teenagers (Harker et al., 2004).

Secondly, only one domain of resilience, educational achievement, was modelled in this study. However, other important domains may be equally, if not more, important to children, as well as to carers or social workers. These may include good mental health, placement stability or permanence for example (Clemens, Helm, Myers, Thomas, & Tis, 2017; Dickson et al., 2010). Moreover, while children may show resilience in one area they may in fact lack resilience another (Luthar, 2006; Schoon, 2006). It may also be the case that while carers' high aspirations encourage educational resilience, if it puts young people under undue pressure, their mental health may suffer (Clemens et al., 2017). The literature review highlighted the significance of educational achievement for future outcomes of children in care as well as the importance children in care assign to education. In the light of this

evidence and given the scope of the DPhil, it is therefore considered appropriate to focus on one domain only.

In terms of the statistical approach the key variables of interest in the analyses – school performance, carers' aspirations and behavioural problems – were all reported by the same person: the carer. This means higher correlations between the variables are more likely. This may bias the results towards positive results. Parameter estimates were very similar when the second outcome – which includes information from young people and the social worker – was used. However, this remains a significant limitation of the analyses.

I now turn to examining the strength of the study's conclusions using the Cambridge Quality Checklists. These propose a scoring system for risk factors and causal factors. I adapt these in so far as I use them to appraise promotive factors.

7.2.3 Appraising the study's conclusion that carers' high aspirations are a promotive factor

The Cambridge Quality Checklists propose a scoring system for risk factors (see Table 36 below). This checklist is scored such that each study feature is awarded either a score of one if the study has this feature or zero, if it doesn't.

Table 36: Cambridge Quality Checklist for Risk Correlates and Factors

Risk correlate and factor Checklist (score out of 8)
Adequate sampling method **1:** Total population sampling or random sampling 0: Convenience sampling or case–control sampling
Adequate response rates **1:** Response and retention rates ≥70% and differential attrition ≤10% 0: Response rate <70% or retention rate <70% or differential attrition > 10%
Adequate sample size **1:** Sample size ≥400 0: Sample size <400
Good measure of correlate 1: Reliability coefficient ≥.75 and reasonable face validity or criterion or convergent validity coefficient ≥.3 or more than one instrument or information source used to assess correlate **0:** None of the above
Good measure of outcome **1:** Reliability coefficient ≥.75 and reasonable face validity or criterion or convergent validity coefficient ≥ 0.3 or more than one instrument or information source used to assess outcome 0 None of the above
Data type **3:** longitudinal prospective and correlate precedes the outcome 2: longitudinal retrospective and correlate precedes the outcome 1: cross-sectional data or retrospective data

I argue that the sampling method was adequate because it sampled all the young people in care who met the study criteria. This study feature affects generalisability and external validity and is discussed further in section 7.3 of this chapter.

The sample size for the study was adequate as it was relatively large. However, I was only able to calculate the models' power to detect a poor fitting model (Preacher

& Coffman, 2006). The response rates were adequate, as missing data was not so significant as to bias the results. Moreover, treatment of missing data was analysed in detail as described above. A significant limitation of the study was its lack of standardised or validated measures for carer involvement and school performance. The measure of aspirations was limited in that it was reported only by one question and therefore only by one person. However, the question was very similar if not the same as questions about aspirations asked in previous studies both of children in care and children in the general population (Hill & Tyson, 2009; Kang, 2004; Wijedasa & Selwyn, 2011; Wise et al., 2010). I argue that until better measures are developed, this measure should be deemed adequate. The same limitations and concerns apply to the school performance measure; however as discussed in detail in the methodology chapter and summarised above, a number of tests and analyses suggest that its validity and reliability were adequate. Finally, the data for the study was prospective and because the temporal relationship between the promotive factor and the outcome could not be determined with certainty, the model made statistical adjustments for this. Therefore, the total score for this analysis is 4 or 5 (the outcome measure meets the criteria of the checklist but because it is not a standardised measure of educational achievement, scoring 1 here is arguable).

Based on this checklist, I argue that, despite its limitations, this study scores highly on this checklist suggesting the evidence presented in this thesis demonstrating that carers' high aspirations are a promotive factor for children in foster and kinship care is robust. The Cambridge Quality Checklists also suggest avenues for assessing causality.

7.2.4 Are carers' high aspirations a causal promotive (or protective) factor?

Causal risk or protective factors are variables which can change and, when changed cause an increase or decrease in risk for the outcome. To establish whether such a factor is likely to be causal, it must correlate with and precede the outcome and exposure to the risk or protective factor must be shown to cause an increase or decrease in the outcome of interest (Murray et al., 2009). Kraemer et al. (2005) argue that causal risk factors "are the 'gold standard' of risk estimation—they can be used both to identify those of high risk of the outcome and to provide the bases for interventions to prevent the outcome".

Cross-lagged path models are often used as a method to explore causal pathways (Berry & Willoughby, 2017; Curran & Willoughby, 2003; Yoon & Brown, 2014). Studies using this study design then often infer causality when their findings are significant (see for example Hong, Yoo, You, & Wu, 2010). However, across the social sciences there is a general consensus that causality, including in risk and protective factor studies, is determined through robust experimentation, for example with randomised controlled trials (Kraemer et al., 2005; Murray et al., 2009). Some quasi-experimental designs can also support causal inferences (Gertler, Martinez, Premand, Rawlings, & Vermeersch, 2010). Therefore, the estimates of this study should not be interpreted as causal in nature.

Nevertheless, Murray et al. (2009) propose a checklist to guide appraisal of non-experimental studies of risk factors (which is also applicable to promotive factors). The checklist assigns a score out of seven to studies based on their ability to draw causal conclusions, where one is low evidence of causality and seven is a randomised

controlled trial targeting the risk factor, providing strong evidence of a causal relationship. The scale is reproduced in Table 37 below for readers:

Table 37: Cambridge Quality Checklist for Causal Risk Factors

Causal risk factor score (out of 7)	
1	Study without a comparison group No analysis of change
2	Inadequately controlled study No analysis of change
3	Study without a comparison group With analysis of change
4	Inadequately controlled study With analysis of change
5	Controlled non-experimental study No analysis of change
6	Controlled non-experimental study With analysis of change
7	Randomized experiment Targeting a risk factor

I argue that the score for this study is 4 out of 7. The present study investigated change over time and included both groups that were and weren't exposed to the promotive factor (not all young people had carers whose aspirations were high). The study also controlled for a number of variables, but there is likely to be substantial omitted variable bias. Indeed, past research has examined the role of other important variables such as parental level of education and socio-economic status which may also play a role for carers. However, previous studies have not found that either

variable was associated with carer involvement (see for example Kang, 2004). A number of other time-varying and in-varying variables may also confound the relationship such as children's aspirations and school related behaviours.

Finally, research on aspirations for children in the general population suggests that this relationship is not causal. For example, interventions which aim to change attitudes and raise aspirations have shown limited, if any, effect on educational outcomes (Cummings et al., 2012; Gorard et al., 2012; See & Gorard, 2013). Cummings et al. (2012) also found little evidence that aspirations mediated the relationship from parental involvement to school performance. In another systematic review of the evidence, Gorard, See and Davies (2012) highlight that the hypothesised mechanism linking aspirations to school performance is unclear and has yet to be evidenced by research. This casts doubts on the plausibility of a causal relationship between parental aspirations and school performance of children.

This study therefore provides some evidence that the relationship between carers' aspirations and school performance may be causal, however, as outlined in this discussion chapter, further research should be carried out using standardised measures and including data on the potential confounding variables suggested.

The next section examines the external validity and generalisability of the study.

7.3 External validity and generalisability

Here I consider whether the study has external validity and whether its findings can be generalised to young people in other contexts.

The sample of 690 youth in this study was as follows: they were aged 10 to 14 at T1, they were in care continuously between 2010 and 2013, they lived foster or kinship care only and they were all placed in Ontario, Canada. They were therefore not a random sample of young people in care. There were slightly more boys than girls, 17% were from first nations, Métis or Inuit backgrounds and nearly 60% had a special educational need. Assessing external validity means exploring whether the findings are generalisable or applicable to other populations or contexts (Bowling, 2009; Bryman, 2012). This is a key concern of this study as the findings aim to inform practice and policy internationally.

The study sample consisted only of teenagers who were in foster or kinship care continuously over a period of four years. Therefore, the study's findings may not be generalisable to young people in residential care or group homes or teenagers who have unstable care placement patterns and multiple placement changes. Secondly, as reviewed in this thesis, care experience and parental involvement appear to work differently for younger and older children. Therefore, the thesis makes no claims to generalisability to younger children in care. Finally, the study sample included young people who were in their early teens at the beginning of the study, and few had entered care as teenagers. Research evidence shows that teenage entrants generally have more difficulties and worse outcomes, although the majority tend to be placed in residential care rather than with a family (Luke et al., 2015; Thoburn, 2007). Therefore, future studies seeking to replicate these findings should carefully consider the profile of their sample, perhaps by comparing age at entry, SDQ scores and other

characteristics of the sample, as these may influence the outcomes or relationships between variables described in this study.

However, the care population is very diverse and studying them as a homogenous group may produce misleading results (Luke et al., 2015; O'Higgins et al., 2017). Indeed, even in this study, the parameter estimates in the latent growth models showed variability in young people's school performance trajectories. Therefore, selecting a more homogenous group to study, as in this study, is warranted. Moreover, the 690 young people in the study represented a third of all young people who were in care at T1 for more than a year (including young people in residential and short-term care). Therefore, this is a non-negligible group of young people in care. In England, 40% of young people in care at 16 in 2013 had been in care for four or more years (Sebba et al., 2015), therefore teenagers in long term care represent an important sample of the care population. I argue therefore that while the findings may not be applicable to other young people in care, particularly those in residential or group homes, they are substantively important for teenagers in long term foster or kinship care.

The analysis in Study 2 is based on a sample of children in care in Ontario (Canada), therefore external validity should also consider whether the findings apply to other contexts, including England. In fact, the child welfare system in Ontario is very similar to the English system and the AAR used for the present study was developed following work carried out in England in the 1980s (Courtney et al., 2013; H. Jones, Clark, Kufeldt, & Norrman, 2006). There are other similarities across care structures: the majority of children in care live in foster and kinship care, many children are only in care short term and children in care have similar outcomes in

Canada and England (as well as other countries) (Sebba et al., 2015; Tessier et al., 2018). Ontario has also recently instituted children's education champions, who play a similar role to Virtual Schools in England, as discussed above. Two specificities of the study and context are noted, however. First, this study included a number of young people from indigenous backgrounds, as is common in the Canadian context (Mitic & Rimer, 2002; Turpel-Lafond, 2007). Ethnicity (indigenous background or not) was included as a covariate in the study, but it was not associated with school performance in this sample. Secondly, the majority of public services in Canada are funded and delivered at the provincial rather than the state level, unlike in England. However, research suggests that this does not make a significant difference to practice to the extent that the findings of this study would not apply to the English context (Courtney et al., 2013).

The second part of the assessment of external validity is whether the findings apply to different contexts. Williams (2017) proposes a novel approach to explore whether the findings of one study may be applicable to another: mechanism mapping. Although proposed as a method to assess whether interventions can be transported to other contexts, the approach can be adapted to examine the relevance of findings from other types of study design. Mechanism mapping suggests detailing the assumptions underlying the processes at play and why, in the study context, they might produce the results they do. In the current study for example, an important assumption is that the young person is in care and has a relationship with a carer to the extent that they have sufficient information about the young person's educational experiences to be involved. This highlights why the findings may not be applicable to children in residential care, as they may not have one caregiver.

Beyond this however, I argue that there is little in the relationship between carers' aspirations and children's educational outcomes that is specific to the Canadian context. Academic socialisation has been found to be significant predictor of school performance across contexts (Australia, USA, England and Canada) and past studies have identified that carers have similar levels of aspirations for the young people they foster (Cheung et al., 2012; Flynn et al., 2013; Kang, 2004; Tessier et al., 2018; Wijedasa & Selwyn, 2011; Wise et al., 2010). Moreover, other high-income countries have similar institutional structures in place with regards to children in care. Differences in service provision, for example Virtual Schools in England or the Ontario Child Advocate, are unlikely to significantly affect the level of aspirations held by foster carers.

I therefore suggest that the study findings may not be generalisable to all other young people in care, including younger children or those in residential care, but that they are likely to be informative for other contexts.

7.4 Implications of the study findings

This study indicates that carer involvement is a protective factor for the school performance children in foster and kinship care, in particular those children with SEN. The main objective of this thesis was to identify such protective factors. I argued that identifying protective factors was important to fine-tune existing or develop new interventions to support the education of children in care. Intervention theory suggests that programmes should be underpinned by an evidence based theory

of change in order to maximise its potential to impact outcomes (Fraser et al., 2009). The theory of change describes and links the programme components and goals, the programme modalities (specific strategies, techniques and methods to reach programme goals), the targeted risk and protective factors, and finally the programme's intended outcomes. Knowledge of risk and protective factors is therefore an integral part of the theory of change.

In the following two sections, first I discuss the implications of these findings for future research. Secondly, I discuss the implications for practice and policy. As discussed above, the implications of the study may not be relevant for children in care in placement types other than kinship or foster care as they were not included in this thesis.

7.4.1 Implications for research

The literature review in Chapter 4 adopted a systematic approach to surveying the literature on care involvement for the educational outcomes of children in care and highlighted a significant gap in research, particularly when contrasted to the volume of research on the same topic for children in the general population. As well as a dearth of studies, there is no consensus on what carer involvement should consist of, nor how it should be measured. The review also highlighted the absence of a conceptual framework on carer involvement in education and the existing evidence provides little help to guide the development of a conceptual framework of carer involvement for children in care. Given the findings of this study and others, this

points to the urgent need for more research on the involvement of carers in the education of children in care.

More research is also needed to understand the pathways from carers' aspirations to school performance, including the mechanisms that may explain the relationship between aspirations and school performance identified in this thesis. Critically, it is important to test the influence of other variables on this relationship, as they may act as moderators or confounders. This is important because such variables may not be easily modifiable and therefore targeted in interventions. For example, if the carers' level of education moderates the relationship to the extent that it confounds the relationship between aspirations and school performance, programmes that aim to raise aspirations of carers may not be effective. Indeed, interventions to raise aspirations for children in the general population have not been effective, perhaps for this very reason (Cummings et al., 2012; Gorard et al., 2012; See & Gorard, 2013). If further studies can demonstrate that carers' aspirations are a protective factor for educational outcomes of children in care, and as such a promising target for interventions, interventions should consider this as a programme component. This addition should then be evaluated, which in turn will determine whether carers' high aspirations are a causal protective factor.

Other gaps in research include carer involvement in schools and carer involvement in education for children with special educational needs. While school-based carer involvement did not predict school performance in this study, findings from qualitative research identified for the literature review for Study 2 suggest that in order to be effective carers need specific skills and therefore perhaps specialised training. Yet, it is not clear from research what effective engagement with school

consists of for carers and how their involvement could support children's school performance. To be comprehensive, research on carer involvement in school should include the views of other stakeholders including schools, teachers, social workers and, in England, Virtual Schools.

The findings from this thesis also suggested that children with special educational needs whose carers have high aspirations may perform better than children with special educational needs whose carers don't have high aspirations. As far as I was able to ascertain in my literature review, there is very limited research on carer involvement for children with special educational needs. Yet as demonstrated in Study 1 children with special educational needs are overrepresented in the care population and at significant risk of school failure. Children with special educational needs may require specialised provision and significant parental advocacy to access this, yet these children often lack this support (Geenen & Powers, 2006; Mires, Lee, & McNaughton, 2018). Emerging research suggests that foster carers who take an active role in their foster child's education experienced positive relationships with that child's school. Conversely, foster parents who are not proactively involved in their foster child's education experience increasingly difficult and hostile relationships with schools; this appears to be particularly salient for youth in secondary school (Mires et al., 2018). This points to the urgent need for more research on effective involvement of foster carers in the education of children with special educational needs to interrupt the negative pathways to school failure.

Finally, just as Hill and Tyson (2009) argued for a conceptual framework tailored to parental involvement with teenagers, so I argue for the need for a conceptual framework to understand the ways in which carers are involved with the

children they foster. This should include guidance on the measurement of carer involvement. This study makes some contribution to future research to develop such a framework, by demonstrating that carers' high aspirations are a protective factor for children in care and young people with special educational needs and suggesting pathways through which this relationship may operate.

7.4.2 Implications for practice and policy

Notwithstanding the limitations of the research and many unknowns in relation to carer involvement for children in care the study has a number of implications for practice and policy.

The findings of this study indicate that carers' aspirations are important for the school performance of children in care. Indeed, it found that high aspirations were a protective factor, but bivariate analyses also indicated that low aspirations may be a risk factor too. This confirms findings on high and low aspirations from qualitative literature (Jackson et al., 2005; Mannay et al., 2017; Morton, 2016). Moreover, as suggested in section 7.1.3 above, aspirations may play an important role in other domains, including children's behaviour, self-esteem and self-efficacy. This reflects findings from resilience literature on the critical role supportive adults play in the social-emotional and educational well-being of children in care general (Luthar, 2006) Therefore, raising aspirations of carers is an important implication for fostering practice. Moreover, unlike most parents in the general population, carers have mandated training courses they must attend. Avenues therefore exist to promote

awareness among carers of the impact they have on young people and to encourage them to raise their aspirations for young people in care. Finally, in Ontario, legislation mandates the involvement of parents who have children with special educational needs in assessment, identification and placement processes, therefore this must be extended to carers of children with special educational needs (Zegarac, 2008).

Research on parental involvement with children in the general population suggests that it can be harmful if not wielded properly. Authoritarian and controlling approaches to academic support, for example, can antagonise and demotivate children, which may impact on academic achievement (Pomerantz et al., 2007). Moreover, if parents do not understand homework assignments, or are too controlling or interfering, their attempts to help may be counterproductive for the child (Gonida & Cortina, 2014; Hoover-Dempsey et al., 2001, 2005). Some researchers have also argued that having high aspirations for children may be futile or counterproductive if these are mismatched with young people's abilities, if opportunities are lacking or unrealistic, or if expectations translate into undue pressure on children (Khattab, 2015; Pomerantz et al., 2007). Therefore, any academic aspirations, while these should challenge and encourage children, must be in line with children's abilities. Indeed, the risks outlined above may be greater for carers and children in care; carers may not know children well enough to understand their academic needs and how to respond to them, carers may feel compelled to provide help with school work as part of their role and adopt inappropriate strategies or children in care may present a range of challenging behaviours which require special attention and thoughtful support strategies. Carers are also likely to be influenced by their experiences of education, and if these are negative they may transmit these to the children they care for (Rana et

al., 2012). Moreover, carers may be side-lined by social workers or schools leaving them feeling disempowered and unable to support children appropriately. Therefore, practitioners should carefully consider how to support foster carers to be more involved in the education of foster children and tailor their aspirational goals to the child's abilities, including where carers may not have extensive education themselves.

The findings are also relevant for policies on fostering. Current guidance on fostering services in England, for example, clearly places a responsibility on local authorities and foster carers to support the education of children in care; moreover:

> "Foster carers must be given a clear understanding of the local authority's educational aspirations for the child and of the child's own aspirations, and be a source of regular support to encourage the child's success in and out of school." (HM Government, 2011, p. 31)

This guidance fails to specifically mention the carers' aspirations, as well as the training and support foster carers should be given in order to support children. Some existing evidence based parenting interventions for foster carers include specific foci on education, but there does not appear to be much prominence given to the potential influence of carers' aspirations (see for example, www.keep.org.uk and Price et al., 2008). Future interventions should be informed by research and where possible provide guidance for foster carers on effective strategies for parental involvement, including around the potential influence of their aspirations.

Secondly, the findings on the relationship between high aspirations and school performance may inform fostering policies on recruitment and approval of foster

carers, placement decisions in particular with regards to matching of children and carers and finally supervision of foster carers by social workers. These findings, coupled with those of resilience research therefore suggest that a thoughtful approach to matching the right carer with children entering care may maximise the protective effect of positive parenting on children's well-being and outcomes. In so doing, being in care may increase the chances of the fostering relationship mitigating for early childhood adversities, as hypothesised by resilience research (Dozier & Lindhiem, 2006; Luthar, 2006). Fostering agencies must identify and select prospective foster carers who understand, or are amenable to training on, the importance of education for children in care and the influence that their aspirations may have on children's future academic success. Matching policies and practices should consider matching children to carers who can confidently cater for their educational needs. Finally, supervising social workers are required to support foster carers to meet the needs, including educational, of the children they care for (DfE, 2011). However, many report feeling ill-equipped to provide the specialist support that foster carers require (Sebba et al., 2015). Further, and more detailed, guidance and training are therefore needed to enable supervising social workers to empower foster carers to be more effectively involved in the education of the children they foster, as well as understand the role that aspirations may play.

The findings of this research may have implications for other stakeholders involved in the education of children in care in England. In the last decade, policy initiatives to improve the educational outcomes of children in care have increased the number of professionals dedicated to supporting them: designated teachers (who are responsible for children in care in schools), Virtual Schools (local authority

professionals responsible for supporting the education of children in care), and other professionals within children's services. While the present study was specific to foster carers, findings from the qualitative evidence identified in the systematic literature review for Study 2 (Chapter 4) indicate that young people need the support of key adults, not necessarily foster carers. This points to the role that other stakeholders can play. However, children in foster and kinship placements spend more time with their carers than with professionals listed above; they are therefore more exposed to the values, actions and influence of carers. Bronfenbrenner's ecological framework therefore suggests that carers, situated in the microsystem, are likely to exert a greater influence on children than school and local authority professionals (in the exosystem). However, by working collaboratively (in the mesosystem) carers and professionals are likely to achieve more for children in care.

Finally, I suggest that the main implication for policy is the need for more data on carers, particularly in England. This is a view that has been echoed in the recent Fostering Stocktake on Foster Care in England (Narey & Owers, 2018). The present study was only made possible because a large dataset of children in care which had data on carers was made available to analyse. I was not able to identify such a dataset in England (see Appendix D). Prospective longitudinal data is required to examine the course of children's school performance trajectories and to identify risk and protective factors for educational outcomes. While large datasets exist in England, they either do not record data on carers, or do not have large enough samples of children in care. While further research on carer involvement is carried out, rudimentary information on carers should be recorded, including level of education, socio-economic and employment status. This should assist future research to examine the impact carers

have on the children they foster and inform the development of effective interventions for foster and kinship carers. Without such information, carers may remain an untapped resource in understanding the education of children in care.

7.5 Chapter summary

This chapter summarised and appraised the findings of Study Two. The chapter also examined the study's strengths and limitations, its internal validity as well as considering whether its findings can be generalised to other children in care, that is, its external validity. Finally, I suggested some implications for research, practice and policy. This thesis now transitions to the conclusion chapter, which briefly summarises both Study One and Study Two and discusses the overall thesis's contribution to knowledge as well as future directions for research.

Chapter 8. Conclusion

This chapter brings the thesis to a close. To this end, the chapter briefly summarises and brings together the findings from Study One and Study Two and shows how these findings answer the thesis research questions. I then outline the study's contribution to knowledge and proposed directions for future research.

8.1 Brief summary of Study One and Two findings

The aim of this thesis was to identify risk and protective factors which can be targeted in interventions to improve the educational outcomes of children in care. A large body of international evidence has shown that children in care lag behind their peers in educational terms and that this is associated with poor employment, mental and physical health and offending outcomes over the life course (Buehler et al., 2000; Dregan et al., 2011; Dregan & Gulliford, 2012; Forsman et al., 2016; Okpych & Courtney, 2014). To date, existing interventions to support the attainment of children have had limited, if any, impact (Brodie, 2009; R. Evans et al., 2017; Forsman & Vinnerljung, 2012; Liabo et al., 2012). Identifying risk and protective factors for educational outcomes of children in care is therefore imperative if interventions are to become more effective. Information about risk and protective factors can also inform practice and policy directly.

To achieve these aims, I carried out two studies for this thesis. In the first, I conducted an international systematic review of risk and protective factors for educational outcomes for children in kinship and foster care. Thirty-three studies were included in the review; these identified over 50 factors in almost all levels of the ecological framework. The quality of the existing evidence was low to average, and generally findings were mixed; on the one hand this reflects the diverse study designs, samples and methodologies and on the other the diverse experiences of children in care. Some consistent findings emerged around gender, ethnicity, special educational needs, behavioural problems, carer involvement in education and length of time in care. Evidence from included studies converged to show that length of time in care was not a risk or promotive factor for educational outcomes. On the other hand, there was near consistent cross-sectional and some longitudinal evidence that older age, minority ethnicity, male gender, special educational needs and behavioural problems were risk factors for educational outcomes. Moreover, greater carer involvement emerged as a possible modifiable promotive factor for educational outcomes. Evidence was otherwise inconsistent with respect to the other factors reviewed. No study examined whether the relationships between independent variables and outcomes were linear, therefore variables reviewed may be risk and / or promotive. To determine whether variables were correlates or factors, methodologies had to be carefully examined, as no articles using a risk and protective factors framework were identified for the review.

The research questions in Study Two emerged as a result of the findings of Study One; this study examined the relationship between carer involvement and educational outcomes of children in foster or kinship care in depth and over time.

Using secondary data analysis, it found that carers were actively involved in the education of the children they foster, but that many of the activities carers undertake were not associated with children's school performance for this sample. Secondly, the study found that carer reported importance of getting good grades and carers' aspirations at time 1 were associated with school performance at time 1 only; they did not predict progress across the four years of the study period. Thirdly, a cross-lagged latent growth model with time varying measures of carers' aspirations found a significant effect of aspirations on school performance over time. That is, carers' aspirations predicted future school performance, even after controlling for prior school performance; school performance also predicted carers' future aspirations even after controlling for prior aspirations; there was therefore evidence of a bidirectional effect. This confirms that carers' aspirations are a promotive *factor*, and not just a correlate, for school performance of children in kinship and foster care. Finally, the study found that carers' aspirations appeared to act as a risk-based protective factor for children in foster and kinship care with special educational needs.

Taken together the findings from Study One and Two provide a clearer picture of the risk and protective factors for educational outcomes for children in kinship or foster care. Study Two reinforces the findings from Study One: it confirms that children with special educational needs are at significant risk of low attainment and demonstrates that carers' aspirations are a promotive factor for educational outcomes, even after controlling for past school performance. Unsurprisingly, Study Two could not survey all the variables identified in the systematic review, however they point to further areas for investigation. For example, mental health was not examined and behavioural problems were only entered as a control variable in Study Two. Carers'

level of education and socio-economic status are not recorded by the questionnaire (the AAR), so these variables were also absent from the model. These variables may play an important role in predicting school performance however. For example, carers' educational background may confound the relationship between aspirations and school performance. Finally, while some of the findings from Study Two strengthened the findings from the review in Study One, it was surprising that being from an indigenous background in Study Two was not a significant predictor of school performance outcomes. The studies therefore both complement each other and suggest avenues for further research analyses.

8.2 Contribution to research and knowledge

This thesis makes four contributions to knowledge. Firstly, the systematic review in Study One is the first, that I am aware of, to investigate risk and protective factors for the educational outcomes for children in foster and kinship care. In so doing, it provides a comprehensive overview of the state of the evidence.

The thesis also makes an important contribution to knowledge about the involvement of carers in the education of children in foster or kinship care. The literature review in Chapter 4 includes a mixed methods systematic literature review for research evidence on the relationship between carer involvement and educational outcomes. This chapter outlined how carer involvement has thus far been conceptualised and measured. It described the current state of the evidence on the relationship between carer involvement and educational outcomes, highlighted the

absence of any theoretical framework on carer involvement and, by outlining the unique circumstances of children in care, demonstrated why such a framework is important.

Thirdly, the thesis contributes to the body of evidence on carer involvement by demonstrating that carers' aspirations were a promotive factor for children in care and a risk-based protective factor for children in care with special educational needs. This relationship held even after prior school performance was accounted for. As far as I have been able to ascertain this is the first study to show this. These findings also inform research on parental involvement for children in the general population. Indeed, much debate on the role of parental aspirations has centred on the confounding role of family related variables in explaining the relationship between aspirations and educational performance. By examining the role of carers' aspirations for children, these specific confounding variables are removed (although others, not examined in this thesis, may play a role). To date, interventions to raise aspirations have had limited success in promoting children's educational attainment (see Chapter 4), but these findings suggests that raising aspirations may still be a viable strategy for interventions to promote the educational success of children in care as well as other children.

Finally, this thesis contributes to the growing literature on risk and protective factors for children in care. This important framework has much to offer the social work literature and it is surprising that until now it has not been more widely adopted. Other disciplines have been revolutionised by the adoption and influence of the risk factor prevention paradigm, including public health (Framingham Heart Study, 2014; Kraemer et al., 1997), child development (Luthar, 2006; Rutter, 1985) and

criminology (Farrington, 2006; Farrington et al., 2016). The framework is relatively straightforward: key risk, promotive and protective factors are identified and targeted through the development and implementation of social programmes (Fraser et al., 2009). The multiple models used in this thesis also demonstrate the flexibility of the framework in terms of the methodological tools that can be used to discover risk and protective factors. The risk and protective factor framework links explanation and prevention, research and practice and therefore engages researchers, practitioners and policy makers. This thesis demonstrates the relevance of the framework to the literature on the education of children in care and ways in which it can be useful to research, practice and policy.

8.3 Directions for future research

The implications of the thesis for research, policy and practice have already been discussed in the systematic review (Chapter 3) and the discussion chapter of Study Two (Chapter 7), here I outline suggestions for possible future work.

Research on the underlying processes of low attainment for children in care has burgeoned in recent years and the review in Study One will benefit from an update in the future. However, future work should consider narrowing its focus, either by limiting its methodological inclusion criteria (to prospective longitudinal studies only, for example) or by focusing on a single risk or promotive variable (as was done in the systematic search for the literature review for Study Two, which examined carer involvement only); this may also make meta-analysis feasible. Systematic reviews of

risk and protective factors are still relatively novel, and robust methods to undertake these are still being developed, including methods for meta-analysis (Farrington et al., 2008; Murray et al., 2009). Future reviews to update the one in this thesis will benefit from these developments. Finally, these reviews should be complemented with qualitative research to give voice to young people in care and understand their perspectives on what helps or hinders them.

A number of recommendations for future research also arise from Study Two. More research is required to describe what carer involvement in the education of children actually looks like. While a number of studies have previously touched on the subject (see literature review, Chapter 4), I was not able to identify any research which aimed to describe, explain and theorise the ways in which carers are involved in education of the children they are responsible for. This stands in sharp contrast to the research on parental involvement for children in the general population. This literature has not only described parental involvement but theorised it, studied its measurement, and analysed how it works to improve educational outcomes. Future work should consider the extent to which current theoretical models of parental involvement may be relevant for children in care and consider whether expanding these would be adequate or whether a new theoretical framework is needed. Adequate measurement tools should also be developed and better quality data collected or identified to replicate the findings of this thesis and others. Future research should also look at other aspects of carer involvement, in particular how to ensure that parents can be effective in schools. Until this work is carried out, the involvement of foster carers in education will remain poorly understood, interventions may not be

able to capitalise on the resources carers can and do provide and finally, carers will remain an untapped resource for promoting the education of children in care.

Finally, future researchers should be involved in the development of a database on foster carers in England, as was recently recommended in the 2018 Fostering Stocktake for England (Narey & Owers, 2018). There continues to be a need for more longitudinal research with large study samples, and large administrative datasets are ideal for this purpose. While a number of large scale studies on foster carers using primary data have been carried out (Pinto, 2018), this data is not open source and in time will become outdated. Therefore, databases that gather data at regular intervals can provide an on-going source of research data for future studies. However, such datasets must contain good quality data, for example they should include standardised and validated measures. Researchers should therefore be involved in the development of such datasets.

8.4 Closing remarks

This thesis is one of the first to comprehensively survey the factors associated with school performance of children in care, to examine how carers are involved in the education of the children they foster and how this is associated with school performance. The findings highlighted a number of factors which put children at risk of low school performance, including behavioural problems and SEN. It also highlighted the potential for foster carers to be actively involved in children's education and boost their school performance. While analyses indicated that much of

what carers did for the children in this sample was not associated with their school performance, carers' aspirations played an important role in promoting better outcomes. Thus carers' aspirations were a promotive factor for the educational outcomes of children in care.

Setting aside the findings from the exploratory analyses in research question 4, the analyses in research questions 2 and 3 of Study 2 demonstrated that carers' high educational aspirations for children in care are promotive and not protective, for educational outcomes. Indeed the effect of aspirations on school performance was observed for the whole sample, independently of any risk. Protective factors are only those factors which predict better outcomes in the presence of risk. However, by virtue of being in care, these young people are known to have experienced adversity. I do not suggest that being in care puts children at risk of school failure, but rather that being in care is a proxy for past adversity (O'Higgins et al., 2015). These experiences differ in duration and severity, but children are only placed in care if they are at significant risk of harm or neglect (Courtney & Thoburn, 2009; Simkiss et al., 2012; Thoburn, 2010). Moreover, a substantial body of research has shown that maltreated children and those in care are at significant risk of poor educational outcomes (Fantuzzo & Perlman, 2007; Kendall-Tackett & Eckenrode, 1996; Leiter & Johnsen, 1994; Romano et al., 2015; Scherr, 2007; Slade & Wissow, 2007; Stone & Zibulsky, 2015; Trout et al., 2008). Children in care are thus an at-risk group. On this basis, I argue that this thesis demonstrates that carers' aspirations are not just a promotive factor, but in fact a risk-based protective factor for the school performance of teenagers in foster and kinship care. The implication of this is that carers' aspirations, though probably not in isolation, may mitigate the effects of adversity that these

children have experienced, on school performance. While limited by the scope and quality of the data available, the findings of this thesis are significant and will be important if they can be replicated in future studies. It is hoped that they can inform future research, policy and practice and raise the attainment of young people in care.

References and Appendices

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Dissertation submitted in partial fulfilment for the degree of Doctor of Philosophy in Education

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Appendix A. Data Extraction by mapping

Once the included studies were retrieved from the systematic search, I independently coded each study using a coding form, inspired by those proposed in Littell, Corcoran and Pillai (2008) and Petticrew and Roberts (2006); I then transferred this data to an excel mapping document to aid analysis. Coding enables systematic data extraction by codifying each study's characteristics. The table below shows the mapping document I developed. The table also shows a selection of studies and how these were coded. Use of excel meant figures and diagrams could easily be generated.

Table 1: Mapping (for coding) of included studies for Study One

Mapping	Shin (2003)	Stein (1997)	Turpel-Lafond (2007)	Weiss & Fantuzzo (2001)	Wise et al. (201)	Zima et al. (2000)	Zorc et al. (2013	Total	%
Country									
Australia					1			3	9%
Canada			1					4	11%
UK								4	11%
USA	1	1		1		1	1	24	69%
Factors tested									
Individual factors									
Gender of young person	1	1	1		1	1		19	54%
Age of young person	1				1	1		10	29%
Ethnicity of young person	1					1		10	29%
Behavioural problems	1					1	1	12	34%
Mental health	1							4	11%
Special educational needs: not specified	1				1			7	20%
Special educational needs services provided					1			3	9%
Special educational needs: LD					1			3	9%

Special educational needs: EBD					1			3	9%
IQ								2	6%
Social emotional competence								1	3%
Special educational needs: ADD/HD					1			2	6%
Special needs: Physical disorder					1			2	6%
Birth family characteristics									
Birth risks:				1				1	3%
Exposed to drugs prenatally or in infancy								2	6%
Care history / characteristics of placement									
Placement type	1					1		13	37%
Reason for entering care / experience of maltreatment				1				10	29%
Placement stability / number of placements					1	1	1	11	31%
Length of time in care						1		10	29%
Age at entry into care								2	6%
Caregiver expectations					1			3	9%
Caregiver home based involvement					1			3	9%
Caregiver school based involvement								3	9%
Caregiver level of education						1		3	9%

Receives extra academic support					1			3	9%
Poverty - Low income county								3	9%
Number of children in the home								1	3%
Caregiver home literacy environment								1	3%
Caregiver support								1	3%
Caregiver age								1	3%
Relationship to young person								1	3%
Caregiver employment status								1	3%
Caregiver social class								1	3%
Number of hours of TV watched								1	3%
Language spoken at home								2	6%
Has computer at home								1	3%
Time between placements								1	3%
Placement with a sibling								1	3%
Number of social workers								1	3%
Has plans for reunification								1	3%
Contact with birth parents								1	3%
Length of initial plan (re: permanence)								1	3%
School factors									
Cognitive engagement in school								1	3%
Teacher expectations								1	3%
Educational planning	1							1	3%

Extracurricular activities	1							1	3%
Ever suspended / excluded						1		2	6%
Positive school experiences (affective engagement)	1							2	6%
Educational aspirations	1							2	6%
School performance (prior attainment)	1							3	9%
Attendance						1		4	11%
Grade retention						1		4	11%
School transfers						1		6	17%
Reported by (factors)									
Not known (administrative database)	1		1	1			1	13	37%
Young person						1		15	43%
Foster carer					1	1	1	15	43%
Social worker							1	7	20%
Teacher		1				1		5	14%
Assessment								1	3%
Case file reviews								1	3%
Outcome									
Credits earned towards graduation								1	3%

GPA								1	3%
Literacy - spelling								1	3%
Numeracy - math calculation								2	6%
Numeracy - math reasoning								2	6%
Grade level								2	6%
Foundational Assessment Skills			1					2	6%
Literacy - reading comprehension								2	6%
Literacy - Written expression								2	6%
KBIT / Achievement Test (WIAT)								2	6%
Suspension / exclusion					1	1		2	6%
Literacy - reading basic skills								3	9%
Literacy - Vocabulary test								3	9%
Attendance				1			1	3	9%
IQ								4	11%
Grades								3	9%
Grade retention				1	1	1		6	17%
Academic performance (composite measure)		1		1	1			9	26%
Numeracy test						1		11	31%
Literacy test	1					1		11	31%
GCSEs								72	206%
Outcome - categories									

GPA / Grades / Academic performance / test results	1	1	1	1	1	1		31	89%
IQ / cognitive ability								5	14%
Suspension / exclusion					1	1		2	6%
Attendance				1			1	3	9%
Grade retention				1	1	1		6	17%
Reported by (outcomes)									
Test score (assessor not known)	1							13	37%
Foster carer						1		11	31%
Teacher		1			1	1	1	10	29%
Not known (administrative database)			1	1				2	6%
Young person						1		5	14%
Social worker							1	3	9%
Test score (assessor known)								3	9%
Not known or combination unknown								1	3%
Study design									
Cross-sectional	1	1	1	1	1	1		26	74%
Longitudinal prospective							1	8	23%

Longitudinal retrospective								1	3%
Comparison with gen pop or CiN				1				5	14%
Methodology									
Linear, logistic, cox, stepwise or hierarchical linear regression	1			1	1	1	1	18	51 %
ANOVA								8	23%
T-test			1					6	17%
Chi-square		1						3	9%
Interaction analysis				1				2	6%
Multilevel modelling								1	3%
Path Analysis / Structural equation modelling								2	6%
Difference in Difference								1	3%
Fixed effects models								1	3%
Residualised change								1	3%
Simple change								1	3%
Latent Class Analysis								1	3%
Latent Growth Curve Analysis								1	3%
Instrumental Variables								1	3%

Data source / data collection									
Secondary data analysis (administrative database)	1		1	1			1	19	54%
Interviews					1	1		11	31%
Surveys								6	17%
Assessments		1						6	17%
Case file review								1	3%

Appendix B. Cambridge Quality Checklists and critical appraisal of included studies for the systematic review in Study One

Included studies were critically appraised for inclusion in the systematic review in Study One. To do this the Cambridge Quality Checklists (Murray et al., 2009) were used. Each study was scored using these checklists. Scores shown below are at the study level. This means that scores are presented for each study, rather than for each relationship between one correlate and one outcome. This is important for the question about how the correlate is measured. It means that in studies where both well validated and non-validated measures are used, there is only one score to represent the quality of the risk variables across the study. Scores for “measurement of the correlate” were assigned by computing the average score for each study and rounding this number to an integer. For example, in Cheung et al. (2012) seven correlates were examined, four were not validated measures (each scoring 0), whereas three were either validated (for example the SDQ) and had good face validity (age and gender) (each scoring 1). The average is therefore .43, which is rounded to 0. This detail is not included in the tables below.

The complete table was large, therefore to aid the reader, it is split into five tables each showing the critical appraisal for seven to eight studies, except the last table, which shows three. The final two columns of the table (in the fifth table) show, firstly the number of studies which scored positively on the question and secondly, the percentage of studies which scored one on the question.

The table also includes scores for the risk correlate, risk factor, causal risk checklists and an overall score (higher scores indicate better quality). While these are imprecise and may obscure other important methodological aspects of the study, these scores provide a rough idea of the study's quality.

Table 2: Critical appraisal of included studies using Cambridge Quality Checklists

Mapping (1)	AIHW (2007)	AIHW (2011)	Berrick, et al. (1994)	Brooks and Barth (1998)	Burley & Halpern (2001)	Cheung, et al. (2012)	Choice, et al. (2001)	Conger & Rebeck (2001)
<u>Correlate Checklist</u>								
Adequate sampling method								
1 Total population sampling or random sampling	1	1	1	1	1	1	0	1
0 Convenience sampling or case–control sampling								
Adequate response rates								
1 Response and retention rates ≥70% and differential attrition ≤10%	1	1	1	0	1	1	0	1
0 Response rate <70% or retention rate <70% or differential attrition > 10%								
Adequate sample size								
1 Sample size ≥400	1	1	1	0	1	1	0	1
0 Sample size <400								
Good measure of correlate								
1 Reliability coefficient ≥.75 and reasonable face validity	0	0	0	0	0	0	0	1
or criterion or convergent validity coefficient ≥.3								
or more than one instrument or information source used to assess correlate								
0 None of the above								
Good measure of outcome								
1 Reliability coefficient ≥.75 and reasonable face validity	1	1	1	1	1	0	1	1
or criterion or convergent validity coefficient ≥ 0.3								
or more than one instrument or								

information source used to assess outcome								
0 None of the above								
Correlate Score (out of 5)	4	4	4	2	4	3	1	5
Risk factor checklist								
Cross-sectional	1		1	1	1	1	1	1
Longitudinal retrospective								
Longitudinal prospective		1						
Risk factor score (out of 3)	1	3	1	1	1	1	1	1
Causal risk factor								
1 Study without a comparison group / variability in the risk variable	1	1	1	1	1	1	1	1
No analysis of change								
2 Inadequately controlled study								
No analysis of change								
3 Study without a comparison group / variability in the risk variable								
With analysis of change								
4 Inadequately controlled study								
With analysis of change								
5 Controlled non-experimental study								
No analysis of change								
6 Controlled non-experimental study								
With analysis of change								
7 Randomized experiment								
Targeting a risk factor								
Causal risk factor score (out of 7)	1	1	1	1	1	1	1	1
Total score (out of a possible 15)	6	8	6	4	6	5	3	7

Mapping (2)	Aldgate, et al. (1992)	Colton & Heath (1992)	Heath, et al. (1994)	Evans (2001)	Flynn, et al. (2013)	Font (2004)	Geenen & Powers (2006)
<u>Correlate Checklist</u>							
Adequate sampling method							
1 Total population sampling or random sampling	0	0	0	1	1	1	1
0 Convenience sampling or case–control sampling							
Adequate response rates							
1 Response and retention rates ≥70% and differential attrition ≤10%	0	0	0	1	1	1	0
0 Response rate <70% or retention rate <70% or differential attrition > 10%							
Adequate sample size							
1 Sample size ≥400	0	0	0	1	1	1	0
0 Sample size <400							
Good measure of correlate							
1 Reliability coefficient ≥.75 and reasonable face validity	0	0	0	0	1	1	1
or criterion or convergent validity coefficient ≥.3							
or more than one instrument or information source used to assess correlate							
0 None of the above							
Good measure of outcome							
1 Reliability coefficient ≥.75 and reasonable face validity	1	1	1	1	0	1	1
or criterion or convergent validity coefficient ≥ 0.3							
or more than one instrument or information source used to assess outcome							

0 None of the above							
Correlate Score (out of 5)	1	1	1	4	4	5	3
Risk factor checklist							
Cross-sectional				1			1
Longitudinal retrospective							
Longitudinal prospective	1	1	1		1	1	
Risk factor score (out of 3)	3	3	3	1	3	3	1
Causal risk factor							
1 Study without a comparison group / variability in the risk variable				1			1
No analysis of change							
2 Inadequately controlled study							
No analysis of change							
3 Study without a comparison group / variability in the risk variable					3		
With analysis of change							
4 Inadequately controlled study	4	4	4				
With analysis of change							
5 Controlled non-experimental study							
No analysis of change							
6 Controlled non-experimental study						6	
With analysis of change							
7 Randomized experiment							
Targeting a risk factor							
Causal risk factor score (out of 7)	4	4	4	1	3	6	1
Total score (out of a possible 15)	8	8	8	6	10	14	5

Mapping (3)	Hegar & Rosenthal (2009)	Kirk, et al. (2012)	McNichol & Tash (2001)	Mitic & Rimer (2002)	Pears, et al. (2010)	Pears, et al. (2012)	Pears, et al. (2013)
Correlate Checklist							
Adequate sampling method							
1 Total population sampling or random sampling	1	0	0	1	0	0	0
0 Convenience sampling or case–control sampling							
Adequate response rates							
1 Response and retention rates ≥70% and differential attrition ≤10%	1	0	0	1	0	0	0
0 Response rate <70% or retention rate <70% or differential attrition > 10%							
Adequate sample size							
1 Sample size ≥400	1	0	0	1	0	0	0
0 Sample size <400							
Good measure of correlate							
1 Reliability coefficient ≥.75 and reasonable face validity	1	1	1	1	1	1	1
or criterion or convergent validity coefficient ≥.3							
or more than one instrument or information source used to assess correlate							
0 None of the above							
Good measure of outcome							
1 Reliability coefficient ≥.75 and reasonable face validity	1	1	1	1	1	1	1
or criterion or convergent validity coefficient ≥ 0.3							
or more than one instrument or							

information source used to assess outcome							
0 None of the above							
Correlate Score (out of 5)	5	2	2	5	2	2	2
Risk factor checklist							
Cross-sectional	1	1	1	1	1		1
Longitudinal retrospective							
Longitudinal prospective						1	
Risk factor score (out of 3)	1	1	1	1	1	3	1
Causal risk factor							
1 Study without a comparison group / variability in the risk variable	1	1	1	1	1		1
No analysis of change							
2 Inadequately controlled study							
No analysis of change							
3 Study without a comparison group / variability in the risk variable							
With analysis of change							
4 Inadequately controlled study						4	
With analysis of change							
5 Controlled non-experimental study							
No analysis of change							
6 Controlled non-experimental study							
With analysis of change							
7 Randomized experiment							
Targeting a risk factor							
Causal risk factor score (out of 7)	1	1	1	1	1	4	1
Total score (out of a possible 15)	7	4	4	7	4	9	4

Mapping (4)	Perzow, et al. (2013)	Petrenko,e t al. (2012)	Sawyer& Dubowitz (1994)	Sebba et al. (2015)	Shin (2003)	Stein (1997)	Turpel-Lafond (2007)	Weiss&Fantuzzo (2001)
Correlate Checklist								
Adequate sampling method								
1 Total population sampling or random sampling	1	1	1	1	1	0	1	1
0 Convenience sampling or case–control sampling								
Adequate response rates								
1 Response and retention rates ≥70% and differential attrition ≤10%	1	1	1	1	1	1	1	1
0 Response rate <70% or retention rate <70% or differential attrition > 10%								
Adequate sample size								
1 Sample size ≥400	0	0	1	1	1	0	1	1
0 Sample size <400								
Good measure of correlate								
1 Reliability coefficient ≥.75 and reasonable face validity	1	1	0	1	1	1	1	1
or criterion or convergent validity coefficient ≥.3								
or more than one instrument or information source used to assess correlate								
0 None of the above								
Good measure of outcome								
1 Reliability coefficient ≥.75 and reasonable face validity	1	1	1	1	1	1	1	1
or criterion or convergent validity coefficient ≥ 0.3								

or more than one instrument or information source used to assess outcome								
0 None of the above								
<u>Correlate Score (out of 5)</u>	4	4	4	5	5	3	5	5
<u>Risk factor checklist</u>								
Cross-sectional	1	1	1		1	1	1	1
Longitudinal retrospective				1				
Longitudinal prospective								
<u>Risk factor score (out of 3)</u>	1	1	1	2	1	1	1	1
<u>Causal risk factor</u>								
1 Study without a comparison group / variability in the risk variable	1	1	1		1	1	1	1
No analysis of change								
2 Inadequately controlled study								
No analysis of change								
3 Study without a comparison group / variability in the risk variable				3				
With analysis of change								
4 Inadequately controlled study								
With analysis of change								
5 Controlled non-experimental study								
No analysis of change								
6 Controlled non-experimental study								
With analysis of change								
7 Randomized experiment								
Targeting a risk factor								
<u>Causal risk factor score (out of 7)</u>	1	1	1	3	1	1	1	1
<u>Total score (out of a possible 15)</u>	6	6	6	10	7	4	6	6

Mapping (5)	Wise, et al. (2010)	Zima, et al. (2000)	Zorc, et al.(2013)	Total number of studies which scored 1	Percentage of studies which scored 1
Correlate Checklist					
Adequate sampling method					
1 Total population sampling or random sampling	1	1	0	24	69%
0 Convenience sampling or case–control sampling					
Adequate response rates					
1 Response and retention rates ≥70% and differential attrition ≤10%	1	1	1	23	66%
0 Response rate <70% or retention rate <70% or differential attrition > 10%					
Adequate sample size					
1 Sample size ≥400	0	1	0	19	54%
0 Sample size <400					
Good measure of correlate					
1 Reliability coefficient ≥.75 and reasonable face validity	0	1	1	20	57%
or criterion or convergent validity coefficient ≥.3					
or more than one instrument or information source used to assess correlate					
0 None of the above					
Good measure of outcome					
1 Reliability coefficient ≥.75 and reasonable face validity	1	1	1	32	91%
or criterion or convergent validity coefficient ≥ 0.3					
or more than one instrument or					

information source used to assess outcome					
0 None of the above					
Correlate Score (out of 5)	3	5	3	**3.46** (mean score out of 5 across studies)	
Risk factor checklist					
Cross-sectional	1	1		26	74%
Longitudinal retrospective				1	3%
Longitudinal prospective			1	8	23%
Risk factor score (out of 3)				**1.52** (mean score out of 3 across studies)	
Causal risk factor					
1 Study without a comparison group / variability in the risk variable	1	1		27	77%
No analysis of change					
2 Inadequately controlled study				0	0%
No analysis of change					
3 Study without a comparison group / variability in the risk variable				2	6%
With analysis of change					
4 Inadequately controlled study			4	5	14%
With analysis of change					
5 Controlled non-experimental study				0	0%
No analysis of change					
6 Controlled non-experimental study				1	3%
With analysis of change					
7 Randomized experiment				0	0%
Targeting a risk factor					
Causal risk factor score (out of 7)	1	1	4	**1.69** (mean score, out of 7, across studies)	
Total score (out of a possible 15)	4	6	7	**6.40** (mean score, out of 15, for critical appraisal across studies)	

Appendix C. Methods for systematic review on carer involvement for educational outcomes of children in care

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This appendix presents the objectives and methodology section from a systematic review that begun in April 2016 but has not been completed. I conceived the review with AJ Hickey (PhD Candidate, University of Ottawa, Canada). The methodology was co-authored and a protocol was circulated to colleagues for feedback. Both AJ Hickey and I completed the search, screened the titles and abstracts and agreed studies for inclusion. I appraised the studies, and conducted the analysis and synthesis alone for this thesis. The tables of included studies are table 6 to 8 in the main text of the thesis and can be found in chapter 4.

C.1 Objectives of the review

The objectives of the review are as follows:

- to survey the research literature to understand how foster and kinship carers are involved in the education of the children they care for.
- to examine how carer involvement is conceptualised and defined in the literature on the education of children in foster and kinship care.
- to understand the role that carer involvement plays in educational outcomes of children in foster and kinship care.
- to determine whether there is an association between carer involvement and attainment for children in foster and kinship care and to determine the strength evidence on the nature of this association.

C.2 Methodology for the review

The scope of this review was broad as it sought to ascertain the state of the evidence on the involvement of foster and kinship carers in the education of children. Therefore any study type was accepted for inclusion. Both qualitative and quantitative studies were considered. Grey literature was also considered for inclusion.

Studies on children in foster or kinship care or who had aged out of care were included. Children in residential care were excluded because of differing educational needs and contexts. Moreover, the nature of such placements means the involvement of adults in their education is qualitatively different to children in foster or kinship care (Knorth, Harder, Zandberg, & Kendrick, 2008; Sinclair, 2010; Whittaker, 2006). Where studies did not disaggregate between children in care and other at risk children, authors were contacted for data on children in care only. The review was concerned with children in care in high-income countries only as these operate similar programmes for children who are unable to live with their birth parents.

The review took a broad approach to understanding carer involvement and inclusion was not limited to any a priori definition of involvement in education.

Quantitative studies were included if they analysed the relationship between parental involvement and educational outcomes. Qualitative studies were included if they sampled educationally successful care experienced people who discussed the role of carers. We accept that children who have not been educationally successful may have valuable contributions to make about carer involvement. However, the aim of including qualitative studies in this systematic review was to identify studies that could complement the quantitative studies and explain the link between carer

involvement and attainment. Identifying every single qualitative study that touched on the question was not necessary for this review.

Any outcome pertaining to education was included, for example grades, GPA, cognitive test scores, attendance or exclusions. For qualitative research, studies were included if participants were identified as having enjoyed some educational success, for example enrolment in higher education.

The following databases and websites were searched for references: ERIC, International Bibliography of Social Sciences, Scopus, Medline, PsycInfo, Social Services Abstracts, Sociological Abstracts, Database of Education Research (EPPI Centre), Campbell and Cochrane Libraries, Social Policy and Practice (part of SCIE), Google and Google Scholar, NFER, C4EO, CERUK Plus, SCIE, The Fostering Network, BAAF, NCB, NSPCC, Joanna Briggs Institute, What Works Clearinghouse, Department for Education, Chapin Hall, Office of Planning, Research and Evaluation in Administration for Children and Families (USA). Children and Youth Services Review was hand searched and several international experts were consulted. Searches were conducted for publications between 1990 to June 2016. The earlier cut off date was selected to reflect important legal and policy changes that occurred in child welfare in the 1980s (Fernandez & Barth, 2010).

The following search strings were used:

("foster care" OR "foster child" OR "foster home" OR "out-of-home care" OR "out of home care" OR "looked after" OR "looked-after" OR "alternative care" OR "child in care" OR "children in care" OR "foster carer" OR "kinship carer" OR "temporary

parent" OR "foster parent" OR "foster mother" OR "foster father" OR "foster family" OR "substitute family")

AND

(educat* OR achiev* OR academic* OR cognitive OR attainment OR reading OR math* OR literacy OR writing OR "executive function" OR executive functioning/ OR attendance OR truancy OR grade* OR "grade retention" OR tutor* OR test OR exam OR GPA)

AND

("parent* involvement" OR "parent* participation" OR "parent* effectiveness" OR "parent child relationship" OR "care* involvement" OR help OR support OR expectations OR attitudes OR aspirations).

Adaptations to the terms and MeSH searching were implemented, depending on the particularities of each database. Additionally, reference and citation lists in published works and grey literature were reviewed.

Titles and abstracts were screened for 2919 studies identified through searches. Full texts were obtained for 136 and 27 were retained for inclusion. Meta-analysis was considered for quantitative research studies, but heterogeneity was too great, with regards to how parental involvement was defined, outcomes and methodology selected (Borenstein, Hedges, Higgins, & Rothstein, 2010).

Appendix D. Why OnLAC? Other datasets explored

I am based in the UK, my professional experience relates to the English context and I am hoping to inform and influence practice and policy nationally, so I had hoped to use an English, or UK dataset. English datasets were explored, but I was unable to identify one with a large enough sample size of children in care that also included data on carers or parents. The datasets I identified and ruled out for this thesis are described below.

The next step was therefore to look at datasets from other countries. While US datasets are exceptionally rich, most are not accessible to PhD students (see for example NDACAN, 2017). A collaboration with a research group in Ontario, Canada provided access to OnLAC and with it the opportunity to conduct preliminary analyses (Tessier, O'Higgins, & Flynn, 2018). This dataset contains rich data on children in care and their carers, includes large samples and provides several years of data. Moreover, it has the added advantage, compared to US data for example, that the care system in Ontario is very similar to that of England (Flynn, Dudding, & Barber, 2005). This means the findings of the present analysis will have some relevance for the English context. In addition, the thesis can inform English policy on the development of new, or expansion of existing, datasets to include data on carers. Limitations of the dataset are outlined in the methodology chapter (chapter 4).

Databases on children in care:

Local Authority Returns (SSDA903) – English dataset

The SSDA903 database records information on children in care in all local authorities across England. It holds information about reason for entry into care, age at entry, legal status, number and type of placements, for example. It was ruled out for this analysis because does not record information on birth parents or carers, other than whether they are kinship or stranger foster carers (Sebba et al., 2015).

Databases that include children in care:

Local Authority Returns (SSDA903)

These are datasets populated by children's services in England and sent to the Department for Education for England and Wales on an annual basis. They provide detailed information about children's time in care, reasons for entry, time in care and placement type. However, this dataset contains no information on carers. While it also does not contain information on children's educational outcomes, it can be merged with the National Pupil Database (NPD), which records data on the educational outcomes of all children in England, including key stage results, attendance and exclusions (Sebba et al., 2015).

The British Cohort Study (BCS70)

The BCS is a birth cohort study; it tracks children who were born in England in 1970 to the present. It includes children in care (n≈430 at age 30). It includes some information about birth and foster parents for children in care. It was ruled out because research on children in care has already been carried out and significant limitations of the dataset were identified (Cheesbrough, 2002).

Moreover, it does not include detailed information about foster or kinship carers. Its historical nature also means that the context may be less relevant to current policy concerns (Dregan, Brown, & Armstrong, 2011; Dregan & Gulliford, 2012). Moreover

The Millennium Cohort Study (MCS)

The MCS is a birth cohort study which tracks children who were born in England in the year 2000, to the present. As far as I was able to establish (by downloading some data) there were fewer than 40 children who had spent any time in care between birth and the most recent wave of gathered data (age 11). This was not considered a sufficient sample size to carry out any analysis.

The National Census

The census aims to record information about the population of the UK. The 2011 census collected information about children living in surveyed households but did not distinguish between foster children and other non-relative children living in the household. It was therefore not possible to establish how many children were in care in the available data.

Next Steps (formerly The Longitudinal Study of Young People in England)

Next Steps is a longitudinal survey of young people living in England who were aged 14 at the first wave. Data is collected every year and there are currently eight waves of data. One study has examined and described the children in care included in Next Steps (Wijedasa & Selwyn, 2011), the sample size is small however (n=80) and prohibitively so for multivariate analyses. In order to

identify children who are or have been in care, and obtain detailed care histories this database would need to be matched with the SSDA903. It would also have to be matched to the NPD to explore educational outcomes. However, a large amount of data would need to be requested to do this without any guarantee that a suitable sample size would be identified.

Understanding Society (builds on the British Household Panel Survey)

Understanding Society is a longitudinal survey of 40,000 households selected at random in the UK. There are currently five waves of data. It contains a sample of households which include foster children / parents. In waves 1 to 3 of *Understanding Society*, there were 122 foster parents. There were also a number of households that included grandparents, aunts and uncles, some of which may be kinship arrangements. In order to identify children who are or have been in care, and obtain detailed care histories this database would need to be matched with the SSDA903. It would also have to be matched to the NPD to explore educational outcomes. But the sample here again was very small and too small for multivariate analyses.

Avon Longitudinal Study of Parents and Children (ALSPAC)

Developed by researchers at the University of Bristol, ALSPAC (also known as Children of the 90s) is a birth cohort study. Between 1991 and 1992, 14,000 pregnant women were recruited to take part in the study. These women, their children and their partners have been followed up since. Studies on maltreatment have found *n*=115 children in the original sample who were registered on the child protection register by the age of 6 (Sidebotham & Heron, 2006). An even

smaller number are likely to have been taken into care for any meaningful amount of time. It is also not clear whether children who are taken into care remain part of the study and whether data is gathered on foster carers.

National Survey of Child and Adolescent Well being (NSCAW) (USA)

NSCAW is a longitudinal dataset, which records information on sample of randomly selected children and young people who have been the subject of a child protection investigation in the USA. A sample of these children is in care. This dataset was particularly attractive for this study as it includes extensive information about birth and foster parents, including socio-economic status, level of education and attitudes, aspirations and behaviours with respect to education (see for example Berger, Bruch, Johnson, James, & Rubin, 2009). However, the dataset is not available to PhD students working outside of the USA (NDACAN, 2017).

Appendix E. Raw and recoded Data

The Assessment and Action Record is 76 pages long, with about half of these consisting of multiple-choice questions and the other half of open-ended questions. The data analysed in this study uses the multiple-choice questions and answers. The following appendix explains what raw data was available and how it was recoded for the present study.

E.1 Gender

The gender was the same at all four time points, so only gender at T1 was imported into analysis dataset.

E.2 Age

Age is indicated as a whole number in the AAR. This was checked against the date of birth and date of the assessment, across the four waves of the data and corrections were made were possible. Correlations across the four time points were very high (r = .98 to r = .99).

E.3 Ethnicity

In the AAR, young people are asked what their ethnicity is. They are asked to select all that apply from a list of 26 different options. Many of these may overlap and just over half of young people selected two options or more. In the first wave of data for example, 49.7% of young people ticked only one box and 25.7% ticked two boxes. Moreover, in the first wave of data, 239 children (35%) ticked only the

“Canadian” box in answer to “Ethnic or cultural group(s) of young person's ancestors”. Such a category may obscure a number of ethnic characteristics of young people. Therefore, for the purpose of this analysis only children from First Nations, Inuit or Metis (FNMI) backgrounds are identified as a distinct category. There is a long history of discrimination towards people of indigenous backgrounds in Canada and research on children in care in Canada has focused on examining the educational outcomes of this group only, rather than outcomes of children from other backgrounds (Helme & Lamb, 2011; Mitic & Rimer, 2002; Turpel-Lafond, 2007).

In year one of data available, there were 116 young people from FNMI backgrounds. However, data was not consistent across the four years. For the purpose of this analysis, if young people stated that they were from FNMI backgrounds at least twice in four years their ethnicity was identified as FNMI.

E.4 Special educational needs

The AAR questionnaire asks carers whether young people have any long-term conditions, including:

- Food or digestive allergies
- Respiratory allergies
- Any other allergies
- Asthma
- Bronchitis
- Heart conditions or diseases
- Epilepsy
- Diabetes

- Fetal alcohol spectrum disorder
- Cerebral palsy
- Kidney condition or disease
- Blood disorder
- Developmental disability
- Learning disability
- Attention deficit disorder
- Emotional, psychological or nervous difficulties
- An other long-term condition

This variable was selected to reflect difficulties that may affect the young person's learning or ability to get on in education. However, while it is recognised that long-term health problems are likely to affect education, it was not clear that all the categories would obviously be linked to educational outcomes. The purpose of this data was to identify children who may have special learning or educational needs. To this end, only the following variables were considered relevant for the analysis:

- Fetal alcohol spectrum disorder
- Developmental disability
- Learning disability
- Attention deficit disorder
- Cerebral palsy

'Emotional, psychological or nervous difficulties' - while often used as a marker of special educational needs in British education literature – was not included because

such problems would be captured by other variables which will be included in the model (e.g. externalising behaviours as identified by the SDQ).

Previous research using this data has suggested summing the number of difficulties indicated and using this as a continuous measure (Cheung, Lwin, & Jenkins, 2012; Flynn, Tessier, & Coulombe, 2013). A slightly different approach is adopted here, as it is not clear that the categories are additive or cumulative. I considered using this variable as a categorical variable, however some young people may suffer from several conditions. This would mean that categories would not be mutually exclusive, posing problems for the analysis. For this reason, I decided to dichotomise long-term difficulties, so that young people would be identified as experiencing any of the five listed above, or not. The latter category would include young people who had indicated that they had no long-term difficulties as well as those who had marked a difficulty other than the five listed above.

E.5 Reason for entry

To capture the reason children entered care, the child’s social worker is asked the following question:

“PRIMARY REASONS FOR CURRENT ADMISSION TO SERVICE: Young person came into care because of (mark all that apply):

- Physical harm ((i.e., the young person has been or is at risk of being physically harmed as a result of an act or action by a caregiver [commission] or is at risk of being harmed as a result of caregiver's failure to take actions to protect him/her [omission].)

- Sexual harm (i.e., the young person has been or is at risk of being sexually harmed as a result of an act or action by a caregiver [commission] or is at risk of being harmed as a result of the caregiver's failure to take actions to protect him/her [omission].)
- Neglect (i.e., the young person has been or is at risk of neglect as a result of the caregiver's failure to provide adequate care for him/her. This may be by commission or omission.)
- Emotional harm (i.e., the young person has been or is at risk of being emotionally harmed as a result of specific behaviours of the caregiver towards him/her [commission] or is at risk of being harmed as a result of the caregiver's failure to take actions to protect him/her [omission].)
- Abandonment / Separation (i.e., the young person has been abandoned or is at risk of being separated from the family as a result of intentional or unintentional actions of the caregiver.)
- Problematic behaviour (i.e., the young person's behaviour is so problematic that it exceeds the birth family's capacity to care for the young person.)
- Other

Unlike many other datasets on children in care, reason for entry is relatively detailed in the AAR (see for example Berger, Bruch, Johnson, James, & Rubin (2009; Evans, (2001); Luke, Sinclair, & O’Higgins (2015)). For example, in the AAR, young people can select multiple reasons for entry. Various approaches to coding were explored to make sense of the reason for entry variable.

First, I computed a categorical variable for reason for entry in year one, based on classifications proposed by Barnett et al. (1993), Coohey et al. (2011) Petrenko et al. (2012), theory and past research, and practicalities of sample sizes.

The syntax created categories in a hierarchical fashion, as follows: if a young person experienced sexual abuse, reason for entry was coded as ‘sexual abuse’, regardless of any other reason for entry provided. This was to give precedence to this reason for entry. That is to say, it was assumed that sexual abuse would have an effect over and above any other reason for entry. The same was done for physical abuse (i.e. any physical abuse, but no sexual abuse) and emotional abuse (i.e. any emotional abuse but no sexual or physical abuse). Two categories were created for neglect (neglect only and neglect plus) and one for behavioural problems. The ‘other’ category brought together young people with only other reasons for entry but categories were too small for to create separate categories (abandonment (n = 20), domestic violence (n=4), other (n=25)).

Secondly, I conducted two bivariate sensitivity analyses:

1. I hypothesised that more boxes ticked may be a rough measure of greater severity or frequency of abuse. In bivariate analyses, this was not associated with educational outcomes or other variables such as behavioural difficulties, as measured by the Strengths and Difficulties Questionnaire (SDQ).
2. I conducted t-tests to check whether there were differences in mean educational outcome scores (mean for four carer variables, outcome 1 in Study Two) at T1 and T4 and in mean behaviour problem scores (as measured by the total difficulties scores of the SDQ) at T1 and T4, for each category of reason for entry. For example, I compared the mean scores of young people who had experienced physical abuse and those who had not.

> At the $p < .01$ level (a smaller p-value was appropriate because of the number of tests conducted), there were small differences in mean school performance scores between children who had experienced emotional abuse and those who hadn't ($t(633.89) = -3.73$, $p < .001$) at T4. There were also differences in mean school performance and behavioural problems scores between children who were in care because of behavioural problems and those who weren't at both time points. For school performance at T1, ($t(69.49) = 3.66$, $p < .001$), at T4 ($t(69.47) = 2.82$, $p = .006$). These differences were identified in the main analysis in Study Two, using the coding strategy above.

To identify more complex patterns in the data, latent class analysis may be undertaken but this was outside the scope of this thesis.

Reason for entry was also compared at every time point. Because children were in care continuously, reason for entry should normally remain the same, unless children only disclose other types of abuse in later years. In fact, far fewer details were provided at T4, when the most frequent reason for entry was 'neglect plus' (n=311). The number of young people disclosing sexual abuse was slightly higher (n = 56 at T4), neglect only was also slightly higher (n=139). All other young people had 'other' as reason for entry (n=148). With this in mind, reason for entry at the first time point was kept as the main, time invarying, covariate.

E.6 Age at first entry into care

The child's social worker is asked to indicate:

- “ How old was [the young person] when he/she was placed in out-of-home care for the very first time (at this or another child welfare agency)? (If less than one year of age indicate age in months.).

This data was used to calculate the age at first entry into care, which should be the same value every year. Data was checked for consistency across the four years. Correlations across the four time points were high (r = .82 to r = .91), which suggests small discrepancies across the years. The mean value of the four time points was taken to represent the variable “age at first entry into care”.

E.7 Length of time with current carer

The child’s social worker is asked to indicate (with input from the caregiver as appropriate:

- “How long has [the young person] been living with his/her current caregiver? (If less than one year indicate months.)”.

Consistency across the four years of data was checked, supplemented by other questions including how long the young person has been in care overall and whether the young person had changed placement or carer in the past year. Correlations across the four time points were high (r = .70 to r = .89), reflecting both some stability and the fact that some young people changed placement in the course of the four years.

E.8 Instability in care placements

The social worker is asked:

- “How many changes in main caregivers has [the young person] experienced since birth? (A main caregiver is a person who has acted in that capacity for one month or more. If care was shared by two or more people, select only one of these people as a main caregivers for that period.)”
- “Changes in main caregiver(s) (write in total number): CHANGES IN PLACE OF RESIDENCE: How many times in [young person's] life has he/she moved, that is, changed his/her usual place of residence? (Write in the number of times.)”

These two questions don’t answer exactly the same question. Young people may change carer (following a separation or death in the family) without moving house, and vice versa may move house without changing carer. However, what both questions are capturing the degree of instability in the young person’s life. Therefore, I used a mean of both questions to reflect that instability.

E.9 Placement type

The social worker is asked to respond to the following question:

- “CURRENT PLACEMENT: Which of the following best describes ...'s current placement? (Mark one only.)”

Options include (but are not limited to) foster home operated by child welfare organisation, foster home outside purchased care (this is equivalent to fostering with an independent fostering agency in England), kinship care and group homes. The two foster care groups were combined into one foster care category and kinship care was left as a separate placement type. Young people who were in foster or kinship care for

the four years of the study and who were aged 10 to 14 at T1 were included in the sample.

Where young people had missing data on placement type in any year, I checked placement type in the following year and whether they had changed placement since the last assessment. Where they had not changed placement, placement type was assumed to be the same as the following year and where this was foster or kinship care these young people were included in the sample (but data was not imputed). Where it was not possible to determine whether young people were in kinship or foster care, they were treated as if they were not and excluded from the sample. To check the sensitivity of this screening process: I selected young people who were in foster or kinship care at three time points or more and were in care for the four years of the study and aged 10 to 14 years old at T1; this yielded the same number of young people in the sample (n = 690) as the above selection process.

For a flow diagram of this process, see chapter 4, figure 1.

E.10 SDQ

A sum score was used for each "problem" subscale of the SDQ. This follows guidance from the questionnaire developers (Goodman, 2016). Missing data for each subscale was minimal. One SDQ item had 1.2% missing data, two had 1% and all others had less than 1% missing data. This was not considered substantial, therefore missing data was ignored when creating the sum score for each variable.

Appendix F. Descriptive statistics for outcome variables in Study Two

The following table presents the descriptive statistics for all items used to compute the two outcome variables for Study Two. The data is presented here to show the distribution of data for each item, which is used to make up the two outcome measures for Study Two.

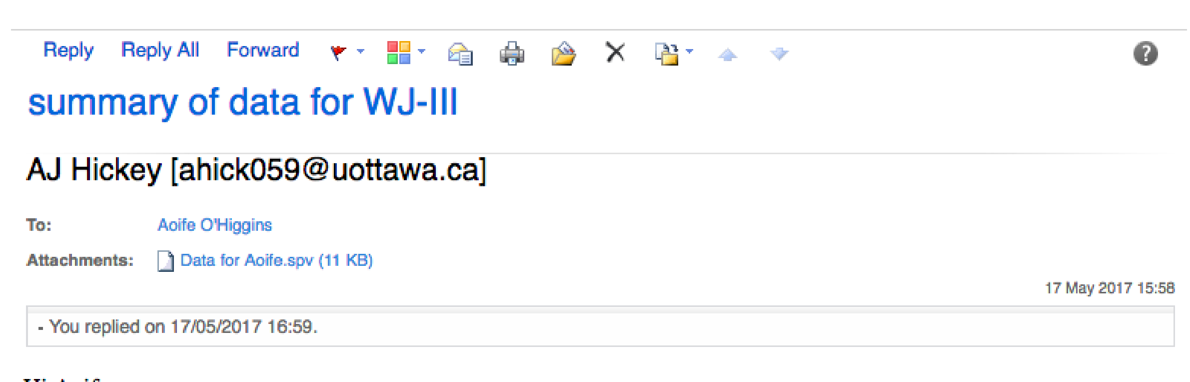
Table 3: descriptive statistics for all items used to compute outcome measures in Study Two

	N	Min	Max	Mean	Std Dev	Skewness (statistic and St Error)		Kurtosis (statistic and St Error)	
How is young person doing in reading (T1)	653	0	2	1.08	0.69	-0.11	0.10	-0.92	0.19
How is young person doing in maths (T1)	660	0	2	0.96	0.69	0.06	0.10	-0.90	0.19
How is young person doing in science (T1)	632	0	2	1.05	0.64	-0.04	0.10	-0.59	0.19
How is young person doing overall (T1)	661	0	2	1.06	0.65	-0.06	0.10	-0.61	0.19
Overall, in comparison to his/her age group, young person is (T1)	605	0	2	0.58	0.54	0.13	0.10	-1.09	0.20
How well do you think you are doing in your school work (T1)	634	0	2	1.41	0.58	-0.35	0.10	-0.75	0.19
Young person's educational performance matches his/her ability (T1)	684	0	2	1.74	0.47	-1.44	0.09	0.91	0.19
How is young person doing in reading (T2)	649	0	2	1.07	0.67	-0.08	0.10	-0.77	0.19

How is young person doing in maths (T2)	653	0	2	0.95	0.70	0.06	0.10	-0.93	0.19
How is young person doing in science (T2)	620	0	2	1.05	0.63	-0.04	0.10	-0.47	0.20
How is young person doing overall (T2)	660	0	2	1.07	0.63	-0.05	0.10	-0.48	0.19
Overall, in comparison to his/her age group, young person is (T2)	656	0	2	0.62	0.54	0.05	0.10	-0.97	0.19
How well do you think you are doing in your school work (T2)	638	0	2	1.36	0.55	-0.11	0.10	-0.81	0.19
Young person's educational performance matches his/her ability (T2)	675	0	2	1.72	0.47	-1.31	0.09	0.43	0.19
How is young person doing in reading (T3)	646	0	2	1.11	0.68	-0.13	0.10	-0.82	0.19
How is young person doing in maths (T3)	642	0	2	0.99	0.72	0.02	0.10	-1.07	0.19
How is young person doing in science (T3)	603	0	2	1.08	0.65	-0.08	0.10	-0.62	0.20
How is young person doing in overall (T3)	660	0	2	1.11	0.62	-0.07	0.10	-0.42	0.19
Overall, in comparison to his/her age group, young person is (T3)	648	0	2	0.63	0.53	-0.03	0.10	-0.96	0.19
How well do you think you are doing in your school work (T3)	635	0	2	1.36	0.56	-0.14	0.10	-0.76	0.19
Young person's educational performance matches his/her ability (T3)	684	0	2	1.70	0.52	-1.51	0.09	1.36	0.19
How is young person doing in reading (T4)	643	0	2	1.11	0.66	-0.12	0.10	-0.69	0.19
How is young person doing in maths (T4)	622	0	2	0.99	0.71	0.02	0.10	-1.02	0.20
How is young person doing in science (T4)	578	0	2	1.08	0.65	-0.04	0.10	-0.55	0.20

How is young person doing in overall (T4)	649	0	2	1.12	0.64	-0.11	0.10	-0.58	0.19
Overall, in comparison to his/her age group, young person is (T4)	654	0	2	0.67	0.51	-0.28	0.10	-0.93	0.19
How well do you think you are doing in your school work (T4)	639	0	2	1.28	0.59	-0.18	0.10	-0.57	0.19
Young person's educational performance matches his/her ability (T4)	682	0	2	1.64	0.56	-1.31	0.09	0.74	0.19

Appendix G. Personal Communication with AJ Hickey



Reply Reply All Forward

summary of data for WJ-III

AJ Hickey [ahick059@uottawa.ca]

To: Aoife O'Higgins

Attachments: Data for Aoife.spv (11 KB)

17 May 2017 15:58

- You replied on 17/05/2017 16:59.

Hi Aoife,

I hope all is well!

I have attached the correlations between caregiver reported academic skills for their child in care and the WJ-III math and reading scores.

Here is a summary of the information:

All of the children are in care (either foster care, kinship care, or adoption probation). I have attached the descriptives for age, grade, sex, as well as the correlations between caregiver rated academic performance and the Woodcock-Johnson III broad math and broad reading scores.

Broad math is a cluster score made up of the following subtests: math calculation, math fluency (speeded math), applied math problems (word problem).

Broad reading is a cluster score made up of the following subtests: letter-word identification (word reading), reading fluency, and reading comprehension.

If you need any other information, please let me know.

AJ

G.1 Summary data

Sample descriptives

	Frequency	Percent
Male	118	58.4
Female	83	41.1
Missing	1	.5
Total	202	100.0

Pearson's correlation coefficients between subject measures of school performance and Woodcock Johnson III:

	Overall[a]	Math[a]	Reading[a]	Broad maths	Broad reading

Overall[a]	1				
Math[a]	.348**	1			
Reading[a]	.351**	.632**	1		
Broad maths	.281**	.433**	.438**	1	
Broad reading	.297**	.454**	.675**	.704**	1

**p<.000

[a]Refers to questions asked of carers about the young people they support:

- "School Performance: Based on your knowledge of [young person]'s school work, including his/her report cards, how is he/she doing in the following areas at school this year:
    - Reading and other language arts (spelling, grammar, composition)
    - Mathematics
    - Overall"

Answers for the four questions are on a 3-point scale: poorly or very poorly (1), average (2), well or very well (3). There is also an option to indicate 'does not take the subject'.

Appendix H. Syntax for Measurement Invariance tests for both educational outcomes

In this appendix, I show the syntax used in M*plus* to test the assumption of measurement invariance for the first outcome. Measurement invariance was tested for both outcomes.

"Read", "maths", "science", "overall" represent the four questions asked of carers (for example "how well is the young person doing in reading?"). "Compare" refers to the question used in outcome 2 which asks the carer "compared to their peers, how is the young person doing", "SW" represents the question asked of social workers and "CYP" relates to the question asked of young people. In the analysis, the term "EDUC" is the name given to the latent factor representing school performance. The number behind it denotes the year. So EDUC1 is the latent factor representing school performance at T1.

In M*plus* syntax, comments can be inserted in the text of the syntax, by using an exclamation point (!). Anything on a line following an exclamation point is ignored by the program (Muthén & Muthén, 2017). Comments are used (after and below each command) to describe the measurement invariance test procedures.

For all models, syntax started as follows:

```
VARIABLE:
    NAMES ARE
```

```
    id
     readT1 mathsT1 scienceT1 overallT1 comparT1 SWT1 CYPT1
     readT2 mathsT2 scienceT2 overallT2 comparT2 SWT2 CYPT2
     readT3 mathsT3 scienceT3 overallT3 comparT3 SWT3 CYPT3
     readT4 mathsT4 scienceT4 overallT4 comparT4 SWT4 CYPT4;
```

!This command lists the variables in the dataset!

```
  MISSING ARE ALL (-99);
```

!Missing data in the original dataset is recoded as -99 and identified as such in M*plus*!

```
  IDVARIABLE IS id;
```

!This indicates to M*plus* that the “id” variable is the unique identifier for each participant!

```
  USEVARIABLES ARE
    readT1 mathsT1 scienceT1 overallT1
     readT2 mathsT2 scienceT2 overallT2
     readT3 mathsT3 scienceT3 overallT3
     readT4 mathsT4 scienceT4 overallT4;
```

!This command indicates to M*plus* the variables which will be used in the analysis!

ANALYSIS:

!This section outlines the analysis to be conducted by M*plus*!

ESTIMATOR=MLR;

!This command specifies maximum likelihood estimation with robust standard errors and a chi-square test statistic (when applicable) that are robust to non-normality. I also use this command as the dataset contains missing data, and using the MLR estimator indicates to M*plus* that it use full information maximum likelihood to estimate missing data!

H.1 Outcome 1: Configural Measurement Invariance Test

MODEL:

EDUC1 BY readT1* mathsT1* scienceT1* overallT1*;

EDUC2 BY readT2* mathsT2* scienceT2* overallT2*;

EDUC3 BY readT3* mathsT3* scienceT3* overallT3*;

EDUC4 BY readT4* mathsT4* scienceT4* overallT4*;

!THE 'BY' FUNCTION IS USED FOR FACTOR ANALYSIS. THIS COMMAND REQUESTS THAT M*plus* ESTIMATE A LATENT VARAIBLE 'EDUC' ON WHICH FOUR ITEMS LOAD. THE STARS INDICATE THAT FACTOR LOADINGS ALL FREELY ESTIMATED, NOT LABELLED!

```
[readT1* readT2* readT3* readT4*];

[mathsT1* mathsT2* mathsT3* mathsT4*];

[scienceT1* scienceT2* scienceT3* scienceT4*];

[overallT1* overallT2* overallT3* overallT4*];

!THE BRACKETS HERE INDICATE THAT ALL ITEM INTERCEPTS SHOULD
BE FREELY ESTIMATED, NOT LABELLED!

readT1* readT2* readT3* readT4*;

mathsT1* mathsT2* mathsT3* mathsT4*;

scienceT1* scienceT2* scienceT3* scienceT4*;

overallT1* overallT2* overallT3* overallT4*;

!HERE RESIDUAL VARIANCES ALL FREELY ESTIMATED, NOT LABELLED!

EDUC1@1 EDUC2@1 EDUC3@1 EDUC4@1;

!FACTOR VARIANCES FIXED=1 FOR IDENTIFICATION!

[EDUC1@0 EDUC2@0 EDUC3@0 EDUC4@0];

!FACTOR MEANS ALL FIXED=0 FOR IDENTIFICATION!

EDUC1 EDUC2 EDUC3 EDUC4 WITH EDUC1* EDUC2* EDUC3*
EDUC4*;
```

!FACTOR COVARIANCES ALL FREELY ESTIMATED!

readT1 readT2 readT3 readT4 WITH readT1* readT2* readT3* readT4*;

mathsT1 mathsT2 mathsT3 MathsT4 WITH mathsT1* mathsT2* mathsT3* mathsT4*;

scienceT1 scienceT2 scienceT3 scienceT4 WITH scienceT1* scienceT2* scienceT3* scienceT4*;

overallT1 overallT2 overallT3 overallT4 WITH overallT1* overallT2* overallT3* overallT4*;

!RESIDUAL COVARIANCES ESTIMATED FOR SAME ITEM ACROSS TIME!

H.2 Outcome 1: Weak / Metric Measurement Invariance Test

MODEL:

EDUC1 BY readT1* mathsT1* scienceT1* overallT1* (L1-L4);

EDUC2 BY readT2* mathsT2* scienceT2* overallT2* (L1-L4);

EDUC3 BY readT3* mathsT3* scienceT3* overallT3* (L1-L4);

EDUC4 BY readT4* mathsT4* scienceT4* overallT4* (L1-L4);

!FACTOR LOADINGS NOW CONSTRAINED EQUAL ACROSS TIME!

```
[readT1* readT2* readT3* readT4*];

[mathsT1* mathsT2* mathsT3* MathsT4*];

[scienceT1* scienceT2* scienceT3* scienceT4*];

[overallT1* overallT2* overallT3* overallT4*];

!ITEM INTERCEPTS ALL FREELY ESTIMATED, NOT LABELLED!

readT1* readT2* readT3* readT4*;

mathsT1* mathsT2* mathsT3* mathsT4*;

scienceT1* scienceT2* scienceT3* scienceT4*;

overallT1* overallT2* overallT3* overallT4*;

!RESIDUAL VARIANCES ALL FREELY ESTIMATED, NOT LABELLED!

EDUC1@1 EDUC2* EDUC3* EDUC4*;

!FACTOR VARIANCES at time1 FIXED=1 FOR IDENTIFICATION!

[EDUC1@0 EDUC2@0 EDUC3@0 EDUC4@0];

!FACTOR MEANS ALL FIXED=0 FOR IDENTIFICATION!

EDUC1 EDUC2 EDUC3 EDUC4 WITH EDUC1* EDUC2* EDUC3*
EDUC4*;
```

!FACTOR COVARIANCES ALL FREELY ESTIMATED!

readT1 readT2 readT3 readT4 WITH readT1* readT2* readT3* readT4*;

mathsT1 mathsT2 mathsT3 MathsT4 WITH mathsT1* mathsT2* mathsT3* mathsT4*;

scienceT1 scienceT2 scienceT3 scienceT4 WITH scienceT1* scienceT2* scienceT3* scienceT4*;

overallT1 overallT2 overallT3 overallT4 WITH overallT1* overallT2* overallT3* overallT4*;

!RESIDUAL COVARIANCES ESTIMATED FOR SAME ITEM ACROSS TIME!

H.3 Outcome 1: Scalar Measurement Invariance Test

MODEL:

EDUC1 BY readT1* mathsT1* scienceT1* overallT1* (L1a L2-L4);

EDUC2 BY readT2* mathsT2* scienceT2* overallT2* (L1-L4);

EDUC3 BY readT3* mathsT3* scienceT3* overallT3* (L1-L4);

EDUC4 BY readT4* mathsT4* scienceT4* overallT4* (L1-L4);

!FACTOR LOADINGS NOW CONSTRAINED EQUAL ACROSS TIME EXCEPT READT1!

```
[readT1*];
[readT2* readT3* readT4*] (I1);
[mathsT1* mathsT2* mathsT3* MathsT4*] (I2);
[scienceT1* scienceT2* scienceT3* scienceT4*] (I3);
[overallT1* overallT2* overallT3* overallT4*] (I4);

!ITEM INTERCEPTS NOW CONSTRAINED EUQAL ACROSS TIME EXCEPT
READT1!

readT1* readT2* readT3* readT4*;
mathsT1* mathsT2* mathsT3* mathsT4*;
scienceT1* scienceT2* scienceT3* scienceT4*;
overallT1* overallT2* overallT3* overallT4*;

!RESIDUAL VARIANCES ALL FREELY ESTIMATED, NOT LABELLED!

EDUC1@1 EDUC2* EDUC3* EDUC4*;

!FACTOR VARIANCES at time1 FIXED=1 FOR IDENTIFICATION!

[EDUC1@0 EDUC2@0 EDUC3@0 EDUC4@0];

!FACTOR MEANS ALL FIXED=0 FOR IDENTIFICATION!
```

EDUC1 EDUC2 EDUC3 EDUC4 WITH EDUC1* EDUC2* EDUC3* EDUC4*;

!FACTOR COVARIANCES ALL FREELY ESTIMATED!

readT1 readT2 readT3 readT4 WITH readT1* readT2* readT3* readT4*;

mathsT1 mathsT2 mathsT3 MathsT4 WITH mathsT1* mathsT2* mathsT3* mathsT4*;

scienceT1 scienceT2 scienceT3 scienceT4 WITH scienceT1* scienceT2* scienceT3* scienceT4*;

overallT1 overallT2 overallT3 overallT4 WITH overallT1* overallT2* overallT3* overallT4*;

!RESIDUAL COVARIANCES ESTIMATED FOR SAME ITEM ACROSS TIME!

Appendix I. Factor analysis for Strengths and Difficulties Questionnaire

The SDQ has been used as a tool to measure mental health with looked after children across the world, including in Canadian samples (see for example Goodman, Ford, Corbin, & Meltzer, 2004; Marquis & Flynn, 2009). However, the factor structure for children in care has not been examined in peer reviewed literature. For this reason, I conducted exploratory factor analysis, using SDQ items measured at T1, to determine whether the factor structure in the present sample is consistent with the suggested four factor structure by Goodman (2001). Exploratory factor analysis (EFA) tests the interrelationships among all items to determine how many underlying latent factors emerge. The analysis was conducted using SPSS v.24.

Below are the results of the exploratory factor analysis. SPSS Commands, outputs and scree plots are presented.

The SDQ EFA results were obtained using the following SPSS syntax:

```
FACTOR
  /VARIABLES jsdq2 jsdq3 jsdq5 jsdq6 jsdq7 jsdq8 jsdq10 jsdq11 jsdq12 jsdq13
jsdq14 jsdq15 jsdq16
    jsdq18 jsdq19 jsdq21 jsdq22 jsdq23 jsdq24 jsdq25
  /MISSING PAIRWISE
  /ANALYSIS jsdq2 jsdq3 jsdq5 jsdq6 jsdq7 jsdq8 jsdq10 jsdq11 jsdq12 jsdq13
jsdq14 jsdq15 jsdq16
```

```
  jsdq18 jsdq19 jsdq21 jsdq22 jsdq23 jsdq24 jsdq25
 /PRINT INITIAL KMO EXTRACTION ROTATION
 /FORMAT SORT
 /PLOT EIGEN
 /CRITERIA MINEIGEN(1) ITERATE(25)
 /EXTRACTION ML
 /CRITERIA ITERATE(25) DELTA(0)
 /ROTATION OBLIMIN.
```

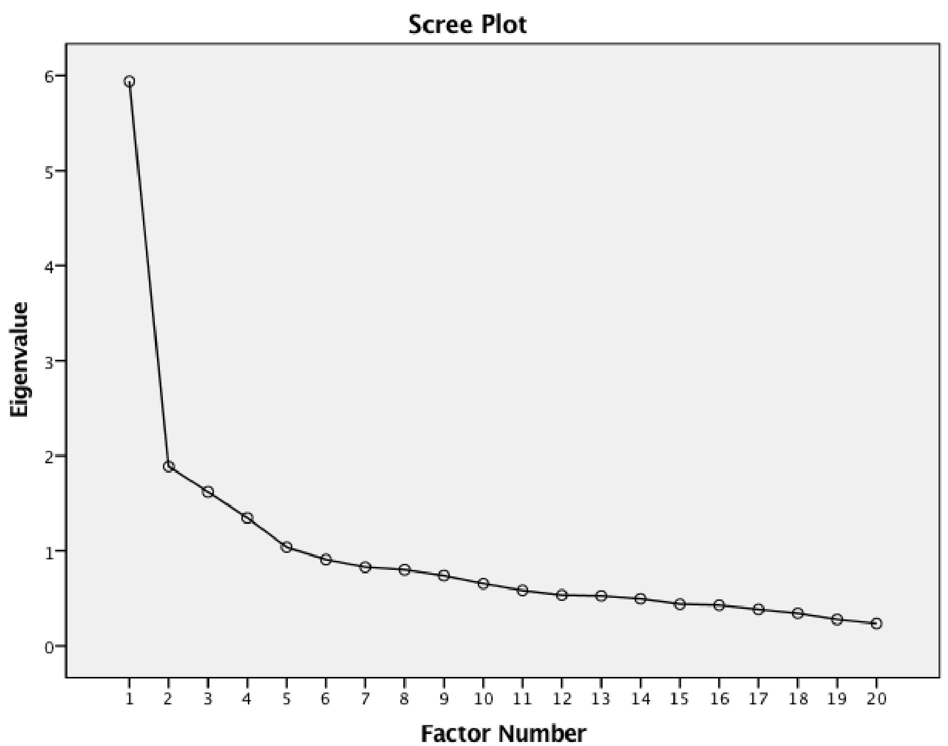
The factor analysis was conducted using the maximum likelihood method, with the 20 "problem" items of the SDQ with oblique rotation (direct oblimin). The Kaiser-Meyer-Olkin (KMO) measure verified the sampling adequacy for the analysis, KMO = .87; this is well above the threshold recommended (.6). Sphericity was also significant ($p < .001$) (Field, 2009; Tabachnick & Fidell, 2014).

Next, I considered factor extraction using eigenvalues and the scree plot. Eigenvalues should explain significant amounts of variance (generally corresponding to eigenvalues above 1). In the scree plot, we examine where the line drawn through the points changes slope (Tabachnick & Fidell, 2014). The eigenvalue table presented below indicated a five factor structure, which together explained 59.15% of the variance.

Table 4: Eigenvalue table for SDQ "problem" items

Factor	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	5.940	29.699	29.699
2	1.886	9.431	39.129
3	1.620	8.098	47.228
4	1.346	6.731	53.958
5	1.038	5.191	59.150

Inflexions in the scree plot justified retaining a one or five factor structure.



This factor structure does not fit with that recommended by the SDQ guidance (Goodman, 2001). However, because the eigenvalue for the fifth factor was just above the threshold of one, I reexamined the factor analysis and specified four factors. Four factors explained 54% of the variance. The pattern matrix and the structure matrix

both showed that the items loaded onto factors as expected from the SDQ guidance. Some items appeared to have cross loadings. This included for example the item "Often fights with other youth or bullies them" (item 12), which loads onto the conduct subscale and the peer problems subscale. SDQ guidance states that this item is part of the conduct problems subscale, but conceptually, it makes sense that it would also be construed as a question pertaining to peer problems. The pattern matrix is presented below: items which cluster onto the same factor are highlighted and the factors are renamed to describe the relevant SDQ subscale names. The structure matrix was cross-checked for consistency.

Table 5: Pattern Matrix for Exploratory Factor Analysis of SDQ problem subscales

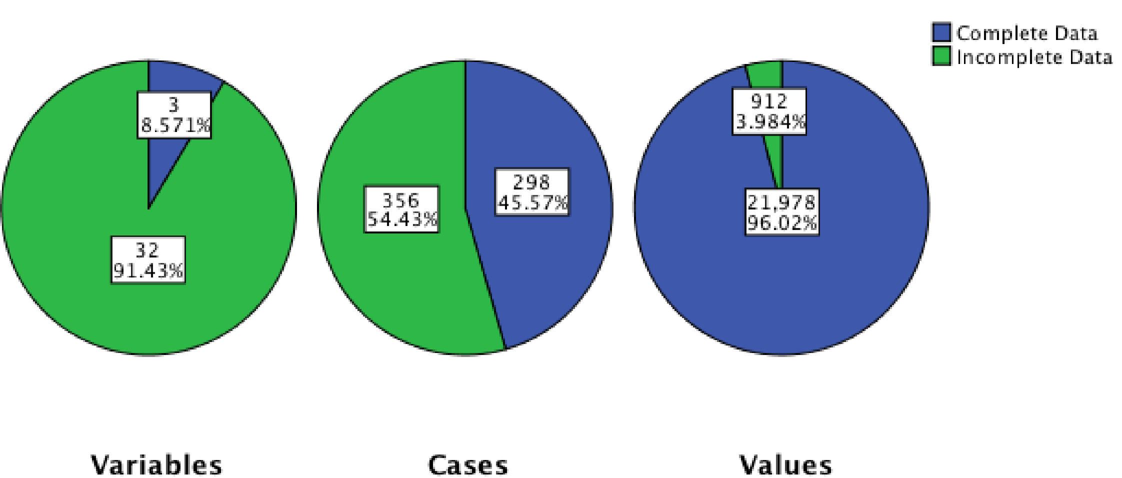
	Factors			
Item number and question	**Conduct**	**Hyperactivity**	**Emotional**	**Peer**
18: Often lies or cheats	.821		.104	
22: Thinks things out before acting	.668			.105
7: Generally well behaved, usually does what adults request	.423			-.337
5: Often loses temper	.295	-.177		-.252
10: Constantly fidgeting or squirming		-.894		
2: Restless, overactive, cannot sit still for long		-.849		
15: Easily distracted, concentration wanders		-.699	.101	
25: Many fears, easily scared		-.548		-.199
21: Thinks things out before acting	.315	-.339		-.223
8: Many worries or often seems worried			.687	
24: Gets along better with adults than with other youth			.605	
16: Nervous in new situations, easily loses confidence		-.119	.534	
13: Often unhappy, depressed or tearful	.113	.106	.453	-.149
3: Often complains of headaches, stomachaches, or sickness			.295	
14: Generally liked by other youth	.180			-.672
11: Has at least one good friend				-.627
23: Steals from home, school, or elsewhere	-.118	-.136	.111	-.512
6: Would rather be alone than with other youth			.216	-.394
19: Picked on or bullied by other youth		-.121	.103	-.387
12: Often fights with other youth or bullies them	.325			-.346

In summary, the exploratory factor analysis supports a five factor structure, which does not reflect the SDQ questionnaire as it was intended to be used. However, when a four factor structure is examined, items load onto the factors as expected. The factor structure was therefore deemed to be appropriate. For the purpose of this

analysis then, the four SDQ subscales, as suggested by (Goodman, 2001) are used as covariates at T1.

Appendix J. Missing data description

The summary of missing data for the variables in the main analysis is as follows:



These diagrams tell us that

- Three of 35 variables have complete data and that 32 have some missing data
- 356 young people have some missing data and 298 have no missing data on any variables
- There are 912 data points missing of a total possible 22,890.

There were 35 variables included in the analysis. In the final study sample, missing data by young person was as follows:

Table 6: Number of missing values by participant for variables in the main analysis

	Frequency	**Percent**	**Cumulative Percent**
.00	298	45.6	45.6
1.00	159	24.3	69.9
2.00	82	12.5	82.4
3.00	33	5.0	87.5
4.00	30	4.6	92.0
5.00	8	1.2	93.3
6.00	18	2.8	96.0
7.00	12	1.8	97.9
8.00	6	.9	98.8
9.00	1	.2	98.9
11.00	4	.6	99.5
12.00	2	.3	99.8
13.00	1	.2	100.0
Total	654	100.0	

This table indicates that 298 young people had no missing data and 1 young person has 13 items of missing data.

Across analysis variables, missing data was as follows:

Table 7: Missing data count by analysis variable

	Missing	
	Count	Percent
Reading T1	28	4.3
Maths T1	21	3.2
Science T1	48	7.3
Overall T1	23	3.5
Reading T2	29	4.4
Maths T2	25	3.8
Science T2	57	8.7
Overall T2	23	3.5
Reading T3	31	4.7
Maths T3	34	5.2
Science T3	72	11.0
Overall T3	23	3.5
Reading T4	26	4.0
Maths T4	47	7.2
Science T4	89	13.6
Overall T4	28	4.3
Age T1	0	.0
Age first entry	2	.3
Instability	29	4.4
Time with current carer T1	3	.5
SDQ internalizing T1	3	.5
SDQ externalizing T1	2	.3
Importance of grades (foster carer) T1	14	2.1
Importance of grades (foster carer) T2	18	2.8
Importance of grades (foster carer) T3	17	2.6
Importance of grades (foster carer) T4	18	2.8
Gender	0	.0
Ethnicity	1	.2
SEN ever	31	4.7
Placement type T1	0	.0
Reason for entry	13	2.0
Foster carer aspirations T1	29	4.4

Foster carer aspirations T2	21	3.2
Foster carer aspirations T3	54	8.3
Foster carer aspirations T4	53	8.1

Young people were excluded from the study sample if they did not have sufficient data on the outcome variables across time, as follows:

First I checked to see how many of the four questions had been answered at each time point, using the following syntax in SPSS:

This counts the number of missing data points across the four questions and four time points

count NMissJ=readingj to overallj (missing).

Freq NMissJ.

count NMissK=readingk to overallk (missing).

Freq NMissk.

count NMissl=readingl to overalll (missing).

Freq NMissl.

count NMissm=readingm to overallm (missing).

Freq NMissm.

Then I made a decision that in order to be included in the sample, young people had to have an average of 2 or fewer data points missing across the four questions and

four time points to be included in the study sample. Young people were selected using the following syntax:

```
compute MissingOutcome=mean(nmissj to nmissm).
Freq MissingOutcome.

Compute SampleFinal=0.
If MissingOutcome <=2 SampleFinal=1.
Freq SampleFinal.
```

This excluded only one young person from the final sample.

Appendix K. M*plus* syntax for latent growth model used for research question 2 in Study Two

---

Below, I present the M*plus* syntax for the latent growth model used for research question 2 in Study Two; the syntax presented below is for outcome 1 (carer reported school performance).

As in Appendix I (syntax for measurement invariance), I use exclamation marks to describe each command of the syntax.

This first section describes the input to describe the dataset for the analysis.

```
VARIABLE: Names=
        id
         readT1 mathsT1 scienceT1 overallT1 comparT1 SWT1 CYPT1
         readT2 mathsT2 scienceT2 overallT2 comparT2 SWT2 CYPT2
         readT3 mathsT3 scienceT3 overallT3 comparT3 SWT3 CYPT3
         readT4 mathsT4 scienceT4 overallT4 comparT4 SWT4 CYPT4;
     Gender
     SENT1
     SDQEMOT SDQCOND SDQHA SDQPEER
     IMPGRHI IMPGRLOW
     FCASPHI FCASPLO;
```

!SDQEMOT represents the SDQ emotional problems subscale score, SDQCOND represents the SDQ condct problems subscale score, SDQHA represents the SDQ hyperactivity problems subscale score, SDQPEER represents the SDQ peer problems subscale score.
IMPGRHI represents the variable “carer reported importance of getting good grades (high importance)”, and IMPGRLOW represents the variable “carer reported importance of getting good grades (low importance)”.
FCASPHI represents the carer’s high aspirations (for higher education) and FCASPLO represents the carer’s low aspirations (finish secondary school, apprenticeship or not known).!

```
MISSING ARE ALL (-99);

IDVARIABLE IS id;

USEVARIABLES ARE
    readT1 mathsT1 scienceT1 overallT1
    readT2 mathsT2 scienceT2 overallT2
    readT3 mathsT3 scienceT3 overallT3
    readT4 mathsT4 scienceT4 overallT4;
Gender
SENT1
SDQEMOT SDQCOND SDQHA SDQPEER
IMPGRHI IMPGRLOW
FCASPHI FCASPLO;
```

```
!These are the variables used for analysis!

ANALYSIS:

ESTIMATOR is MLR;

!The section below specifies the model for analysis!

MODEL:

    EDUC1 BY ReadT1
            MathsT1 ScienceT1 OverallT1 (1-3);
    EDUC2 BY ReadT2
            MathsT2 ScienceT2 OverallT2 (1-3);
    EDUC3 BY ReadT3
            MathsT3 ScienceT3 OverallT3 (1-3);
      EDUC4 BY ReadT4
            MathsT4 ScienceT4 OverallT4 (1-3);

    readT1 readT2 readT3 readT4 WITH readT1* readT2* readT3* readT4*;
    mathsT1 mathsT2 mathsT3 MathsT4 WITH mathsT1* mathsT2* mathsT3*
    mathsT4*;
    scienceT1 scienceT2 scienceT3 scienceT4 WITH scienceT1* scienceT2*
    scienceT3* scienceT4*;
```

overallT1 overallT2 overallT3 overallT4 WITH overallT1* overallT2* overallT3* overallT4*;

[ReadT1 READT2 READT3 READT4] (4);

[MATHST1 MATHST2 MATHST3 MATHST4] (5);

[SCIENCET1 SCIENCET2 SCIENCET3 SCIENCET4] (6);

[OVERALLT1 OVERALLT2 OVERALLT3 OVERALLT4] (7);

! THE OUTCOME VARIABLE IS SPECIFIED AS LATENT (EDUC1) AND THE SYNTAX ABOVE USES COMMANDS TO ENSURE MEASUREMENT INVARIANCE ACROSS TIME!

Intercept Slope | EDUC1@0 EDUC2@1 EDUC3@2 EDUC4@3;

!THIS COMMAND SPECIFIES THE LATENT GROWTH MODEL, WHERE Intercept IS THE LATENT VARIABLE REPRESENTING THE TRAJECTORY INTERCEPT AND Slope IS THE LATENT VARIABLE REPRESENTING THE TRAJECTORY SLOPE. THE TRAJECTORY IS DEFINED BY THE LATENT REPEATED MEASURES OF SCHOOL PERFORMANCE. THE FIRST ONE IS FIXED AT ZERO AND WILL REPRESENT THE INTERCEPT!

Intercept Slope ON Gender SENT1 SDQEMOT SDQCOND SDQHA SDQPEER IMPGRHI IMPGRLOW FCASPHI FCASPLO;

!THIS COMMAND REGRESSES THE COVARIATES AND PREDICTORS ON THE INTERCEPT AND SLOPE!

Gender SENT1 SDQEMOT SDQCOND SDQHA SDQPEER IMPGRHI IMPGRLOW FCASPHI FCASPLO;

!LISTING THE COVARIATES AND PREDICTORS IN THIS WAY DIRECTS M*plus* TO REQUEST THE MEAN OF EACH VARIABLE. BY DOING THIS M*plus* WILL USE FULL INFORMATION MAXIMUM LIKELIHOOD (FIML) TO ESTIMATE MISSING DATA ON THE COVARIATES. FIML APPROACHES DO NOT ESTIMATE MISSING DATA ON EXOGENOUS VARIABLES! (Muthén & Muthén, 2017)

Appendix L. M*plus* syntax for multiple group latent growth model used for research question 3 in Study Two

Below, I present the M*plus* syntax for the multiple group latent growth model used for research question 4 in Study Two; the syntax presented below is for outcome 1 (carer reported school performance).

As in Appendix I and L, I use exclamation marks to describe each command of the syntax.

This first section describes the input to describe the dataset for the analysis.

```
VARIABLE:  NAMES =

     ID
       id
        readT1 mathsT1 scienceT1 overallT1 comparT1 SWT1 CYPT1
        readT2 mathsT2 scienceT2 overallT2 comparT2 SWT2 CYPT2
        readT3 mathsT3 scienceT3 overallT3 comparT3 SWT3 CYPT3
        readT4 mathsT4 scienceT4 overallT4 comparT4 SWT4 CYPT4;
     Gender
     SENT1
     SDQEMOT SDQCOND SDQHA SDQPEER
     IMPGRHI IMPGRLOW
     FCASPHET1 FCASPHET2 FCASPHET3 FCASPHET4
```

```
!FOR DETAILS OF VARIABLE DEFINITIONS, SEE APPENDIX L.
ADDITIONAL VARIABLES HERE INCLUDE FCASPHET1 FCASPHET2
FCASPHET3 FCASPHET4, WHICH REPRESENT HIGH CARER
EXPECTATIONS AT T1, T2, T3 AND T4!

    MISSING ARE ALL (-99);

    IDVARIABLE IS id;

 USEVARIABLES ARE

    USEVARIABLES ARE
      readT1 mathsT1 scienceT1 overallT1
      readT2 mathsT2 scienceT2 overallT2
      readT3 mathsT3 scienceT3 overallT3
      readT4 mathsT4 scienceT4 overallT4
    FCASPHE1 FCASPHE2 FCASPHE3 FCASPHE4;

!IN RESEARCH QUESTION 4, COVARIATES WERE NOT ADDED TO THE
MODEL SO AS NOT TO REDUCE POWER FURTHER!

Grouping is SENJ (0=NoSEN 1=SEN);
```

!THIS VARIABLE SPECIFIES THAT THE MODEL SHOULD BE ESTIMATED FOR TWO GROUPS, GROUP 0 REPRESENTS CHILDREN WHO DO NOT HAVE SEN AND GROUP 1 REPRESENTS THOSE WHO DO!

ANALYSIS:

ESTIMATOR is MLR;

MODEL:

```
    EDUC1 BY ReadT1
            MathsT1 ScienceT1 OverallT1 (1-3);
    EDUC2 BY ReadT2
            MathsT2 ScienceT2 OverallT2 (1-3);
    EDUC3 BY ReadT3
            MathsT3 ScienceT3 OverallT3 (1-3);
     EDUC4 BY ReadT4
            MathsT4 ScienceT4 OverallT4 (1-3);

    readT1 readT2 readT3 readT4 WITH readT1* readT2* readT3* readT4*;
    mathsT1 mathsT2 mathsT3 MathsT4 WITH mathsT1* mathsT2* mathsT3*
    mathsT4*;
    scienceT1 scienceT2 scienceT3 scienceT4 WITH scienceT1* scienceT2*
    scienceT3* scienceT4*;
```

```
overallT1 overallT2 overallT3 overallT4 WITH overallT1* overallT2*
overallT3* overallT4*;

[ReadT1 READT2 READT3 READT4] (4);
 [MATHST1 MATHST2 MATHST3 MATHST4] (5);
 [SCIENCET1 SCIENCET2 SCIENCET3 SCIENCET4] (6);
 [OVERALLT1 OVERALLT2 OVERALLT3 OVERALLT4] (7);

Intercep Slope | EDUC1@0 EDUC2@1 EDUC3@2 EDUC4@3;

!THE MODEL ABOVE IS THE SAME AS IN RESEARCH QUESTION 2 – SEE
APPENDIX L!

FCASPHE2 ON FCASPHE1;
FCASPHE3 ON FCASPHE2;
FCASPHE4 ON FCASPHE3;

FCASPHE2 ON EDUC1;
FCASPHE3 ON EDUC2;
FCASPHE4 ON EDUC3;

EDUC2 ON FCASPHE1;
EDUC3 ON FCASPHE2;
EDUC4 ON FCASPHE3;
```

EDUC1 WITH FCASPHE1;

EDUC2 WITH FCASPHE2;

EDUC3 WITH FCASPHE3;

EDUC4 WITH FCASPHE4;

!THESE SYNTAX COMMANDS SPECIFY THE CROSS-LAGGED PATHS FROM ASPIRATIONS TO EDUCATIONAL OUTCOMES AND VICE VERSA. THE MODEL FOR RESEARCH QUESTION 3 USES THESE COMMANDS BUT INCLUDES THE COVARIATES!

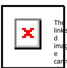
Intercep WITH FCASPHE1@0 FCASPHE2@0 FCASPHE3@0 FCASPHE4@0;

Slope WITH FCASPHE1@0 FCASPHE2@0 FCASPHE3@0 FCASPHE4@0;

1. !THESE COMMANDS INDICATE TO M*plus* THAT THE INTERCEPT AND SLOPE SHOULD NOT BE CORRELATED WITH THE REPEATED MEASURES; IF THIS COMMAND IS NOT ADDED, THESE VARIABLES ARE AUTOMATICALLY CORRELATED!

Appendix M. Ethics application for the study

The email below is a copy of the email received from the Department of Education at the University of Oxford providing ethical clearance to conduct the study. Because I used an anonymised dataset (so no young person could be identified) a full ethics application was not required.



Dear Aiofe

What are the risk and protective factors for the educational outcomes of children in care?

The above application has been considered on behalf of the Departmental Research Ethics Committee (DREC) in accordance with the procedures laid down by the University for ethical approval of all research involving human participants.

I am pleased to inform you that, on the basis of the information provided to DREC, the proposed research has been judged as meeting appropriate ethical standards, and accordingly, approval has been granted.

If your research involves participants whose ability to give free and informed consent is in question (this includes those under 18 and vulnerable adults), then it is advisable to read the following NSPCC professional reporting requirements for cases of suspected abuse

http://www.nspcc.org.uk/Inform/research/questions/reporting_child_abuse_wda74908.html

Should there be any subsequent changes to the project which raise ethical issues not covered in the original application you should submit details to research.office@education.ox.ac.uk for consideration.

Good luck with your research study.

Yours sincerely,

Nigel

Dr Nigel Fancourt

Departmental lecturer: MLT course leader

Department of Education

15 Norham Gardens, Oxford OX2 6PY

01865 274259

www.education.ox.ac.uk

Appendix N. Model results for research questions 2 to 4 in Study Two using outcome 2 (multi-informant measure of school performance)

All models in Study Two were estimated using two outcomes. The first is a carer reported measure of school performance and the second is a multi-informant measure of school performance. For research question 1, I used both outcomes. For research questions 2 to 4 I presented only the findings for the first outcome in the main text of the thesis, mainly for reasons of space. Here I present the findings for research questions 2 to 4 using outcome 2 only.

N.1 Research question 2: Is carer involvement at time 1 a risk or a promotive *correlate* or *factor* for school performance trajectories?

i. Bivariate relationship between carers' aspirations and school performance

Table 8: Percentage of children in each risk group who have low school performance (outcome 1) at T1

	% Low Risk (Promotive)	% Medium	% High Risk (Risk)	OR (Prom) 95% CI	OR (Risk) 95% CI	Type
[Impt Grades]	26.1 (n=102)	33.7 (n=69)	72.0 (n=54)	2.22* (1.60-3.08)	6.41* (3.75-10.87)	Mixed
Aspirations	11.2 (n=25)	32.1 (n=77)	60.1 (n=116)	6.41* (4.05-10.11)	5.35* (3.72-7.69)	Mixed

Table 8 shows the percentage of children in each of the risk categories for both carer involvement variables with low school performance at T1. For example, at T1 11.2% (n=25) of children whose carers high aspirations had low school performance, compared to 32.1% (n=77) of children at average risk and 60.1% (n=116) of young people at high risk.

Table 9: Percentage of children in each risk group who have low school performance (outcome 2) at T4

	% Low Risk (Promotive)	% Medium	% High Risk (Risk)	OR (Prom)	OR (Risk)	Type
[Impt Grades]	26.9 (n=104)	36.1 (n=74)	53.3 (n=40)	1.87* (1.35-2.59)	2.66* (1.63-4.33)	Mixed
Aspirations	19.8 (n=44)	34.0 (n=81)	47.2 (n=91)	2.69* (1.83-3.94)	2.39* (1.69-3.39)	Mixed

Table 9 shows the results for school performance at T4. Here, 19.8% (n=44) of children whose carers high aspirations had low school performance, compared to 34.0% (n=81) of children at average risk and 47.2% (n=91) of young people at high risk.

N.1.1 Growth models: does carer involvement at T1 predict school performance trajectories after controlling for study covariates?

The unconditional growth model had good model fit with outcome 2, shown below in table 10.

Table 10: Model fit unconditional growth model, outcome 2

	χ^2 $(df), p$	CFI	TLI	RMSEA	SRMR
Unconditional Growth Model	764.15 (343) p < .001	.954	.949	.042	.075

The model results for outcome 2 also indicated that the covariance between the intercept and slope was significant $(\cos(I, S = -.024, p < .001)$. This suggests that there was a small association between better school performance and a lower rate of change. This may represent a ceiling effect or a regression to the mean effect. There was also significant variability in both the intercept ($s^2 = .181, p < .001$) and the slope ($s^2 = .015, p < .001$). The mean intercept and slope are not estimated as the repeated measures are specified as latent.

The conditional growth model also had good model fit with outcome 2, as shown below in table 11.

Table 11: Model fit unconditional growth model, outcome 2

	χ^2 $(df), p$	CFI	TLI	RMSEA	SRMR
Conditional Growth Model	1374.562 (603), p < .001	.943	.924	.043	.077

Unstandardised parameter estimates for the conditional model are listed in table 12.

Table 12: Unstandardised parameter estimates for school performance (outcome 2) model conditioned on parental involvement and covariates

Parameter	Estimate	SE	Est/SE	p-value
Estimate effects on intercept				
Gender (male=0)	0.022	0.034	0.653	0.513
SEN at T1	**-0.091**	**0.045**	**-2.019**	**0.044**
Emotional problems	**-0.021**	**0.009**	**-2.330**	**0.020**
Conduct problems	**-0.021**	**0.009**	**-2.231**	**0.026**
Hyperactivity problems	**-0.025**	**0.007**	**-3.318**	**0.001**
Peer problems	0.001	0.010	0.133	0.894
Carer aspirations (high)	**0.208**	**0.044**	**4.706**	**0.000**
Carer aspirations (low)	**-0.139**	**0.050**	**-2.771**	**0.006**
Imp Grades (high)	0.072	0.039	1.837	0.066
Imp Grades (low)	**-0.131**	**0.062**	**-2.096**	**0.036**
Estimate effects on slope				
Gender (male=0)	0.027	0.015	1.825	0.068
SEN at T1	-0.011	0.020	-0.561	0.575
Emotional problems	**0.014**	**0.004**	**3.340**	**0.001**
Conduct problems	-0.001	0.004	-0.183	0.855

Hyperactivity problems	0.002	0.003	0.504	0.614
Peer problems	0.004	0.004	1.086	0.278
Carer aspirations (high)	-0.029	0.020	-1.451	0.147
Carer aspirations (low)	0.035	0.021	1.697	0.090
Imp Grades (high)	0.009	0.018	0.483	0.629
Imp Grades (low)	0.021	0.026	0.805	0.421
Residual Variances				
School Performance T1	0.082	0.013	6.141	0.000
School Performance T2	0.114	0.010	11.142	0.000
School Performance T3	0.110	0.011	9.853	0.000
School Performance T4	0.097	0.0114	6.884	0.000
Intercept	0.109	0.014	7.912	0.000
Slope	0.015	0.003	4.576	0.000

The model results are very similar to those presented in the main thesis with outcome 1, and therefore are not repeated here.

N.2 Research question 3: Using time-varying measures of carer involvement to determine whether it is a risk or promotive *factor* for school performance?

Model fit was excellent, as shown in table 13 below. Parameter estimates for the model are shown in table 14.

Table 13: Model fit indices for growth curve model with time-varying measures of carers' aspirations

	$\chi^2\ (df), p$	CFI	TLI	RMSEA	SRMR
Conditional Growth Model	1449.44 (623), p < .001	.928	.921	.044	.085

Table 14: Parameter estimates for the latent growth model with auto-regressive and cross-lagged paths with carers' aspirations

	β (standardised)	**SE**	**Est/SE**	***p*-value**
Auto-regressive effects				
Aspirations T2 on				
Aspirations T1	***0.553***	***0.039***	***14.213***	***0.000***
Aspirations T3 on				
Aspirations T2	***0.614***	***0.039***	***15.647***	***0.000***
Aspirations T4 on				
Aspirations T3	***0.620***	***0.040***	***15.405***	***0.000***
Cross-lagged effects				
School Perf T2 on				
Aspirations T1	***0.111***	***0.032***	***3.488***	***0.000***
School Perf T3 on				
Aspirations T2	***0.161***	***0.035***	***4.619***	***0.000***
School Perf T4 on				
Aspirations T3	***0.249***	***0.048***	***5.218***	***0.000***
Aspirations T2 on				
School Perf T1	***0.165***	***0.030***	***5.58***	***0.000***
Aspirations T3 on				
School Perf T2	***0.139***	***0.032***	***4.400***	***0.000***
Aspirations T4 on				
School Perf T3	***0.138***	***0.029***	***4.780***	***0.000***
Estimate effects on trajectory model intercept				
Gender (male=0)	0.024	0.036	0.638	0.510
SEN	***-0.218***	***0.043***	***-5.099***	***0.000***
Emotional problems	-0.019	0.009	-2.012	0.044

Conduct problems	-0.019	0.010	-1.941	0.052
Hyperactivity problems	***-0.033***	***0.008***	***-4.304***	***0.000***
Peer problems	-0.011	0.010	-1.173	0.241
Estimate effects on trajectory model slope				
Gender (male=0)	0.025	0.015	1.601	0.109
SEN at T1	***0.040***	***0.020***	***2.023***	***0.043***
Emotional problems	***0.014***	***0.004***	***3.294***	***0.001***
Conduct problems	-0.001	0.004	-0.231	0.871
Hyperactivity problems	0.005	0.003	1.554	0.120
Peer problems	0.007	0.004	1.768	0.077
Estimate effects on Aspirations T1				
Gender (male=0)	0.019	0.033	0.595	0.552
SEN at T1	***-0.412***	***0.045***	***-9.189***	***0.000***
Emotional problems	-0.001	0.008	-0.140	0.889
Conduct problems	-0.002	0.008	-0.239	0.811
Hyperactivity problems	-0.013	0.007	-1.867	0.062
Peer problems	***-0.018***	***0.008***	***-2.408***	***0.016***

Table 15: R^2 for repeated measures of school performance

	β (standardised)	**SE**	**Est/SE**	***p*-value**
School performance T1	0.653	0.048	13.3744	0.000
School performance T2	0.554	0.030	18.622	0.000
School performance T3	0.547	0.033	16.565	0.000
School performance T4	0.626	0.048	13.059	0.000

N.3 Is carer involvement a protective variable for children in care and for children in care with special educational needs?

ii. Bivariate analyses

Table 16: Percentage of children in each risk category for SEN and non SEN children with low school performance (outcome 2) at T4

	Children with SEN (n = 231)			**Children without SEN (n = 427)**		
Carer aspirations	High (n = 16)	Not high (n = 144)	Odds ratio (95%CI)	High (n = 26)	Not high (n = 21)	Odds ratio (95%CI)
Percentage failing	24.6%	42.70%	2.29* (1.25-4.18)	19%	28%	1.74 (0.90-3.35)

Table 16 shows that among children with SEN, 24.6% of those whose carers had high aspirations had low school performance at T4, whereas 42.7% of those whose carers had low aspirations had poor school performance at T4; the odds ratio here was statistically significant (OR = 2.29; 95%CI 1.25 to 4.18). This difference was not significant for children who didn't have SEN (OR = 1.74; 95%CI 0.90 to 3.35). In other words, the likelihood of low school performance was the same for children without SEN regardless of whether their carers had high aspirations or not. Whereas for children with SEN, those whose carers had high aspirations had a significantly lower likelihood of failing in school. This suggests that high carer aspirations is an interactive protective factor for school performance for children with SEN. This was further verified and confirmed by the results of an ANOVA.

iii. Investigating whether carers' aspirations act as a protective factor in the multivariate trajectory model

Table 17: Model fit and regression estimates for carer aspirations for four models

	Chi-square (df), *p*-value	**CFI**	**TLI**	**RMSEA**	**SRMR**	**Cross-lagged paths from carers' aspirations to school performance**	**Cross-lagged paths from school performance to carers' aspirations**
Model research question 3	1449.44 (623), *p* < .001	.928	.921	.044	.085	T2 on T1: .111 *p* =.001 T3 on T2: .161 *p* <.001 T4 on T3: .249 *p* <.001	T2 on T1: .165 *p* <.001 T3 on T2: .139 *p* <.001 T4 on T3: .138 *p* <.001
Model 1a (SEN, n=427)	1077.20(594) *p*<.001	.918	.910	.044	.075	T2 on T1: .133 *p* =.026 T3 on T2: .226 *p* <.001 T4 on T3: .274 *p* <.001	T2 on T1: .118 *p* =.001 T3 on T2: .084 *p* =.005 T4 on T3: .068 *p* =.010
Model 1b (no SEN, n=231)	848.17(594) *p*<.001	.932	.925	.043	.074	T2 on T1: .115 *p* =.004 T3 on T2: .138 *p* =.003 T4 on T3: .238 *p* <.001	T2 on T1: .133 *(ns)* T3 on T2: .149 *p* =.021 T4 on T3: .249 *p* <.001
Model 2 (SEN grouping parameters freely estimated)	2152.83 (1200), *p*<.001	.901	.892	.049	.087	SEN: T2 on T1: .167 *p* =.007 T3 on T2: .248 *p* <.001 T4 on T3: .275 *p* <.001 No SEN: T2 on T1: .108 *p* =.006 T3 on T2: .134 *p* =.003 T4 on T3: .234 *p* <.001	SEN: T2 on T1: .114 *p* =.001 T3 on T2: .083 *p* <.001 T4 on T3: .066 *p* =.010 No SEN: T2 on T1: .130 *(ns)* T3 on T2: .150 *p* =.022 T4 on T3: .252 *p* <.001
Model 3 (SEN grouping parameters constrained)	2163.44(1206) , *p*<001	.974	.901	.892	.089	T2 on T1: .121 *p* <.001 T3 on T2: .168 *p* <.001 T4 on T3: .262 *p* <.001	T2 on T1: .117 *p*<.001 T3 on T2: .094 *p*<.001 T4 on T3: .098 *p* <.001

Again, results are very similar to those with outcome 1, as described in the full thesis.

Therefore these are not repeated here again.

Appendix O. What is the relationship between behavioural problems and educational outcomes and is it linear for al levels of behavioural problems?

The aim of this thesis was to identify risk and protective factors for the school performance of children in foster and kinship care. In addition to this analysis, I also investigated whether behavioural problems measured at T1, when children in the sample were aged 10 to 14, acted as risk or promotive correlates or factors for school performance. The sample is the same as in the main analysis; of the 690 children in the sample, 56% were boys, 17% were from First Nations, Métis or Inuit ethnic backgrounds and 62% had some long-term condition, including foetal alcohol syndrome disorder, cerebral palsy or a learning difficulty.

O.1 SDQ problems in the current sample

The AAR asks carers to complete the Strengths and Difficulties Questionnaire (SDQ); this is a measure of social and emotional well being (Goodman, 2001). In this study, I used the four subscales: conduct problems, hyperactivity, emotional problems and peer problems. The factor structure of the SDQ for the study sample was examined in factor analysis and a four factor structure was found to be adequate (see Appendix J). Mean scores for each subscale are presented in table 18 below. The table indicates what "borderline" scores are; scores lower than this are considered "normal" whereas scores above this are "high or very high".

Table 18: Mean SDQ scores on subscales for study sample (maximum score is 10)

	Mean (*SD*)
Conduct ("borderline"=3)	2.74 (*2.48*)
Hyperactivity ("borderline"=6)	5.10 (*2.96*)
Emotional ("borderline"=4)	2.74 (*2.31*)
Peer ("borderline"=3)	2.54 (*2.30*)

All four mean scores are within the range defined as "normal behaviour" as per SDQ guidelines (Goodman, 2001). However, on closer examination a significant number of young people have high or very high scores on all four subscales, which may indicate the presence of psychopathologies (Goodman et al., 2004). These scores are also significantly higher than children in the general population but similar to other young people in care (Ford, Vostanis, Meltzer, & Goodman, 2007; Geltman et al., 2005; Goodman, 2001, 2016; Meltzer, Gatward, Corbin, & Ford, 2003; Wise, Pollock, Mitchell, Argus, & Farquhar, 2010). I present scores for the four SDQ subscales below to present a comparison with norms for Great Britain and the USA (norms for Canada were not available), and scores from a previous sample of children in care in Ontario, also aged between 11 and 15 at the time of the survey (Marquis & Flynn, 2009), in tables 19 to 22 below (Goodman, 2016).

Table 19: SDQ Conduct problems subscale (% in each category)

	Study Sample	Ontario children in care	GB norm	USA norm
Normal	59.4	65.5	77.8	80.9
Borderline	11.0	9.1	10.1	7.8
High or very high	29.3	25.4	12.3	11.3

Table 20: SDQ Hyperactivity problems subscale (% in each category)

	Study Sample	Ontario children in care	GB norm	USA norm
Normal	57.4	57.4	80.1	85.9
Borderline	7.4	18.1	7	4.4
High or very high	34.9	24.5	12.9	9.7

Table 21: SDQ Emotional problems subscale (% in each category)

	Study Sample	Ontario children in care	GB norm	USA norm
Normal	73.2	61.9	80.6	83.9
Borderline	9.1	22.7	7.2	6.2
High or very high	17.2	15.4	12.2	9.9

Table 22: SDQ Peer problems subscale (% in each category)

	Study Sample	Ontario children in care	GB norm	USA norm
Normal	61.7	66.7	77.0	79.5
Borderline	11.0	8.5	10.4	9.5
High or very high	26.8	24.8	12.6	11.0

The above tables demonstrate high levels of behavioural problems in the study sample, slightly higher in fact that a previous sample of children in care in Ontario (Marquis & Flynn, 2009).

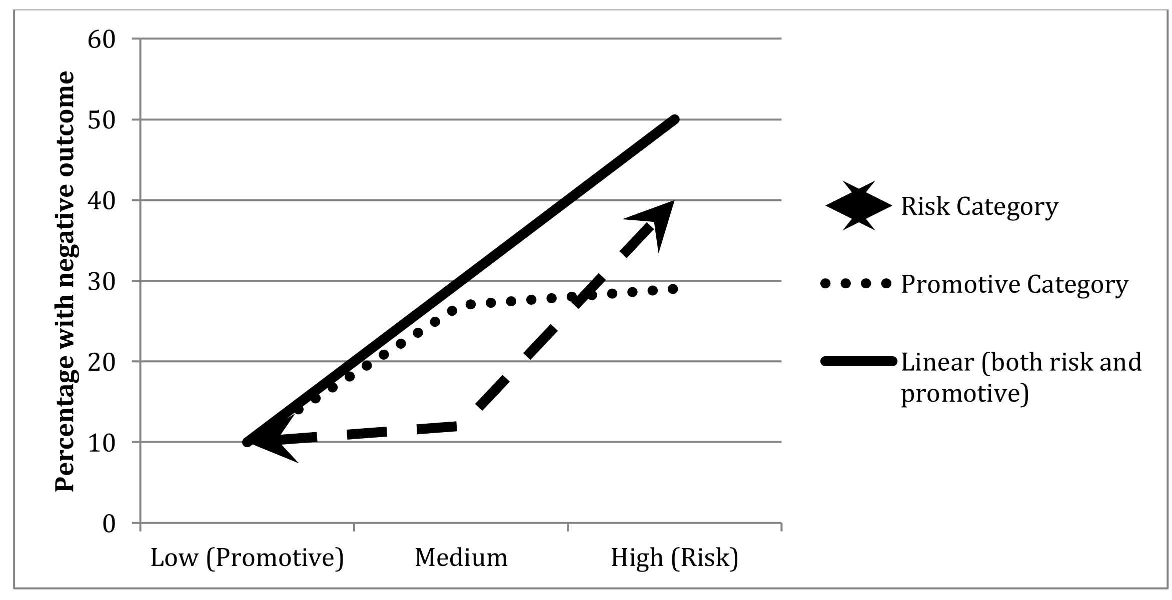
O.2 Method

To answer this question, I used the methods outlined in detail in Farrington, Ttofi and Piquero (2016), Farrington, Loeber, Joliffe and Pardini (2008). This method uses bivariate analyses of sample data to estimate whether a variable is likely to be a risk or a promotive variable.

First, a dichotomous measure is constructed to represent a negative outcome (for example poor school performance) or a positive outcome (good school performance). Secondly, variables hypothesised to be risk or promotive are trichotomised into the following categories: 25% of young people at high-risk (for example, low carer involvement or high scores on the SDQ), 50% of young people at average risk (average carer involvement) and 25% of young people at low risk (high carer involvement or low scores on the SDQ). In Farrington, et al. (2008), to identify risk

variables, the odds of offending was compared in the 25% of young people at high-risk (from peer delinquency) and the 50% of young people at average risk. Where the percentage young people with a negative outcome is high in the high-risk quarter but not low in the low risk quarter, and the odds ratio is significant and above 2, the variable is a risk variable (see figure 1 below). Conversely, where the percentage young people with a negative outcome is low in the low risk quarter but not high in the low high-risk quarter, and the odds ratio is significant and above 2, the variable is a promotive variable (see figure 1). Analyses may find that a variable is both a risk and a promotive variable, if the predictor is linearly related to the outcome. Farrington et al. (2016) take the same approach but compare the 25% of young people at high-risk to the rest of the sample (50% at average risk and 25% at low risk). The former approach is preferred in this study as it is slightly more conservative. Figure 1 below illustrates these hypothetical examples.

Figure 1: Prediction of negative outcome for hypothetical predictors



For this analysis, the outcome was dichotomised as follows. The school performance variables were dichotomised to represent low school performance (bottom 30%) and high school performance (upper 70% of sample). This was done using the factor scores obtained from the confirmatory factor analysis for both outcomes. Factor scores were preferred to mean scores as these account for the different weight each indicator (question) contributes to the overall latent score (see factor analysis in section 5.5.1.2). Upon inspection of raw data, the sample (roughly) split along a 30%-70% grouping; 70% of young people had a mean school performance score of 1 or more and 30% had a score lower than 1 (a score of 1 represents "average" on every question used for the school performance measure). Therefore I dichotomised the outcome as follows: 30% of young people with the lowest factor scores were categorised as low performers, the remaining 70% were categorised as having average or good school performance. I used both school performance measures at time 1 and time 4, to test the cross-sectional relationship as well as the longitudinal one.

Next, the study variables which were not already dichotomous (for example SEN and placement type) and which were correlated with school performance (identified in research question 1) were trichotomised. As results using carer involvement variables were presented in the main study, this analysis uses SDQ scores at T1 only. Trichotomisation was done by splitting the sample into (where possible) 25% low risk, 50% of young people who were medium risk and 25% of young people in a high-risk category.

Trichotomisation for each variable is shown in table 23 below. The first column indicates the variable of interest and in the case of T1 SDQ scores, what the suggested "borderline" score is (Goodman, 2001). Scores below this one are considered

"normal" and scores above it are considered "high or very high". The second, third and fourth columns indicate the number of young people in each (low, medium or high risk) category, as well as the percentage of the sample that this represents. I also include the scores on each variable for each group. For example, for the SDQ emotional problems subscale, at T1 there were 132 young people in the low category, which represents 19.2% of the sample, their scores were all 0. In the medium risk category, there were 373 young people (53.3% of the sample) and their scores ranged from 1 to 3. In the high-risk category there were 182 young people (26.6% of the sample) whose scores ranged from 4 to 9 (10 is the maximum score possible). Where the number of young people doesn't add up to 690 (the full sample), this indicates some missing data on the predictor variable. Missing data was minimal across the sample and therefore listwise deletion was used for the purpose of this analysis.

Table 23: Trichotomisation of SDQ variables

Variable	**Low (promotive)**	**Medium**	**High (risk)**
	(n, %, score range)		
SDQ emotional problems ("borderline"=4)	n=132 (19.2%) (0)	n=373 (54.3%) (1-3)	n=182 (26.6%) (4-9)
SDQ peer problems ("borderline"=3)	n=226 (32.9%) (0)	n=276 (40.2%) (1-3)	n=185 (26.5%) (4-10)
SDQ conduct problems ("borderline"=3)	n=178 (25.9%) (0)	n=308 (44.7%) (1-3)	n=202 (29.3%) (4-10)
SDQ hyperactivity problems ("borderline"=6)	n=173 (25.1%) (0-2)	n=334 (48.5%) (3-8)	n=181 (26.3%) (9-10)

Then, to identify whether these variables were promotive variables, the percentage of young people with low school performance in the low (promotive) category was compared to the percentage of young people with low school performance in the rest

of the sample (medium and high). To identify whether they are risk variables, the percentage of young people with low school performance in the high (risk) category was compared to the percentage of young people with low school performance in the rest of the sample (medium and low). Significant odds ratios (OR) above 2 were examined to identify whether variables act as promotive or risk.

Using T1 and T4 school performance allowed me to examine whether variables were risk or promotive *correlates* or *factors*.

O.3 Findings

iv. Do behavioural problems act as a risk or a promotive correlate? Analyses with school performance at T1.

Results using the first outcome (carer reported school performance) are presented in table 24 below; results using the multi-informant outcome were almost identical and are not presented here. The second, third and fourth columns of the table show the percentage of children with low school performance at T1, in each of the three categories and for each SDQ subscale. For example, 14.8% (n=26) of children in the low risk category of the SDQ conduct subscale had low school performance at T1. This compared with 32.7% (n=98) of children in the average risk category and 44.3% (n=86) of children with high scores.

Table 24: Risk and Promotive variables for carer reported low school performance (T1)

T1 SDQ	% Low (Prom)	% Medium	% High (Risk)	OR (Prom)	OR (Risk)	Type
SDQ Conduct	14.8	32.7	44.3	3.42*	2.26*	Mixed
SDQ Hyperactivity	8.2	33.4	50.6	7.25*	3.11*	Mixed
SDQ Emotional	17.6	29.9	44.8	2.50*	2.23*	Mixed
SDQ Peer	19.6	31.1	46.6	2.43*	2.51*	Mixed

Table 24 also shows whether the study variables were risk or promotive correlates; if they appeared to be both they are classified as mixed (that is, linearly related to school performance). The promotive OR compared the promotive ("best") category with the rest of the sample while the risk OR compared the risk ("worst") category with the rest of the sample. All odds ratios (OR) presented were significant at the $p<.05$ level. Promotive ORs were reversed for ease of comparison, so the larger the OR the smaller the chance of poor school performance.

For example, for SDQ conduct problems, the promotive OR was 3.42 (95% confidence interval or CI=1.54 to 4.06), while the risk OR was 2.26 (95%CI=1.56 to 3.19). Therefore, conduct problems appeared to act both as a risk and a promotive correlate. At T1, all variables appeared to have a linear relationship with school performance, although SDQ hyperactivity problems had a far stronger promotive than risk effect.

Next, I investigated whether these relationships were similar in longitudinal analyses and thus whether the variables of interest are risk or promotive factors.

v. Do behavioural problems measured at T1 act as a risk or a promotive factor? Analyses with school performance at T4.

To identify a variable as a risk or promotive factor for a particular outcome, the variable of interest must be associated with the outcome and it must precede the outcome (Kraemer, Kraemer-Lowe, & Kupfer, 2005). Further bivariate analyses were conducted to explore whether behavioural problems measured at T1 acted as risk or promotive factors for T4 school performance, as per the methods suggested by Farrington et al., (2016).

Results are presented in table 25; results with the multi-informant outcome were almost identical. Like table 24, table 25 shows the percentage of children with low school performance at T4, in each of the three categories, for each variable, in the second, third and fourth columns. For example, 24.1% (n=41) of children in the low risk category for the SDQ conduct subscale had low school performance at T4, compared to 32.2% (n=96) of children in the average risk category, and 45.9% (n=89) of children in the high-risk category.

Table 25: Risk and Promotive variables for low school performance at T4

T1 SDQ	% Low (Prom)	% Medium	% High (Risk)	OR (Prom)	OR (Risk)	Type
SDQ Conduct	24.1	32.2	45.9	1.90*	2.05*	Mixed
SDQ Hyperactivity	20.2	37.9	40.7	2.51*	1.46	Prom
SDQ Emotional	33.1	33.3	36.2	1.06	1.14	No effect
SDQ Peer	26.1	35.2	41.9	1.73*	1.59*	Mixed

Table 25 also shows whether the study variables had risk or promotive effects, both or neither. Starred odds ratios (OR) were significant at the $p<.05$ level. For example, low conduct problems had a promotive effect (OR = 1.90, 95%CI=1.28 to 2.82), as well as a risk effect (OR = 2.26, 95%CI=1.45 to 2.89). Therefore, conduct problems appeared to act both as a risk and a promotive factor.

Table 25 also shows a decrease in the strength of the risk or promotive effect, compared to cross-sectional analyses. In some cases, the effect decreases such that is no longer significant, as is the case for emotional problems. The effect also decreases significantly for peer problems; odds ratios below 2 are not considered to be particularly strong effects.

The notable finding from this analysis concerns hyperactivity problems. Indeed, low hyperactivity appears to act as a promotive factor, whereas high levels of hyperactivity problems no longer have a risk effect. This means that children who have high scores on the SDQ hyperactivity subscale (scores of 9 to 10) have the same risk of school failure as children in the average risk category (scores 3 to 8).

vi. Discussion

This analysis used bivariate analyses to examine whether behavioural problems, as measured by the SDQ, acted as risk or promotive correlates or factors for school performance at T1 and T4. Children were 10 to 14 at T1 and four years older at T4. Results indicated that all types of behavioural problems had a linear relationship with school performance at T1, because they were both risk and promotive correlates. In contrast, only conduct and peer problems were both risk and promotive *factors*, whereas emotional problems no longer had risk or promotive effects and low hyperactivity problems acted as a promotive factor only.

Emotional problems were not a risk factor. Compared to other subscales of behavioural problems, emotional problems in the sample were not very high at T1, although they were higher than in normed samples. Emotional problems are likely to manifest later in adolescence and because this analysis does not take into consideration the variation over time in behavioural problems, this finding may be deceptive (see for example Sonuga-Barke et al., 2017). However, we expect that high emotional problems at T1 would be correlated with high emotional problems at later time points; so if later emotional problems put children at risk of school performance we would expect to see an effect of high emotional problems in this analysis too. In fact, other research has shown that emotional problems do not consistently put children at risk of low school performance, and it is perhaps only severe forms of emotional problems which put young people at risk (Dodge & Pettit, 2003).

With respect to hyperactivity problems, this highlights that even low hyperactivity scores (scores of 3 for example) may put children at risk of later school failure and that only very low hyperactivity scores (2 or under) protect children. This

is in keeping with previous research (Farrington et al., 2008; Merrell, Sayal, Tymms, & Kasim, 2017).

vii. Limitations

First of all, measures are only taken from age 10, therefore the onset of behavioural problems is not known. However, this is important to understand longer-term outcomes (Bevilacqua, Hale, Barker, & Viner, 2017). Secondly, the study does not consider how behavioural problems develop during adolescence and how this might affect school performance over time. The direction of effect between behavioural problems and school performance is also not clear; indeed school performance may influence later behavioural problems. Such analyses should be carried out in future and indeed the data is available in OnLAC to do this. Finally, the prevalence and severity of behavioural problems are different in boys and girls. A *t*-test showed a significant difference between hyperactivity and peer problems in boys and girls at T1. This is also likely to influence the results of this analysis. However, sample sizes were too small to conduct analyses of risk and promotive factors separately; indeed these would not be sufficiently powered to detect effects.

Conclusion

This analysis showed that low hyperactivity problems in early adolescence act as a promotive factor for school performance in mid to late adolescence. Emotional problems had no effect on later school performance, whereas conduct and peer problems had small risk and promotive effects. This analysis highlights the importance of longitudinal analyses, the results of which were substantially different

from those of cross-sectional analyses. Moreover, it shows the importance of early support and prevention for behavioural problems with young children to support later school success.

Appendix P. Assessment and Action Record (AAR)

Draft

PLEASE NOTE: Use only this AAR-C2 form from June 1, 2011 to May 31, 2012 for 12 to 15 year olds.

LOOKING AFTER CHILDREN:
Assessment and Action Record

(Second Canadian Adaptation - AAR-C2-2010)
Good Parenting, Good Outcomes
Ages 12 to 15 years

ID

Note to young people:

* *What has happened in the last year?*
* *Have you had the care, guidance, and opportunities you need to give you a good start in adult life?*
* *What else needs to be done?*

This form is meant to help you, your child welfare worker, and caregivers to answer these questions. By now you will want to take a major part in making decisions about your life. We strongly encourage you to fill out this form with your worker and one of your caregivers so that together, you may make future plans and decide who is going to carry them out.

The Assessment and Action Record is confidential once completed. Only authorized persons are allowed access to the document.

Note to the child welfare worker: PLEASE COMPLETELY FILL OUT THE QUESTIONS ON THIS PAGE.

This information is necessary to help us link this AAR conversation with last year's AAR conversation (if there was one). The linking of AARs from one year to the next will allow us to follow the developmental progress of the young person while respecting the confidentiality of all those taking part in the AAR conversations.

Young person's initials of first and last name: ☐☐☐☐ dmc1

Young person's official agency file number: ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐ dmc2

Young person's gender: ☐ **Male** ☐ **Female** dmc3

Young person's date of birth: ☐☐ / ☐☐ / ☐☐☐☐ dmc4
Day **Month** **Year**

This assessment was completed by:

Child welfare worker's initials of first and last name: ☐☐☐☐☐☐ dmw1

agency

Agency or organization: ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐ dmw3

Assessment approved by:
Initials of first and last name of supervisor: ☐☐☐☐ dmw4

Date signed: ☐☐ / ☐☐ / ☐☐☐☐ dmw5
Day **Month** **Year**

Date begun: ☐☐ / ☐☐ / ☐☐☐☐ dmw6
Day **Month** **Year**

Date completed: ☐☐ / ☐☐ / ☐☐☐☐ dmw7
Day **Month** **Year**

INTRODUCTION: How to get the best from the Assessment and Action Record (AAR)

This record is in a format that allows it to be read by a computer scanner, for rapid processing. The **purposes** of the Assessment and Action Record (AAR) are to assess a young person's yearly progress, monitor the quality of care he/she is receiving, and serve as the basis for preparing or revising his/her annual Plan of Care. The AAR covers seven developmental dimensions: **health, education, identity, family and social relationships, social presentation, emotional and behavioural development,** and lastly, **self-care skills.**

These data are collected annually to assess the individual child's or youth's needs in order to provide information to update the child's or youth's Plan of Care and to monitor the child's or youth's developmental progress. The information collected is used to relieve any hardship faced by young people in care and to monitor and prevent any discrimination against the child or youth, ameliorate any disadvantage and promote equality for all children and youth in care.

It is to be completed by the child welfare worker in a series of conversations with the young person and the caregiver who knows the young person best. Some questions are addressed to the young person, some to the caregiver, and others to the child welfare worker.

Throughout the AAR, the acronym **FNMI** refers to First Nations, Métis, and Inuit, and includes status/eligible for status and First Nations heritage (non-status).

Note to the child welfare worker: In completing the AAR,

PLEASE DO:

- Think about who is the best person to complete the Assessment and Action Record with you and the young person.This person should be someone who knows the young person best.
- Try to have conversations about the topics raised by the AAR rather than question and answer sessions. Feel free to use a form of speaking which is familiar and comfortable for you and the people with whom you are working.
- Complete the AAR with young people with disabilities as best you can.
- Recognize the importance of having FNMI Band representatives or Community members present to assist.
- Be respectful of cultural diversity.
- Plan ahead and read through each section before you complete it with the main caregiver and the young person. Some questions ask about sensitive issues which need to be thought through in advance.
- Consider talking to significant others such as teachers and healthcare professionals as part of the process.
- Make use of the space available on the right hand page to start preparing the plan of care.
- Aim to make the sessions enjoyable for all concerned.
- Use your own judgement and discuss issues more fully when you find the sections do not include details which are important.
- Give a copy of the AAR to the young person and another to his/her caregiver. This will allow them to follow along easily and permit the conversation to proceed smoothly and quickly.
- Note the details on the right hand page if anyone disagrees with some of the answers.
- Provide a copy of the completed AAR to the youth or caregiver if he/she wishes to have one.
- Please be prepared to find out the missing information or plan action for the future. Please indicate the reason(s) for gaps in the notes section on the right hand page.

PLEASE DO NOT:

- Try to complete it all in one sitting.
- Re-interpret the young person's or the caregiver's answers. Please respect his/her opinion.
- Say that you are doing "it" because "they" have told you it has to be done.
- Try to complete the AAR without involving the young person (if appropriate) or the caregiver.
- Answer questions for the young person or the caregiver.

Looking After Children
Assessment and Action Record
Second Canadian Adaptation (AAR-C2-2010)

Main language of AAR conversation:
☐ English ☐ French ☐ First Nations or Inuit language ☐ Other

The AAR is written in:
☒ English ☐ French

Age-group of this AAR is:
☐ 18-21 years ☒ 12-15 years ☐ 5-9 years ☐ 1-2 years
☐ 16-17 years ☐ 10-11 years ☐ 3-4 years ☐ 0-11 months

Province or territory of young person's placement:
☐ Alberta ☐ Northwest Territories ☐ Québec
☐ British Columbia ☐ Nova Scotia ☐ Saskatchewan
☐ Manitoba ☐ Nunavut ☐ Yukon
☐ New Brunswick ☐ Ontario ☐ Other
☐ Newfoundland and Labrador ☐ Prince Edward Island

Province or territory with legal guardianship of the young person (if different from province or territory of young person's placement):
☐ Alberta ☐ Northwest Territories ☐ Prince Edward Island
☐ British Columbia ☐ Nova Scotia ☐ Québec
☐ Manitoba ☐ Nunavut ☐ Saskatchewan
☐ New Brunswick ☐ Ontario ☐ Yukon
☐ Newfoundland and Labrador

BACKGROUND INFORMATION

The purpose of this background information section is to gather basic information on three key persons in the Looking After Children approach: the young person, the child welfare worker responsible for the young person, and the caregiver who knows the young person best.

Notes to the child welfare worker:

- ***In many cases, much of this background information section can probably be completed by you before the AAR conversation with the caregiver and young person.***
- *For each item, please put a **dark mark** (i.e. an **X**, a **check mark**, or a **line**, or, as required, **a number or letter**) in the appropriate box or boxes, so that the computer will be able to scan the questionnaire properly.*
- *The symbol of three dots in a row [**...**] always refers to the young person for whom the AAR is being completed.*
- *At the beginning of the conversation, please give a copy of the AAR to the caregiver and young person. This will allow them to follow along easily and permit the conversation to proceed smoothly and quickly. Only your copy of the AAR is to be filled out.*

During the AAR conversation, the **CHILD WELFARE WORKER** is to answer the following section with assistance, as needed.

1. BACKGROUND INFORMATION ON THE YOUNG PERSON FOR WHOM THE AAR IS TO BE COMPLETED

BG1A: CURRENT PLACEMENT: Which of the following best describes ...'s current placement? **(Mark one only.)**

- ☐ Kinship in care
- ☐ Foster home operated by child welfare organization
- ☐ Group home operated by child welfare organization
- ☐ Foster home - outside purchased care
- ☐ Group home - outside purchased care
- ☐ Children's mental health residential facility
- ☐ Hospital
- ☐ Customary care (in the case of aboriginal children)
- ☐ Other
- ☐ Psychiatric facility
- ☐ With birth parent(s)
- ☐ Adoption probation
- ☐ With relatives (not in foster care)
- ☐ Whereabouts unknown or unapproved
- ☐ Independent living
- ☐ Shelter
- ☐ Custody/Detention facility

BG1B: ***NOTE*****: IF** you answered in question BG1A that the young person's current placement is a **FOSTER HOME**, **THEN** please indicate what **TYPE** of foster home this is: **(Mark one only.)**

- ☐ Regular foster care
- ☐ Specialized foster care
- ☐ Treatment foster care
- ☐ Other foster care

BG1C: Whom does the current placement serve (whether foster care or another type of placement)?

☐ Males only ☐ Females only ☐ Both genders

BG2: Does ... have his/her own bedroom?

☐ Yes ☐ No

BG3A: What is the size of the area of residence in which this dwelling is situated?

- ☐ Urban, population 500,000 or over
- ☐ Urban, population 100,000 to 499,999
- ☐ Urban, population 30,000 to 99,999
- ☐ Urban, population < 30,000
- ☐ Northern remote area
- ☐ Rural area
- ☐ First Nations reserve

BG3B: In what postal code is this dwelling is situated?

☐☐☐☐☐☐

BG4: What is ...'s (e.g., the young person) current age?

☐☐ **Years**

BG5: What is ...'s current legal status as a client of the local child welfare agency or organization? **(Mark only one.)**

- ☐ Temporary care agreement
- ☐ Interim care and custody
- ☐ Customary care
- ☐ Society ward
- ☐ Crown ward, with access
- ☐ Crown ward
- ☐ Other

FIRST NATION YOUNG PEOPLE: IF ... is a *First Nations young person*, **THEN** please answer questions BG6 to BG8. **If not, go to question BG9.**

BG6: Is ... registered with a First Nation?

☐ Yes ☐ No ☐ Don't know

BG7: Does ... have his/her Band Status Card?

☐ Yes ☐ No ☐ Don't know

BG8: What is ...'s status eligibility?

☐ Status ☐ Non-Status ☐ Bill C-31 ☐ Eligible but not registered ☐ Don't know

BG9: PRIMARY REASONS FOR CURRENT ADMISSION TO SERVICE: Young person came into care because of: **(Mark all that apply.)**

☐ **Physical harm** (i.e., the young person has been or is at risk of being physically harmed as a result of an act or action by a caregiver [commission] or is at risk of being harmed as a result of caregiver's failure to take actions to protect him/her [omission].)

☐ **Sexual harm** (i.e., the young person has been or is at risk of being sexually harmed as a result of an act or action by a caregiver [commission] or is at risk of being harmed as a result of the caregiver's failure to take actions to protect him/her [omission].)

☐ **Neglect** (i.e., the young person has been or is at risk of neglect as a result of the caregiver's failure to provide adequate care for him/her. This may be by commission or omission.)

☐ **Emotional harm** (i.e., the young person has been or is at risk of being emotionally harmed as a result of specific behaviours of the caregiver towards him/her [commission] or is at risk of being harmed as a result of the caregiver's failure to take actions to protect him/her [omission].)

☐ **Domestic violence** (i.e., the young person has been exposed to domestic violence.)

☐ **Abandonment/separation** (i.e., the young person has been abandoned or is at risk of being separated from the family as a result of intentional or unintentional actions of the caregiver.)

☐ **Problematic behaviour** (i.e., the young person's behaviour is so problematic that it exceeds the birth family's capacity to care for the young person.)

☐ **Other**

BG10: How old was ... when he/she was placed in out-of-home care for the **very first time** (at this or another child welfare agency)? **(If less than one year of age indicate age in months.)**

☐☐ **Years** ☐☐ **Months (If less than one year.)**

ONTARIO CHILD BENEFIT equivalent (OCBe): Through the implementation of OCBe funding, young people (in care) can receive access to recreational, educational, cultural, and social opportunities that support their achievement of higher educational outcomes, higher degree resiliency, social skills and relationship development, and a smoother transition to adulthood.

BG11A: Have any funds been accessed from the Ontario Child Benefit equivalent program?

☐ Yes ☐ No

BG11B: If yes, please describe:

____

2. INFORMATION ON THE CURRENT PLACEMENT SETTING.

BG12: Total number of children or youths **not in care** (aged 17 or younger) who usually live in this dwelling

☐☐ **Total number of children or youths not in care**

BG13: Total number of children or youths **in care** besides young person who usually live in this dwelling.

☐☐ **Total number of children or youths in care besides young person**

BG14: Total number of **siblings** of young person who usually live in this dwelling with him/her.

☐☐ **Total number of siblings**

3. BACKGROUND INFORMATION ON THE YOUNG PERSON'S CHILD WELFARE WORKER

BG15: Child welfare worker's gender:

☐ Male ☐ Female

BG16: Total length of time child welfare worker has worked with this young person, not counting interruptions:

☐ Less than 1 year ☐ 1-3 years ☐ 4-9 years ☐ 10 years and over

BG17: Total length of time child welfare worker has worked in child welfare:

☐ Less than 1 year ☐ 1-3 years ☐ 4-9 years ☐ 10 years and over

BG18: The child welfare worker's team is:

☐ A generic team (i.e., composed of mixed cases including intake, protection/ongoing, children-in-care, permanent wards, adoption, etc.)
☐ A specialized team (i.e., composed of one type of case, that is exclusively intake or protection/ongoing or children-in-care or permanent wards or adoption, etc.)
☐ A FNMI team

BG19: Has the child welfare worker received formal training in the Looking After Children (LAC) program?

☐ Yes ☐ No

BG20: HIGHEST LEVEL OF EDUCATION: Highest degree, certificate, or diploma the child welfare worker has ever attained in **any field**:

☐ Less than a high school diploma
☐ High school diploma
☐ Trades certificate - Vocational school - Apprenticeship training
☐ Non-university certificate or diploma from a community college, CEGEP, school of nursing, etc.
☐ University certificate or diploma below bachelor level
☐ Bachelor degree
☐ University certificate or diploma above bachelor level
☐ Master's degree
☐ Doctoral degree

BG21: FIELD OF HIGHEST LEVEL OF EDUCATION : What was the specific field of the child welfare worker's highest degree, certificate, or diploma (i.e., the one identified in BG20?) **(Mark one only.)**

- ☐ Social work
- ☐ Child & youth care
- ☐ Native Studies
- ☐ Other

BG22: LANGUAGE: Does the child welfare worker usually speak with the young person in his/her primary language?

- ☐ Yes
- ☐ No

BG23: In general, how often do you discuss information contained in the AAR with your supervisor (e.g., developing and/or reviewing plan of care)?

- ☐ Not applicable, this is my first AAR
- ☐ Sometimes
- ☐ Very often
- ☐ Almost never

4. BACKGROUND INFORMATION ON THE YOUNG PERSON'S CAREGIVER (to be completed by the child welfare worker in conjunction with the caregiver, as needed.)

Note to the child welfare worker: *Here, the term* ***caregiver*** *refers to the person who is considered the most knowledgeable about the young person, usually because he/she is the caregiver most actively involved in the young person's care. He/she is to participate in the AAR conversation. (****If two or more*** *caregivers know the young person equally well and are equally involved in his/her care, they are asked to* ***nominate one person as the main respondent****.)*

BG24: Initials of first and last name of main respondent:

☐☐☐☐

BG25: Main respondent's gender:

- ☐ Male
- ☐ Female

BG26: If ... is in a **foster home**, for how many years in total have the caregivers been providing foster care to children or youths (i.e., including but not limited to ...)?

- ☐ Less than 1 year
- ☐ 1-3 years
- ☐ 4-9 years
- ☐ 10 years and over

BG27: LANGUAGE: What language(s) are spoken most often in the caregiver's home? **(Mark all that apply.)**

- ☐ English
- ☐ French
- ☐ First Nations or Inuit language
- ☐ Other

BG28: RELIGION(S) / SPIRITUAL AFFILIATION(S): What, if any, is the caregiver's religion or spiritual affiliation(s)? **(Mark no more than two.)**

- ☐ No religion or spiritual affiliation
- ☐ Anglican
- ☐ Baptist
- ☐ Buddhist
- ☐ Eastern Orthodox
- ☐ FNMI (traditional)
- ☐ FNMI (other)
- ☐ Mormon
- ☐ Hindu
- ☐ Islam (Muslim)
- ☐ Jehovah's Witness
- ☐ Jewish
- ☐ Lutheran
- ☐ Mennonite
- ☐ Pentecostal
- ☐ Presbyterian
- ☐ Roman Catholic
- ☐ United Church
- ☐ Sikh
- ☐ Other

BG29: The ethnic/cultural background of at least one caregiver and that of the young person is:

☐ The same ☐ Similar ☐ Neither the same nor similar

BG30: HEALTH: In general, the caregiver would say that his/her own health is:

☐ Excellent ☐ Very good ☐ Good ☐ Fair ☐ Poor

BG31: DISABILITY: Because of a long-term physical or mental condition, or a health problem (lasting or expected to last 6 months or more), is the caregiver limited in the kind or amount of activity he/she can do at home, in caring for children, or in leisure activities?

☐ Yes ☐ No

BG32: SMOKING: At present, does anyone in the household smoke cigarettes inside the home?

☐ Daily ☐ Occasionally ☐ Not at all

BG33 CAREGIVER TRAINING: Has the caregiver received any formal training in the Looking After Children (LAC) program?

☐ Yes ☐ No

BG34: Has the caregiver completed or is he/she currently attending one or more of the following caregiver training programs (**other than** Looking After Children)? **(Mark as many as apply.)**

☐ PRIDE pre-service (Parenting Resources for Information, Development & Education program)

☐ Agency-specific program (i.e., PRIDE in-service)

☐ Foster parenting techniques (training offered by a CEGEP or college)

☐ Other program

The following two questions apply only to young people residing in group homes and are to be answered by the **CHILD WELFARE WORKER** with assistance, if needed, from the group home worker(s). **(If not a group home, go to question BG37)**

BG35: What is the model of the group home?

☐ Parent model (i.e., presence of 1 or 2 main caregivers who define this dwelling as their own primary residence.)

☐ Staff model (i.e., presence of several caregivers who define other dwellings as their own primary residence.)

☐ Other

BG36: If the group home is based on the staff model, who is mainly responsible for the young person?

☐ Not applicable ☐ A team of group home workers ☐ A key group home worker

5. INFORMATION ON THE LAST ASSESSMENT (IF APPLICABLE) OF THIS YOUNG PERSON WITH THE ASSESSMENT AND ACTION RECORD (AAR).

BG37: Was the young person previously assessed with the AAR?

☐ No **(IF NO, PLEASE GO SECTION 6 - question BG42)**

☐ Yes (If yes, the **child welfare worker** is to answer questions BG39 to BG42.)

BG38: Was the young person living in the same placement at the last AAR assessment as he/she is in this year?

☐ Yes ☐ No

BG39: Did the young person have the same child welfare worker at the last AAR assessment as he/she has this year?

☐ Yes ☐ No

BG40: Did the young person have the same caregiver at the last AAR assessment as he/she has this year?

☐ Yes ☐ No

BG41: Is it the same caregiver who was the main respondent at the last AAR assessment and this year's AAR assessment?

☐ Yes ☐ No

6. BACKGROUND INFORMATION RELATING TO THE YOUNG PERSON'S HEALTH

BG42: HEIGHT: How tall is ...?

☐ **Feet and** ☐☐ **Inches OR** ☐ **Metres and** ☐☐ **Centimetres**

BG43: WEIGHT: How much does ... weigh?

☐☐☐ **Pounds OR** ☐☐☐ **Kilograms**

BG44: FNMI YOUNG PEOPLE (If not an FNMI young person, go to question BG46): When did ... last see a Traditional Healer?

☐ Less than a year ago ☐ More than a year ago ☐ Never **(Go to question BG46)**

BG45: Has everything the Healer recommended been done?

☐ Yes ☐ No ☐ Uncertain ☐ No recommendation(s)

BG46: MEDICAL EXAM: When did ... last have a medical exam?

☐ Less than a year ago ☐ More than a year ago ☐ Never had one **(Go to question BG48)**

BG47: Has everything the doctor recommended been done?

☐ Yes ☐ No ☐ Uncertain ☐ No recommendation(s)

BG48: DENTAL EXAM: When did ... last visit the dentist?

☐ Less than a year ago ☐ More than a year ago ☐ Never **(Go to question BG50)**

BG49: Have all treatments the dentist recommended been carried out?

☐ Yes ☐ No ☐ Uncertain ☐ No recommendation(s)

BG50: Is ... taking any psychotropic and/or behaviour altering medication(s) prescribed by a physician (e.g., Ritalin, tranquilizers, anti-convulsants, etc.)?

☐ Yes ☐ No **(Go to question BG52)** ☐ Uncertain

BG51: If ... is taking psychotropic and/or behaviour altering medication(s) prescribed by a physician, is this being monitored by an appropriate health care professional?

☐ Yes ☐ No ☐ Uncertain

BG52: HOSPITALIZATIONS: In the past 12 months, was ... ever an overnight patient in the hospital?

☐ Yes ☐ No

BG53: IMMUNIZATIONS: Are all of ...'s immunizations up-to-date?

☐ Yes ☐ No

BG54: LONG-TERM CONDITIONS: In this question "long-term conditions" refer to conditions that have lasted or are expected to last 6 months or more and have been diagnosed by a health professional. Does ... have any of the following long-term conditions? **(Mark all that apply.)**

- ☐ None
- ☐ Food or digestive allergies
- ☐ Respiratory allergies such as hay fever
- ☐ Any other allergies
- ☐ Asthma
- ☐ Bronchitis
- ☐ Heart condition or disease
- ☐ Epilepsy
- ☐ Diabetes
- ☐ Fetal alcohol spectrum disorder
- ☐ Cerebral palsy
- ☐ Kidney condition or disease
- ☐ Blood disorder (i.e., Von Willebrand, hemophilia, etc.)
- ☐ Developmental disability
- ☐ Learning disability
- ☐ Attention deficit disorder
- ☐ Emotional, psychological, or nervous difficulties
- ☐ Any other long-term condition

BG55: HEALTH SERVICES RECEIVED BY THE YOUNG PERSON DURING THE LAST 12 MONTHS:
For each of the service providers listed, please indicate whether ... has received services from such a provider during **the last 12 months.**

1. Family physician ☐ Yes ☐ No

2. Pediatrician ☐ Yes ☐ No

3. Ophthalmologist ☐ Yes ☐ No

4. Other MD ☐ Yes ☐ No

5. Nurse ☐ Yes ☐ No

6. Dentist ☐ Yes ☐ No

7. Orthodontist ☐ Yes ☐ No

8. FNMI Traditional Healer ☐ Yes ☐ No

9. Optometrist ☐ Yes ☐ No

10. Audiologist ☐ Yes ☐ No

11. Speech therapist ☐ Yes ☐ No

12. Physiotherapist ☐ Yes ☐ No

13. Occupational therapist ☐ Yes ☐ No

14. Nurse practitioner ☐ Yes ☐ No

15. Other health service provider ☐ Yes ☐ No

7. BACKGROUND INFORMATION RELATING TO THE YOUNG PERSON'S EDUCATION

BG56: TYPE OF SCHOOL: What type of school is ... (i.e., the young person) currently enrolled in? (Or, if this conversation takes place during the summer, what type of school was ... enrolled in during the last school year?)

☐ Not currently in school **(Go to question BG58A)**
☐ Public school
☐ Catholic school (publicly funded)
☐ Private school
☐ Taught in an institution (e.g., hospital, young offender facility, child welfare facility)
☐ Taught at home (home schooling)
☐ FNMI school
☐ Other

BG57: In what language is ... mainly taught?

☐ English ☐ French ☐ First Nations or Inuit language ☐ Other

BG58A: Has ... repeated a grade at school (including kindergarten)?

☐ Yes ☐ No **(Go to question BG59)**

BG58B: Has ... repeated a grade at school in the last 12 months?

☐ Yes ☐ No

BG59: CHANGES IN SCHOOLS: Other than the natural progression through the school system, how many times (if any) has ... changed schools since birth?

☐ No changes in school (other than natural progression through the school system)
☐ 1 or 2 changes
☐ 3 or 4 changes
☐ 5 to 7 changes
☐ 8 or more changes

BG60: Other than the natural progression through the school system in your area, has ... changed schools in the last 12 months?

☐ Yes ☐ No ☐ Not applicable, not in school

BG61: EDUCATIONAL AND RECREATIONAL SERVICES RECEIVED BY THE YOUNG PERSON DURING THE LAST 12 MONTHS: Has ... received services from the following providers in the **last 12 months**?

	Yes	No
1. Teacher (regular class)	☐	☐
2. Teacher (special education)	☐	☐
3. Teacher's aide	☐	☐
4. Educational tutor	☐	☐
5. Other educational or recreational service provider	☐	☐
6. Paid recreation/sports instructor or coach	☐	☐
7. Volunteer (unpaid) recreation/sports instructor or coach	☐	☐
8. Volunteer/paid driver	☐	☐
9. Summer camp staff	☐	☐
10. FNMI Traditional Elder or Cultural Teacher	☐	☐
11. FNMI cultural recreational service provider	☐	☐

8. BACKGROUND INFORMATION RELATING TO THE YOUNG PERSON'S <u>FAMILY AND SOCIAL RELATIONSHIPS</u>

BG62: How long has ... been living with his/her current caregiver? **(If less than one year indicate months.)**

☐☐ **Years** ☐☐ **Months (If less than one year.)**

BG63: Is there a permanency plan for ...?

☐ Yes ☐ Uncertain ☐ No

BG64: The permanency plan for the young person is to:

☐ Remain in current placement
☐ Status change to legal custody
☐ Move to adult services
☐ Move to adoption
☐ Move to customary care
☐ Discharge from care
☐ Move to kinship
☐ Move to independent living
☐ Other
☐ Permanency plan is not yet determined

BG65: Is it the caregiver's intention to have this young person in the current placement into adulthood?

☐ Yes ☐ No ☐ Uncertain

BG66: How many changes in main caregivers has ... experienced since birth? **(A main caregiver is a person who has acted in that capacity for one month or more. If care was shared by two or more people, select only one of these people as a main caregivers for that period.) Try to give an estimate of the number, even if you are not certain.**

☐☐ **Changes in main caregiver(s) (write in total number)**

BG67: CHANGES IN PLACE OF RESIDENCE: How many times in ...'s life has he/she moved, that is, changed his/her <u>**usual**</u> place of residence? **(Write in the number of times.)**

☐☐ No. of times (00 = none; 01 = once; 02 = twice; etc.)

BG68: CONTACT WITH BIRTH FAMILY: What <u>main</u> type of contact does ... have with his/her birth family (i.e. birth mother, birth father, siblings he/she is not living with, extended birth family)?

☐ At least once a month
☐ Less than once a month
☐ Telephone or letter contact only
☐ No contact at all
☐ Crown ward, with no access
☐ Deceased

BG69: If ... is not living with all of his/her sibling(s), is ... receiving all necessary assistance to remain in contact with his/her sibling(s)?

☐ Yes ☐ No ☐ Not applicable

BG70: Is ... receiving all necessary assistance to remain in contact with his/her birth family?

☐ Yes ☐ No ☐ Not applicable

BG71: PREVIOUS CAREGIVERS: What main type of contact does ... have with his/her previous caregivers?

- [ ] At least once a month
- [ ] Less than once a month
- [ ] Telephone or letter contact only
- [ ] No contact at all
- [ ] Has not had any previous foster parents or other adult caregivers

BG72: Is ... receiving all necessary assistance to remain in contact with his/her previous supportive caregiver(s)?

- [ ] Yes
- [ ] No
- [ ] Not applicable

BG73: PLACEMENT SETTING(S) IN WHICH THE YOUNG PERSON HAS LIVED DURING THE LAST 12 MONTHS: Please indicate whether the young person has lived in one or more of the following placement settings during the last 12 months.

1. Foster care
[ ] Yes [ ] No

2. Group home
[ ] Yes [ ] No

3. Residential treatment
[ ] Yes [ ] No

4. Independent living
[ ] Yes [ ] No

5. Respite/relief home
(young person leaves foster home)
[ ] Yes [ ] No

6. Hospital
[ ] Yes [ ] No

7. Custody/detention facility
[ ] Yes [ ] No

8. Kinship in care
[ ] Yes [ ] No

9. Customary care home
[ ] Yes [ ] No

10. Other residential placement setting
[ ] Yes [ ] No

BG74: SERVICES RECEIVED BY THE YOUNG PERSON DURING THE LAST 12 MONTHS:
For each of the service providers listed please indicate whether ... has received services from such a provider in the **last 12 months**.

1. Child welfare worker
[ ] Yes [ ] No

2. Social worker (not from child welfare agency)
[ ] Yes [ ] No

3. Child & youth care worker
[ ] Yes [ ] No

4. Lawyer
[ ] Yes [ ] No

5. Police officer
[ ] Yes [ ] No

6. Child access worker
[ ] Yes [ ] No

7. Probation Officer
[ ] Yes [ ] No

8. Adoption worker
[ ] Yes [ ] No

9. FNMI Traditional Healer
[ ] Yes [ ] No

10. FNMI Cultural Teacher
[ ] Yes [ ] No

11. Volunteer Driver
[ ] Yes [ ] No

12. Other child welfare service provider
[ ] Yes [ ] No

9. BACKGROUND INFORMATION RELATING TO THE YOUNG PERSON'S EMOTIONAL AND BEHAVIOURAL DEVELOPMENT

BG75: MENTAL HEALTH SERVICES RECEIVED BY THE YOUNG PERSON DURING THE LAST 12 MONTHS: For each of the service providers listed please indicate whether ... has received services from such a provider during the **last 12 months**.

1. Psychiatrist
[ ] Yes [ ] No

2.Other mental health service provider
[ ] Yes [ ] No

3. Psychologist/counsellor
[ ] Yes [ ] No

BG76: ADVERSITIES: Which of the following family-related adversities has ... experienced in the last year? **(Mark all that apply).**

- ☐ **Death of his/her birth or step parent**
- ☐ **Abuse of drugs or alcohol by his/her birth or step father**
- ☐ **Death of his/her brother or sister**
- ☐ **Violence betweenhis/her birth or step parents**
- ☐ **Death of his/her relative or close friend**
- ☐ **His/her birth or step mother spent time in jail**
- ☐ **Divorce or separation of his/her birth or step parents**
- ☐ **His/her birth or step father spent time in jail**
- ☐ **Serious physical illness of his/her birth or step mother**
- ☐ **Severe poverty**
- ☐ **Serious physical illness of his/her birth or step father**
- ☐ **Physical abuse**
- ☐ **Serious psychiatric disturbance of his/her birth or step mother**
- ☐ **Sexual abuse**
- ☐ **Serious psychiatric disturbance of his/her birth or step father**
- ☐ **Emotional abuse**
- ☐ **Abuse of drugs or alcohol by his/her birth or step mother**
- ☐ **Neglect**

BG77: ADVERSITIES: Which of the following self-related adversities has ... experienced in the last year? **(Mark all that apply.)**

- ☐ **A change in caregivers because of ...'s behaviour problems**
- ☐ **Serious arguments with his/her birth or step parents**
- ☐ **Ran away from home multiple times**
- ☐ **Skipping school (truancy)**
- ☐ **Became pregnant**
- ☐ **Suspension from school (temporary or not)**
- ☐ **Spent time in a detention centre**
- ☐ **Failed a grade and was held back**
- ☐ **Received treatment for substance abuse**
- ☐ **Was beaten up by school mates**
- ☐ **Was hopitalized for depression**
- ☐ **Changed schools for reasons other than planned progress through the school system**

DEVELOPMENTAL DIMENSION 1: HEALTH

This dimension is about the health of the young person and the help he/she is getting to be and remain well. The questions in this section are designed to make sure that the young person is getting all necessary preventive medical care, including immunizations, that any health problems or disabilities are being properly treated, and that he/she is learning to keep in shape. This section also asks questions about things that affect the young person's health such as diet and safety issues.

Note to the child welfare worker: *Please use the right-hand page for each item on which you judge that further action needs to be taken during the coming year.* ***For each such item, note the action to be taken, the person responsible, and the target date, for inclusion in the updated individualized Plan of Care.***

During the AAR conversation, the **YOUNG PERSON** is to answer the following section with assistance, as needed.

H1: GENERAL HEALTH: In general, would you say your health is:
☐ Excellent? ☐ Very good? ☐ Good? ☐ Fair? ☐ Poor?

H2: Do you have problems with any of the following activities? **(Mark all that apply.)**
☐ Seeing ☐ Speaking ☐ Climbing ☐ Using hands and fingers
☐ Hearing ☐ Walking ☐ Bending ☐ No problems

H3: Are you receiving all the help and resources you require to treat the above health conditions/problems?
☐ None identified ☐ Yes ☐ No

Young people sometimes experience health problems that may or may not be related to stress and may affect other areas in their life. Your answers to the following questions will help build a picture of your general health.
During the past 6 months, how often have you had or felt the following?

H4: Headache
☐ Seldom/never ☐ About once a month ☐ About once a week ☐ More than once a week ☐ Most days

H5: Stomachache
☐ Seldom/never ☐ About once a month ☐ About once a week ☐ More than once a week ☐ Most days

H6: Backache
☐ Seldom/never ☐ About once a month ☐ About once a week ☐ More than once a week ☐ Most days

H7: Difficulties in getting to sleep
☐ Seldom/never ☐ About once a month ☐ About once a week ☐ More than once a week ☐ Most days

H8: PAIN AND DISCOMFORT: Are you usually free of pain or discomfort?
☐ Yes ☐ No

H9: MEMORY: How would you describe your usual ability to remember things? **(Mark one only.)**
☐ Able to remember most things ☐ Very forgetful
☐ Somewhat forgetful ☐ Unable to remember anything at all

H10: THINKING: How would you describe your usual ability to think and solve day-to-day problems? **(Mark one only.)**
☐ Able to think clearly and solve problems ☐ Having a great deal of difficulty
☐ Having a little difficulty ☐ Unable to think or solve problems
☐ Having some difficulty

H11: CAR SAFETY: How often do you use a seat belt when you ride in a car?
☐ Always ☐ Often ☐ Sometimes ☐ Seldom or never ☐ Usually there is no seatbelt where I sit

H12: BICYCLE SAFETY: How often do you wear a helmet when you ride your bicycle?
☐ Always ☐ Often ☐ Sometimes ☐ Seldom or never ☐ I do not ride a bicycle

H13: Are you taking precautions to minimize your exposure to the sun (i.e., wearing sunblock)?

☐ Yes ☐ No

Note to the young person: The following questions will help build a picture of your overall health.

H14: DISABILITY: Do you have any long-term conditions or health problems which prevent or limit your participation in school, at play, in sports, or in any other activity for a young person of your age?

☐ Yes ☐ No **(Go to question H16)**

H15: SPECIAL HELP OR EQUIPMENT: Do you have all the special help or equipment you may need for any long-term conditions or disabilities you may have?

☐ Yes ☐ No ☐ No special help or equipment needed

H16: SERIOUS INJURIES: The following questions refer to injuries, such as a broken bone, bad cut or burn, head injury, poisoning, or a sprained ankle, which occurred in the past 12 months, and were serious enough to require medical attention by a doctor, nurse, or dentist. In the past 12 months were you injured?

☐ Yes ☐ No **(Go to question H18)**

H17: For the most serious injury, what type of injury did you have? (**Mark one only.**)

☐ Not applicable - no serious injuries
☐ Broken or fractured bones
☐ Burn or scald
☐ Dislocation
☐ Sprain or strain
☐ Multiple injuries
☐ Cut, scrape, or bruise
☐ Concussion
☐ Dental injury
☐ Poisoning by substance or liquid
☐ Internal injury
☐ Other

H18: DIET: Do you have a special diet for health, weight-control, religious, or cultural reasons?

☐ Yes ☐ No

H19: DIETARY ASSISTANCE: Are you receiving all the help you require to maintain a healthy daily diet, whether special or not?

☐ Yes ☐ No

H20: BREAKFAST: During a school week (Monday to Friday), how many days do you normally eat breakfast?

☐ Never ☐ 1 or 2 days a week ☐ Most school days

H21: WEIGHT: Would you say you are...:

☐ Not trying to do anything about your weight?
☐ Trying to stay the same weight?
☐ Trying to lose weight?
☐ Trying to gain weight?

H22: MEDICATIONS: Are you taking any medication(s) (prescription or non-prescription)?

☐ Yes ☐ No **(Go to question H24)**

H23: Do you have all the information you need about the medication(s) and why you need to take it/them?

☐ Yes ☐ No

H24: PUBERTY: Do you have any questions related to body changes (e.g., acne, menstruation, voice, hair growth)?

☐ Yes ☐ No

H25: Are you getting all the information you need with questions you may have related to body changes?

☐ Yes ☐ No

H26: FNMI YOUNG PEOPLE: Are you getting guidance from a FNMI Traditional Elder or Cultural Teacher as you are entering into this new stage of life?

☐ Yes ☐ No ☐ Not Applicable

H27: SEXUALITY: Do you have any questions related to sexuality (i.e., sexual relations, contraception, pregnancy, HIV, and other sexually transmitted diseases)?

☐ Yes ☐ No ☐ Not sure

H28: Are you receiving all the information you need with questions related to sexuality?

☐ Yes ☐ No

H29: CIGARETTES: Do you smoke cigarettes (or use other tobacco products)?

☐ Not at all **(Go to question H31)** ☐ Have tried it ☐ Occasionally ☐ Daily

H30: Are you getting all the help you need to quit smoking?

☐ Yes ☐ No ☐ I smoke but I do not want to quit

How many of your close friends do the following:

	None	A Few	Most	All
H31: Smoke cigarettes?	☐	☐	☐	☐
H32: Drink alcohol?	☐	☐	☐	☐
H33: Break the law by stealing, hurting someone, or damaging property?	☐	☐	☐	☐
H34: Have tried marijuana?	☐	☐	☐	☐
H35: Have tried drugs other than marijuana?	☐	☐	☐	☐

H36: ALCOHOL: Which of the following best describes your experience with drinking alcohol **in the past 12 months**?

☐ Not at all **(Go to question H38)** ☐ Have tried it ☐ Occasionally ☐ Daily

H37: Are you getting all the help you need to quit drinking alcohol?

☐ Yes ☐ No ☐ I drink but I do not want to stop

H38: DRUGS: Have you ever used drugs?

☐ Yes **(Go to querstion H39)** ☐ No **(Go to question H45)**

Questions regarding the young person's experiences with the following drugs are to be asked only if it pertains to this young person. ***Which of the following best describes your experience with the following drugs during the past 12 months:***

	Not at all	Tried it	Occasionally	Daily
H39: Marijuana and cannabis products (also known as a joint, pot, grass, or hash):	☐	☐	☐	☐
H40: Drugs like crack, cocaine, heroin, speed, or ecstacy, etc.:	☐	☐	☐	☐
H41: Glue, gasoline, hair spray, or other solvents:	☐	☐	☐	☐
H42: Drugs without a prescription or advice from a doctor (e.g., downers, uppers, tranquilizers, Ritalin, etc.):	☐	☐	☐	☐
H43: Hallucinogens like LSD/acid, magic mushrooms:	☐	☐	☐	☐

H44: Are you getting all the help you need to quit using drugs?

☐ Yes ☐ No ☐ I use drugs, but I do not want to quit

During the AAR conversation, the **CHILD WELFARE WORKER** is to answer the following section based on the information obtained on the entire developmental dimension of health.

ATTAINMENT OF HEALTH OBJECTIVES OF THE CHILD WELFARE SYSTEM

H45: Objective 1: The young person is normally well.
(**Note:** "Unwell" here means ill enough to be in bed or take some time off school.)

- ☐ Normally well (i.e., unwell for 1 week or less in the last 6 months)
- ☐ Sometimes ill (i.e., unwell between 8 and 14 days in the last 6 months)
- ☐ Often ill (i.e., unwell between 15 and 28 days in the last 6 months)
- ☐ Frequently ill (i.e., unwell for more than 28 days in the last 6 months)

H46: Objective 2: The young person's weight is within normal limits for his/her height.

- ☐ Within normal limits
- ☐ Slightly overweight
- ☐ Seriously overweight
- ☐ Slightly underweight
- ☐ Seriously underweight

H47: Objective 3: All necessary preventive health measures, including immunizations, are being taken.

☐ All ☐ Most ☐ A few ☐ None

H48: Objective 4: All necessary attention, including support and monitoring of medication for the young person, is being provided.

- ☐ Not on medication
- ☐ Is receiving appropriate attention
- ☐ Is receiving some attention
- ☐ Needs attention

H49: Objective 5: All ongoing health conditions and disabilities are being dealt with.

- ☐ No health condition or disability
- ☐ All being adequately dealt with
- ☐ Some being adequately dealt with
- ☐ Needs attention

H50: Objective 6: The young person does not put his/her health at risk.

☐ No risks taken ☐ Some risks taken ☐ Considerable risks taken ☐ Health placed seriously at risk

Note to the child welfare worker: *If anyone disagrees with these answers to the Health objectives, please note the details on the right hand page.*

DEVELOPMENTAL DIMENSION 2: EDUCATION

This dimension is about the young person's experiences at school. The questions in this section are designed to find out if the young person is getting the help he/she needs to make sure that he/she does as well at school as possible and that his/her education is being properly planned. The questions are also meant to find out if the young person has opportunities to learn special skills and to take part in a wide range of activities both in and out of school.

During the AAR conversation, the **CAREGIVER** is to answer the following section with assistance, as needed.

E1: GRADE: What grade is ... in?

☐ Grade 4 ☐ Grade 7 (Secondaire I in QC) ☐ Grade 10 (Secondaire IV in QC)
☐ Grade 5 ☐ Grade 8 (Secondaire II in QC) ☐ Grade 11 (Secondaire V in QC)
☐ Grade 6 ☐ Grade 9 (Secondaire III in QC) ☐ Ungraded (e.g., Special Education)

E2: Does ... have possible learning-related difficulties?

☐ Yes ☐ No

E3: LEARNING-RELATED DIFFICULTIES: Has ... been assessed for possible learning-related difficulties (e.g., attention-deficit and hyperactivity disorder [ADHD]; learning disability; unsatisfactory progress; fetal alcohol spectrum disorder)?

☐ Yes ☐ No ☐ He/she is currently on a waiting list for an assessment

E4: Has ... been identified by an Identification Placement Review Committee (IPRC) as exceptional?

☐ Yes ☐ No **(Go to question E6A)**

E5: If yes, check applicable area(s) of identification **(if MULTIPLE check all that apply)**:

☐ Behaviour ☐ Communication ☐ Intellectual ☐ Physical

E6A: Does the young person have an Individual Education Plan (IEP)?

☐ Yes ☐ No **(Go to question E7)**

E6B: Is the Individual Education Plan being satisfactorily implemented?

☐ Yes ☐ No ☐ Uncertain

E7: Does ... receive special/resource help at school because of a physical, emotional, behavioural, or some other learning-related difficulty that limits the kind or amount of school work he/she can do?

☐ Yes ☐ No ☐ On a waitlist ☐ Not attending school

E8: Does ... receive any help or tutoring outside of school?

☐ Yes ☐ No

E9: TRANSPORTATION: Does ... have ready access to transportation (including any special equipment or assistive devices that may be needed) for getting to and from school?

☐ Yes ☐ No ☐ Not applicable

SCHOOL PERFORMANCE:
Based on your knowledge of ...'s school work, including his/her report cards, how is he/she doing in the following areas at school this year (or, during the last school year he/she was enrolled in school)?

	Very well or well	Average	Poorly or very poorly	Does not take it
E10: Reading and other language arts (spelling, grammar, composition)?	☐	☐	☐	☐
E11: Mathematics?	☐	☐	☐	☐
E12: Science?	☐	☐	☐	☐
E13: Overall?	☐	☐	☐	

E14: If currently attending high school in **grade 9 or 10**, the majority of courses taken are in the following stream:
☐ Not applicable ☐ Academic (University-bound) ☐ Other (e.g., Special education)
☐ Specialist High Skills Major ☐ Applied (College-bound)

E15: If currently attending high school in **grade 11 or 12**, the majority of courses taken are in the following stream:
☐ Not applicable ☐ Applied (College-bound) ☐ Specialist High Skills Major
☐ Academic (University-bound) ☐ Work place ☐ Other (e.g., Special education)

E16: Overall, in comparison to his/her age group, is ...
☐ Ahead by one or more grade levels ☐ At grade level ☐ Behind by one or more grade levels

E17: Overall, what is ...'s average mark this year (or what was it during the last school year or the last year he/she was in school)?
☐ Level 4 (80-100%, A- to A+) ☐ Level 3 (70-79%, B- to B+) ☐ Level 2 (60-69%, C- to C+)
☐ Level 1 (50-59%, D- to D+) ☐ R (0-49%) ☐ Not applicable, ungraded

E18: PROMOTION STATUS: If in elementary school, what is ...'s promotion status?
☐ Progressing well toward promotion ☐ Progressing with difficulty toward promotion ☐ Promotion at risk

E19: HOMEWORK: Does ... have a satisfactory place at home to do homework or study?
☐ All or most of the time ☐ Some of the time ☐ Rarely or never ☐ No homework **(Go to question E22)**

E20: On days when ... is assigned homework, how much time does he/she usually spend doing homework?
☐ 0-30 minutes ☐ 30-60 minutes ☐ 1-2 hours ☐ More than 2 hours ☐ No homework

E21: How often do you check his/her homework or provide help with homework (or other school assignments)?
☐ Daily ☐ One or more times per month ☐ Never or rarely
☐ One or more times a week ☐ Less than once a month ☐ No homework

E22: How well does ... prepare for tests or exams?
☐ Very well or well ☐ Average ☐ Poorly or very poorly ☐ Not applicable, no tests or exams

E23: CAREGIVER'S EXPECTATIONS: How important is it to you that ... have good grades in school?
☐ Very important ☐ Important ☐ Somewhat important ☐ Not important at all

E24: How far do you hope ... will go in school?

- ☐ Secondary or high school graduation
- ☐ Apprenticeship program
- ☐ CEGEP
- ☐ College of Applied Arts and Technology
- ☐ Private career college
- ☐ A university degree
- ☐ More than one university degree
- ☐ I don't know
- ☐ Other

EDUCATIONAL SUPPORT:

E25: Does ... have an RESP or Canada Learning Bond?

☐ Yes ☐ No ☐ Uncertain

E26: Approximately how many books of his/her own does ... possess?

☐ None ☐ 1-10 ☐ 11-25 ☐ More than 25

E27: Approximately how many of your books does ... have access to?

☐ None ☐ 1-10 ☐ 11-25 ☐ More than 25

E28: Does ... have access to one or more books that accurately reflect his/her culture, traditions, stories, etc.?

☐ Yes ☐ No

E29: How often do you and ... talk about his/her school friends or activities?

☐ Daily ☐ One or more times a week ☐ One or more times a month ☐ Less than once a month or rarely

E30: How often do you and ... talk about his or her plans for the future?

☐ Daily ☐ One or more times a week ☐ One or more times a month ☐ Less than once a month or rarely

	Yes	**No**
E31: Does ... have access to a computer at home?	☐	☐
E32: Does ... have access to the internet at home?	☐	☐
E33: Do you talk with ... about internet safety?	☐	☐
E34: Does ... have access to a cellular phone?	☐	☐
E35: Do you talk with ... about appropriate cellular phone use?	☐	☐

E36: CAREGIVER'S INVOLVEMENT IN SCHOOL ACTIVITIES: During the current or last school year, have you done any of the following? **(Mark all that apply.)**

- ☐ Spoken to, visited, or corresponded with young person's teacher
- ☐ Visited young person's class
- ☐ Attended a school event in which young person participated, for example, a play, sports competition, or science fair
- ☐ Volunteered in young person's class or helped with a class trip
- ☐ Helped elsewhere in the school, such as in the library or computer room
- ☐ Fundraising
- ☐ Attended a parent-school association, home and school liaison committee
- ☐ Activities that promote the young person's culture
- ☐ Other activities
- ☐ No activities

E37: ABSENCES FROM SCHOOL: How many days, if any, was ... absent from school during the last 12 months?

- ☐ 0 days
- ☐ 1-3 days
- ☐ 4-6 days
- ☐ 7-10 days
- ☐ 11-20 days
- ☐ More than 20 days
- ☐ Not in school during the last 12 months

E38: What were the **main reasons** for... being absent from school? **(Mark all that apply.)**

- ☐ Illness
- ☐ Appointments with doctor or dentist
- ☐ Appointments with mental health professional
- ☐ Meeting with social worker or child welfare worker
- ☐ Transportation issue
- ☐ Access visits
- ☐ Family vacation
- ☐ Completing AAR/plan of care
- ☐ Attending FNMI ceremonies
- ☐ Problem with the teacher
- ☐ Problem with weather
- ☐ Problem with children/youths at school
- ☐ Fear of school
- ☐ Supension
- ☐ Court appearance
- ☐ Other

E39: SUSPENSIONS FROM SCHOOL: During the last 12 months, how many times, if any, has ... been temporarily suspended from school?

☐ Never ☐ Once or twice ☐ 3 or 4 times ☐ 5 times or more

During the AAR conversation, the **YOUNG PERSON** is to answer the following section with assistance, as needed.

E40: SCHOOL: How do you feel about school?

- ☐ I like school very much
- ☐ I like school quite a bit
- ☐ I like school a bit
- ☐ I do not like school very much
- ☐ I hate school

E41: How well do you think you are doing in your school work?

☐ Well or very well ☐ Average ☐ Poorly or very poorly

SCHOOL SUBJECTS: ***How do you like the following subjects:***

	I like it a lot	I like it a little	I don't like it very much	I hate it	I don't take it
E42: Math	☐	☐	☐	☐	☐
E43: English	☐	☐	☐	☐	☐
E44: French	☐	☐	☐	☐	☐
E45: Science	☐	☐	☐	☐	☐
E46: Gym/Phys. Ed.	☐	☐	☐	☐	☐
E47: Arts (art, music, drama)	☐	☐	☐	☐	☐

E48: Have you started the volunteer hours required by the school curriculum?

☐ Yes ☐ No ☐ Not required ☐ Not applicable

LEVEL OF IMPORTANCE:
How important is it to you to do the following in school?

	Very important	Somewhat important	Not important
E49: Make friends	☐	☐	☐
E50: Get good grades	☐	☐	☐
E51: Participate in extra-curricular activities	☐	☐	☐
E52: Learn new things	☐	☐	☐
E53: Always show up for class on time	☐	☐	☐
E54: Express your opinion in class	☐	☐	☐
E55: Take part in student council or other similar groups	☐	☐	☐
E56: Hand in assignments on time	☐	☐	☐

ACTIVITIES: ***In the last 12 months, how often have you:***

	4 or more times a week	1 to 3 times a week	Less than once a week	Never
E57: Played sports or done physical activities without a coach or an instructor (e.g., biking, skate boarding, etc.)?	☐	☐	☐	☐
E58: Played sports with a coach or instructor, other than for gym class (e.g., swimming lessons, baseball, hockey, etc.)?	☐	☐	☐	☐
E59: Taken part in dance, gymnastics, karate, traditional dance, or other groups or lessons, other than in gym class?	☐	☐	☐	☐
E60: Taken part in art, drama, or music groups (including traditional drumming), clubs or lessons, outside of class?	☐	☐	☐	☐
E61: Taken part in clubs or groups such as Guides or Scouts, 4-H club, community, church, or other religious or cultural groups?	☐	☐	☐	☐
E62: Done a hobby or craft (drawing, model building, traditional hunting, trapping, etc.)?	☐	☐	☐	☐

E63: What are you really good at (special talents, skills, and abilities)?

E64: Do you have sufficient access to and support for activities that interest you?

☐ Yes ☐ No

E65: In any of your activities, at school or outside school, do you have special responsibilities such as team leader, captain, student council representative, fire keeper, etc.?

☐ Yes ☐ No

E66: How often do you read for fun (not for school)?

☐ Every day ☐ Once a week ☐ Less than once a month
☐ A few times a week ☐ A few times a month ☐ Almost never

E67: On average, how much time per day do you watch TV or videos/DVDs, or play electronic games?

☐ 30 minutes or less ☐ 30-60 minutes ☐ 1-2 hours ☐ 2-3 hours ☐ More than 3 hours

E68: If I have problems at school my caregivers are ready to help.

☐ All or most of the time ☐ Some of the time ☐ Rarely or never ☐ No problems at school

E69: My caregivers encourage me to do well at school.

☐ All or most of the time ☐ Some of the time ☐ Rarely or never

E70: How often do your caregivers check your homework or provide help with homework?

☐ All or most of the time ☐ Some of the time ☐ Rarely or never ☐ No homework

E71: MY ASPIRATION: How far do you hope to go in school? I hope to complete:

☐ Secondary or high school graduation
☐ Apprenticeship program
☐ CEGEP
☐ College of Applied Arts and Technology
☐ Private career college
☐ A university degree
☐ More than one university degree
☐ I don't know
☐ Other

E72: CAREER GOALS: What kind of career or work would you be most interested in having/doing when you grow up?

____
____
____
____

E73: Have you done any of the following things to find out about future careers or work? **(Mark all that apply.)**

☐ Talked to a guidance counsellor at school?
☐ Talked to someone working in a job you might like?
☐ Talked to a FNMI Elder or Cultural Teacher or other Community member?
☐ Completed a questionnaire to find out about your interests and abilities?
☐ Read information about different types of work or careers?
☐ Attended an organized visit to a workplace?
☐ Taken a school course where you spent time with an employer (such as a co-op program)?
☐ Attended a presentation by people working in different types of jobs?
☐ Volunteered in an area you are interested in?
☐ None of the above?

SCHOOL SAFETY:
For each of the following statements, choose the answer that best describes how you feel.

	Most or all of the time	Some of the time	Rarely or never
E74: I feel safe at school.	☐	☐	☐
E75: I feel safe on my way **to** and **from** school.	☐	☐	☐
E76: Other young people say mean things to me at school.	☐	☐	☐
E77: I am bullied at school.	☐	☐	☐
E78: I feel my culture is respected at school.	☐	☐	☐
E79: I am bullied on my way **to** and **from** school.	☐	☐	☐

TEACHERS: ***The next statements are about teachers and homework during the current year at school (or during the last year that you were enrolled in school).***

	All the time	Most of the time	Some of the time	Rarely	Never
E80: In general, how often do your teachers treat you fairly?	☐	☐	☐	☐	☐
E81: How often do your teachers provide extra help if you need it?	☐	☐	☐	☐	☐
E82: When your teachers give you homework, do you do it?	☐	☐	☐	☐	☐

During the AAR conversation, the **CHILD WELFARE WORKER** is to answer the following section based on the information obtained on the entire developmental dimension of education.

ATTAINMENT OF GENERAL EDUCATION OBJECTIVES OF THE CHILD WELFARE SYSTEM

E83: Objective 1: The young person's educational performance matches his/her ability.

☐ Performance matches ability ☐ Performance somewhat below ability ☐ Performance seriously below ability

E84: Objective 2: The young person is acquiring special skills and interests.

☐ Many ☐ Some ☐ Few ☐ None

E85: Objective 3: Adequate attention is being given to planning the young person's education.

☐ Satisfactory planning ☐ Some planning, but not enough ☐ Little or no planning

Note to the child welfare worker: *If anyone disagrees with these answers to the Education objectives, please note the details on the opposite page.*

DEVELOPMENTAL DIMENSION 3: IDENTITY

This dimension is about the identity of the young person. The questions in this section are designed to make sure that the young person knows something about his/her birth family and his/her culture, understands and accepts the reasons why he/she is in care, and is being helped to feel increasingly confident about himself/herself and about the way he/she makes decisions.

During the AAR conversation, the **YOUNG PERSON** is to answer this section with assistance, as needed. If you were **adopted** and have had no contact with your birth family since then, questions in this section apply to your adoptive family or your birth family.

ID1: Would you like to find out more about your birth family?

☐ Yes ☐ Uncertain ☐ No

ID2: BEING IN CARE: Would you like more information about why you are in care?

☐ Yes ☐ Uncertain ☐ No

ID3: Would you like any assistance dealing with questions about your birth family, where you live, or why you are in care?

☐ Yes ☐ No ☐ No assistance required

ID4: LIFE BOOK: Do you have a personal album, containing photographs and mementos about people and events that were important to you?

☐ Yes ☐ No

ID5: RELIGION(S) / SPIRITUAL AFFILIATION(S): What, if any, is your religion or spiritual affiliation(s)? **(Mark no more than two.)**

☐ No religion	☐ FNMI (traditional)	☐ Jewish	☐ Presbyterian
☐ Anglican	☐ FNMI (other)	☐ Lutheran	☐ Roman Catholic
☐ Baptist	☐ Hindu	☐ Mennonite	☐ United Church
☐ Buddhist	☐ Islam (Muslim)	☐ Mormon	☐ Sikh
☐ Eastern Orthodox	☐ Jehovah's Witness	☐ Pentecostal	☐ Other

ID6A: Do you have enough opportunities to practice your religion or spiritual affiliation (including traditions, religious services, festivals and holidays, prayers, clothing, diet, fasting, traditional sweat lodge, pow wow, drumming)?

☐ No religious or spiritual affiliation ☐ Yes ☐ No

ID6B: Other than on special occasions (such as weddings or funerals), how often did you attend religious services or meetings in the past 12 months?

☐ About once a week ☐ About once a month ☐ 3 or 4 times ☐ Once ☐ Never

ID7: FIRST LANGUAGE: What is the language that you first learned at home in childhood and can still understand? (If you can no longer understand the first language learned, choose the second language learned.) **(Mark all that apply.)**

☐ English ☐ French ☐ First Nations or Inuit language ☐ Other

ID8: Overall, do you have enough opportunities to speak your own first language (at home, at school, with friends, etc.)?

☐ Yes ☐ No

ID9: ETHNICITY: To which ethnic or cultural group(s) did your ancestors belong? (For example: French, British, Chinese) **(Mark all that apply.)**

- ☐ Canadian
- ☐ French
- ☐ English
- ☐ First Nations
- ☐ Inuit
- ☐ Métis
- ☐ German
- ☐ Irish
- ☐ Scottish
- ☐ Italian
- ☐ Jewish
- ☐ Ukranian
- ☐ Dutch (Netherlands)
- ☐ Chinese
- ☐ Filipino
- ☐ Japanese
- ☐ Korean
- ☐ Polish
- ☐ Latin American
- ☐ Portugese
- ☐ African (e.g., Somalian, South African)
- ☐ Caribbean (e.g., Haitian, Jamaican)
- ☐ South Asian(e.g., East Indian, Pakistani, Punjabi, Sri Lankan)
- ☐ South East Asian (e.g., Cambodian, Indonesian, Laotian,Vietnamese)
- ☐ Arab/West Asian (e.g., Armenian, Egyptian, Lebanese, Moroccan)
- ☐ Other Specify: ______________________

ID10: Overall, do you have enough opportunities to meet people from your own ethnic or cultural background (including, for First Nations young people, people from your own band or community)?

☐ Yes ☐ No

ID11: Overall, do you have enough opportunities to learn about traditions, customs, ceremonies, or events related to your ethnic or cultural background?

☐ Yes ☐ No

ID12: Overall, do you have enough opportunities to participate in traditions, customs, ceremonies, or events related to your ethnic or cultural background?

☐ Yes ☐ No

NOTE TO THE CHILD WELFARE WORKER: *While it is essential for those who are providing child welfare services in ethnically diverse communities to consider the unique traditions and heritage of all cultures, the Child and Family Services Act emphasizes the importance of paying particular attention to the provision of services to FNMI young people.*

FNMI YOUNG PEOPLE : IF you are a *First Nations, Métis, or Inuit young person*, **THEN** please answer questions ID13 to ID19. **If not, go to question ID20.**

ID13: If your ancestors were members of a First Nation, to which band, community, or nation did they belong?

____

ID14: Do you visit or meet with people from your own FNMI community?

☐ Often ☐ Sometimes ☐ Rarely/Never

ID15: Do you learn about traditional teachings, customs, or ceremonies?

☐ Often ☐ Sometimes ☐ Rarely/Never

ID16: Do you participate in your own FNMI community events, activities, traditional meals/foods, and ceremonies?

☐ Often ☐ Sometimes ☐ Rarely/Never

ID17: How often do you speak your own First Nations or Inuit language?

☐ Often ☐ Sometimes ☐ Rarely/Never ☐ Don't know my First Nations or Inuit language

ID18: Do you have a personal connection with an Elder, Healer, and/or Cultural Teacher?

☐ Yes ☐ No

ID19: Do you have a native Spirit Name?
☐ Yes ☐ No ☐ Not yet ☐ Don't know

ABOUT ME:
For each of the following statements, choose the answer that best describes how you feel.

	Most of the time/Always	Sometimes	Rarely/Never
ID20: I have a lot to be proud of.	☐	☐	☐
ID21: I can do things as well as most people.	☐	☐	☐
ID22: I am as good as most other people	☐	☐	☐
ID23: Other people think I am a good person	☐	☐	☐
ID24: When I do something, I do it well.	☐	☐	☐
ID25: A lot of things about me are good.	☐	☐	☐

ID26: When I am an adult, this is how I would like my personal and work life to be: (e.g., comment on life goals, career, education, and personal relationships.)

QUESTIONS ABOUT YOUR GOALS: The six sentences below describe how young people think about themselves and how they do things in general. Read each sentence carefully. For each sentence, please think about how you are in most situations. Choose the answer that describes **YOU** the best. **There are no right or wrong answers.**

	Most of the time	Often	Sometimes	Never
ID27: I think I am doing pretty well.	☐	☐	☐	☐
ID28: I can think of many ways to get the things in life that are most important to me.	☐	☐	☐	☐
ID29: I am doing just as well as other kids my age.	☐	☐	☐	☐
ID30: When I have a problem, I can come up with lots of ways to solve it.	☐	☐	☐	☐
ID31: I think the things I have done in the past will help me in the future.	☐	☐	☐	☐
ID32: Even when others want to quit, I know that I can find ways to solve the problem.	☐	☐	☐	☐

HOW YOU DEAL WITH PROBLEMS: Sometimes young people have problems or feel upset about things. When this happens, they may do different things to solve the problem or to make themselves feel better. For each item, choose the answer that best describes how often you do this to solve your problems or make yourself feel better. **There are no right or wrong answers.** Just indicate how often **YOU** do each thing.

When I have a problem:	**Most of the time**	**Often**	**Sometimes**	**Never**
ID33: I do things to make my problem better.	☐	☐	☐	☐
ID34: I think about different ways of solving my problem.	☐	☐	☐	☐
ID35: I take action to improve the situation.	☐	☐	☐	☐
ID36: I try to learn more about what is causing my problem.	☐	☐	☐	☐

Note: This is meant to be a discussion with the young person. In order to respect his/her privacy, he/she has the choice as to whether or not he/she would like to disclose.
Now we're going to talk about sexual orientation and gender identity, which is part of who we are. Sexual orientation refers to gay, lesbian, bisexual, and heterosexual. Gender identity refers to whether you identify yourself as a boy, a girl, or both (including two-spirit for First Nation young people).

ID37: Do you have any questions or want further information about sexual orientation or gender identity?

☐ Yes ☐ No

During the AAR conversation, the **CHILD WELFARE WORKER** is to answer the following section based on the information obtained on the entire developmental dimension of identity.

ATTAINMENT OF GENERAL IDENTITY OBJECTIVES OF THE CHILD WELFARE SYSTEM

ID38: Objective 1: The young person has knowledge of his/her family of origin.

☐ Clear knowledge ☐ Some knowledge ☐ Little or no knowledge

ID39: Objective 2: The young person identifies with and is proud of his/her racial or ethnic background.

☐ To a great extent ☐ To some extent ☐ To little or no extent

ID40: Objective 3: The young person has a good level of self-esteem.

☐ High self-esteem ☐ Moderate self-esteem ☐ Low self-esteem

ID41: Objective 4: The young person has a clear understanding of his/her current situation.

☐ Clear understanding ☐ Some understanding ☐ Little or no understanding

Note to the child welfare worker: *If anyone disagrees with these answers to the Identity objectives, please note the details on the opposite page.*

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DEVELOPMENTAL DIMENSION 4: FAMILY AND SOCIAL RELATIONSHIPS

This dimension is about the young person's relationship with friends, family, and others. The questions in this section are meant to find out if he/she has a close relationship with a parent or someone who acts as his/her parent, if he/she has a home where he/she is welcomed, and if he/she knows an adult who will help out if something goes wrong.

During the AAR conversation, the **CAREGIVER** is to answer the following section with assistance, as needed.

F1: What is the permanency plan for ...? **(Please specify.)**

____

____

____

F2: CURRENT FRIENDSHIPS: About how many days a week does ... do things with friends outside of school hours?

☐ Never ☐ 1 day a week ☐ 2-3 days a week ☐ 4-5 days a week ☐ 6-7 days a week

SHARED ACTIVITIES: ***Tell me how often you do the following activities with the young person.***

	Every day	3-6 days per week	1-2 days per week	1-2 times per month	Rarely or never
F3: How often do you eat together?	☐	☐	☐	☐	☐
F4: How often do you have a discussion together?	☐	☐	☐	☐	☐
F5: How often do you have a family outing/ entertainment together?	☐	☐	☐	☐	☐
F6: How often do you participate in activities, ceremonies, practices, etc. that are culturally relevant to the young person?	☐	☐	☐	☐	☐

	Always	Often	Sometimes	Almost never	Never
F7: You let ... know when he/she is doing a good job with something.	☐	☐	☐	☐	☐
F8: You warn ... that you will discipline him/her and then do not actually discipline him/her.	☐	☐	☐	☐	☐
F9: ... fails to leave a note or to let you know where he/she is going.	☐	☐	☐	☐	☐
F10: ... talks you out of being disciplined after he/she has done something wrong.	☐	☐	☐	☐	☐
F11: ... stays out in the evening past the time he/she is supposed to be home.	☐	☐	☐	☐	☐
F12: You compliment ... when he/she does something well.	☐	☐	☐	☐	☐
F13: You praise ... if he/she behaves well.	☐	☐	☐	☐	☐
F14: ... is out with friends you don't know.	☐	☐	☐	☐	☐
F15: You let ... out of a discipline consequence early (like lift restrictions earlier than you originally said).	☐	☐	☐	☐	☐

During the AAR conversation, the **YOUNG PERSON** is to answer the following sections with assistance, as needed.

Note to the young person: This section is about your relationships with friends, family, and others. The questions ask about your relationship with your caregiver(s), your contacts with members of your birth family, your ability to get along well with adults and other young people, and whether you have any close friends.

The next few questions have to do with friends. ***Would you say:***

F16: I have many friends.

☐ True or mostly true ☐ Sometimes true/Sometimes false ☐ False or mostly false

F17: I get along easily with others my age.

☐ True or mostly true ☐ Sometimes true/Sometimes false ☐ False or mostly false

In this next section, by "close friends", we mean the people that you trust and confide in. They are friends that you see or hang out with at school or outside of school.

F18: How many close friends do you have?

☐☐ Number of close friends ☐ None

F19: Other than your close friends, do you have anyone else in particular you can talk to about yourself or your problems?

☐ Yes **(Go to question F20)** ☐ No **(Go to question F21)**

F20: If you have someone else or other people you can talk to, what is their relationship to you? **(Mark every person that you feel you can talk to about yourself or your problems.)**

☐ Foster mother
☐ Foster father
☐ Birth mother
☐ Birth father
☐ Brother
☐ Sister
☐ Grandparents
☐ Other relative
☐ Elder
☐ Cultural Teacher
☐ Healer
☐ First Nation, Métis, or Inuit community member
☐ Foster sibling(s)
☐ A friend of the family or a friend's parent
☐ Boyfriend or girlfriend
☐ Coach or leader (e.g., Scout, Guide, or religious leader)
☐ Birth parent's partner
☐ Teacher
☐ Child welfare worker
☐ Sitter or baby sitter
☐ Other (e.g., family doctor, etc.)

F21: If you don't have anyone like this, would you like to be put in touch with someone who could give you support when you need it?

☐ Yes ☐ Not sure ☐ No

Thinking of your caregiver(s):

Caregiver 1 Gender: ☐ Male ☐ Female

	A great deal	Some	Very little
F22: How well do you feel he/she understands you?	☐	☐	☐
F23: How much fairness do you receive from him/her?	☐	☐	☐
F24: How much affection do you receive from him/her?	☐	☐	☐

F25: Overall, how would you describe your relationship with him/her?

☐ Very close ☐ Somewhat close ☐ Not very close

Caregiver 2 Gender: ☐ Male ☐ Female	**A great deal**	**Some**	**Very little**
F26: How well do you feel he/she understands you?	☐	☐	☐
F27: How much fairness do you receive from him/her?	☐	☐	☐
F28: How much affection do you receive from him/her?	☐	☐	☐

F29: Overall, how would you describe your relationship with him/her?

☐ Very close ☐ Somewhat close ☐ Not very close

F30: How well do you feel your caregivers support your cultural needs.

☐ A great deal ☐ Some ☐ Very little

F31: How often do your caregivers participate in your cultural ceremonies, traditions, and events?

☐ Very often ☐ Sometimes ☐ Never ☐ Not applicable

	Always	**Often**	**Sometimes**	**Almost never**	**Never**
F32: Your caregiver tells you that you are doing a good job.	☐	☐	☐	☐	☐
F33: Your caregiver warns you that he/she will discipline you and then does not do it.	☐	☐	☐	☐	☐
F34: You fail to leave a note or let your caregiver know where you are going.	☐	☐	☐	☐	☐
F35: You talk your caregiver out of disciplining you after you have done something wrong.	☐	☐	☐	☐	☐
F36: You stay out in the evening past the time you are supposed to be home.	☐	☐	☐	☐	☐
F37: Your caregiver compliments you when you have done something well.	☐	☐	☐	☐	☐
F38: Your caregiver praises you for behaving well.	☐	☐	☐	☐	☐
F39: Your caregiver does not know the friends you are with.	☐	☐	☐	☐	☐
F40: Your caregiver lets you out of a discipline consequence early (like lift restrictions earlier than he/she originally said).	☐	☐	☐	☐	☐

CURRENT PLACEMENT: The next few questions have to do with your current living situation.

Would you say that:	**A great deal**	**Some**	**Very little**
F41: You like living here?	☐	☐	☐
F42: You feel safe living in this home?	☐	☐	☐
F43: You would be pleased if you were to live here for a long time?	☐	☐	☐
F44: You are satisfied with the amount of privacy you have here?	☐	☐	☐
F45: You have a good relationship with other people with whom you are living?	☐	☐	☐
F46: Overall, you are satisfied with your current living situation here?	☐	☐	☐

F47: What improvements, if any, in your current living situation would you like to see happen in the coming year?

Specify:

During the AAR conversation, the **CHILD WELFARE WORKER** is to complete the following section based on the information obtained on the entire developmental dimension of family and social relationships.

ATTAINMENT OF GENERAL SOCIAL AND FAMILY RELATIONSHIP OBJECTIVES OF THE CHILD WELFARE SYSTEM:

F48: Objective 1: The young person has had continuity of care.

☐ Much continuity of care (i.e., no change of placement in the last 12 months)

☐ Some disruptions (i.e., one change of placement in the last 12 months)

☐ Serious disruptions (i.e., two or more changes of placement in the last 12 months)

F49: Objective 2: The young person is definitely attached to at least one caregiver.

☐ Definitely attached ☐ Some attachment ☐ Little or no attachment

F50: Objective 3: The young person's contact with his/her birth family strengthens his/her relationship with them.

☐ Most contacts are helpful ☐ Most contacts are unhelpful ☐ No contacts

F51: Objective 4: The young person has a strong sense of belonging in his/her cultural identity through his/her family and social relationships..

☐ A great deal ☐ Some ☐ Very little

F52: Objective 5: The young person has had a stable relationship with at least one adult over a number of years.

☐ Stable relationship throughout life

☐ Fairly long-term relationship (i.e., more than 3 years)

☐ Short-term relationship (i.e., 1-3 years)

☐ No stable relationship

F53: Objective 6: The young person has a relationship with a person who is prepared to help him/her in times of need.

☐ A good relationship with someone he/she can call on regularly

☐ A fairly good relationship with someone he/she can call on in times of crisis

☐ No support of this kind

F54: Objective 7: The young person is able to make friendships with others of the same age.

☐ Several friends ☐ Some friends ☐ Few friends ☐ No friends

F55: Objective 8: All feasible action is being taken to create or maintain a permanent placement for him/her.

☐ Yes ☐ No

Note to the child welfare worker: *If anyone disagrees with these answers to the Family and Social Relationships objectives, please note the details on the opposite page.*

DEVELOPMENTAL DIMENSION 5: SOCIAL PRESENTATION

This dimension is about making sure that the young person is being helped to understand what sort of impression he/she makes on other people and how he/she needs to adapt to different situations.

During the AAR conversation, the **CAREGIVER** is to answer the following section with assistance, as needed.

	Always	Often	Sometimes	Never/rarely
P1: Does ... keep himself/herself clean (i.e., body, hair, teeth)?	☐	☐	☐	☐
P2: Does ... take adequate care of his/her skin?	☐	☐	☐	☐
P3: Overall, does ...'s personal appearance give people the impression that he/she takes care of himself/herself properly?	☐	☐	☐	☐
P4: Does ... wear suitable clothes (e.g., at school, home, or parties, etc.)?	☐	☐	☐	☐
P5: Can people understand what he/she is saying?	☐	☐	☐	☐
P6: Is ... polite with friends and adults?	☐	☐	☐	☐

During the AAR conversation, the **YOUNG PERSON** is to answer the following section.

	True	Mostly true	Sometimes true/ sometimes false	Mostly false	False
P7: I like the way I look:	☐	☐	☐	☐	☐
P8: I like the way I dress:	☐	☐	☐	☐	☐

During the AAR conversation, the **CHILD WELFARE WORKER** is to answer the following section based on the information obtained on the entire developmental dimension of social presentation.

ATTAINMENT OF SOCIAL PRESENTATION OBJECTIVES OF THE CHILD WELFARE SYSTEM:

P9: Objective 1: The young person's appearance is acceptable to young people and adults.

☐ Usually acceptable to young people and adults ☐ Usually acceptable to adults only

☐ Usually acceptable to young people only ☐ Usually not acceptable to either young people or adults

P10: Objective 2: The young person's manners are acceptable to young people and adults.

☐ Usually acceptable to young people and adults ☐ Usually acceptable to adults only

☐ Usually acceptable to young people only ☐ Usually not acceptable to either young people or adults

P11: Objective 3: The young person can communicate easily with others.

☐ Very easily ☐ Easily ☐ With some difficulty ☐ With great difficulty

P12: Objective 4: The young person has a positive physical self-image.

☐ Good physical self-image ☐ Fair physical self-image ☐ Poor physical self-image

Note to the child welfare worker: *If anyone disagrees with these answers to the Social Presentation objectives, please note the details on the opposite page.*

DEVELOPMENTAL DIMENSION 6: EMOTIONAL AND BEHAVIOURAL DEVELOPMENT

This dimension is designed to assess how the young person has been feeling and how this may have affected the way he/she behaves.

During the AAR conversation, the **YOUNG PERSON** is to answer the following section with assistance, as needed.

During the past MONTH, how often did you feel:	**Every day**	**Almost every day**	**2 or 3 times a week**	**About once a week**	**Once or twice a month**	**Never**
B1: happy	☐	☐	☐	☐	☐	☐
B2: interested in life	☐	☐	☐	☐	☐	☐
B3: satisfied	☐	☐	☐	☐	☐	☐
B4: that you had something important to contribute to society	☐	☐	☐	☐	☐	☐
B5: that you belonged to a community (like a social group, your school, or your neighbourhood)	☐	☐	☐	☐	☐	☐
B6: that our society is becoming a better place for people like you	☐	☐	☐	☐	☐	☐
B7: that people are basically good	☐	☐	☐	☐	☐	☐
B8: that the way our society works made sense to you	☐	☐	☐	☐	☐	☐
B9: that you liked most parts of your personality	☐	☐	☐	☐	☐	☐
B10: good at managing the responsiblities of your daily life	☐	☐	☐	☐	☐	☐
B11: that you had warm and trusting relationships with other children/youth	☐	☐	☐	☐	☐	☐
B12: that you had experiences that challenged you to grow and become a better person	☐	☐	☐	☐	☐	☐
B13: confident to think or express your own ideas and opinions	☐	☐	☐	☐	☐	☐
B14: that your life has a sense of direction or meaning to it	☐	☐	☐	☐	☐	☐

Now, we have a few questions to ask <u>you</u> (i.e., the **YOUNG PERSON**) about suicide. Some of them might be hard for you to answer, but please answer them as well as you can. If you feel you need support, please talk to your caregiver, your child welfare worker, your family doctor, your FNMI Traditional Healer, an Elder, or Cultural Teacher.

B15: Has anyone in your school, family, or someone else you know ever committed suicide?

☐ Yes, within the last year ☐ Yes, more than a year ago ☐ No, never ☐ I don't know

B16: During the past 12 months have you ever attempted to hurt yourself?

☐ Yes ☐ No

B17: During the past 12 months, did you <u>seriously</u> consider attempting suicide?

☐ Yes ☐ No

B18: If you attempted suicide during the past 12 months, did you have to be treated by a doctor, nurse, or other health professional (for a physical injury or counseling)?

☐ I did not attempt suicide within the past 12 months ☐ Yes ☐ No

During the AAR conversation, the **CAREGIVER** is to answer the following section.

B19: STRENGTHS AND DIFFICULTIES QUESTIONNAIRE: For each item, please mark the box for Not True, Somewhat True or True. It would help us if you answered all items as best you can even if you are not absolutely certain. Please give your answers on the basis of this young person's behaviour over the last six months or this school year.

	True	Somewhat true	Not True
1. Considerate of other people's feelings.	☐	☐	☐
2. Restless, overactive, cannot stay still for long.	☐	☐	☐
3. Often complains of headaches, stomachaches, or sickness.	☐	☐	☐
4. Shares readily with other youth, for example books, games, food.	☐	☐	☐
5. Often loses temper.	☐	☐	☐
6. Would rather be alone than with other youth.	☐	☐	☐
7. Generally well behaved, usually does what adults request.	☐	☐	☐
8. Many worries or often seems worried.	☐	☐	☐
9. Helpful if someone is hurt, upset, or feeling ill.	☐	☐	☐
10. Constantly fidgeting or squirming.	☐	☐	☐
11. Has at least one good friend.	☐	☐	☐
12. Often fights with other youth or bullies them.	☐	☐	☐
13. Often unhappy, depressed, or tearful.	☐	☐	☐
14. Generally liked by other youth.	☐	☐	☐
15. Easily distracted, concentration wanders.	☐	☐	☐
16. Nervous in new situations, easily loses confidence.	☐	☐	☐
17. Kind to younger children.	☐	☐	☐
18. Often lies or cheats.	☐	☐	☐
19. Picked on or bullied by other youth.	☐	☐	☐
20. Often offers to help others (parents, teachers, youth).	☐	☐	☐
21. Thinks things out before acting.	☐	☐	☐
22. Steals from home, school, or elsewhere.	☐	☐	☐
23. Gets along better with adults than with other youth.	☐	☐	☐
24. Many fears, easily scared.	☐	☐	☐
25. Good attention span, sees work through to the end.	☐	☐	☐

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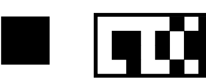
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During the AAR conversation, the **YOUNG PERSON** is to answer the following section with assistance, as needed.

B20: ADVERSE LIFE EXPERIENCES: Would you like to discuss any events or situations that caused you, or continue to cause you, a great amount of worry or unhappiness? **Specify:**

____

____

____

____

B21: POSITIVE LIFE EXPERIENCES: Which of the following positive experiences have you had **during the last year?** **(Mark as many as apply.)**

- ☐ I have caregivers who care about me.
- ☐ I have had someone in my life who really listens to me.
- ☐ I have had enough stability in my living arrangements.
- ☐ I have been included in my caregivers' family activities and outings.
- ☐ I have enjoyed the fact that my caregivers have spent time with me.
- ☐ I have felt trusted by my caregivers.
- ☐ I have had a strong relationship with a supportive adult other than my caregiver.
- ☐ I have had a say in things that affect my life.
- ☐ I have had a comforting sense of routine in my life (for example, supper time, bed time, etc.).
- ☐ I have made new friends at school or elsewhere.
- ☐ I have kept in touch with friends who live elsewhere.
- ☐ I have had good contact with my birth mother (if applicable).
- ☐ I have had good contact with my birth father (if applicable).
- ☐ I have had good contact with my birth sibling(s) (if applicable).
- ☐ I have enjoyed participating in a school or community club, or sports team.
- ☐ I have gone to a fun summer or weekend camp.
- ☐ I have gone on a trip.
- ☐ I have received a medal, trophy, or certificate (for example, sports, music, scouts, guides, etc.).
- ☐ I have had good grades in school.
- ☐ I have enjoyed school.
- ☐ I have had good teachers at school.
- ☐ I have learned a new skill (for example, guitar, hobby, language, etc.).
- ☐ I have enjoyed participating in cultural ceremonies, activities, or other cultural events.

B22: POSITIVE LIFE EXPERIENCES: What are the most positive life experiences you have had during the last 12 months? **Specify:**

During the AAR conversation, the **CHILD WELFARE WORKER** is to answer the following section based on the information obtained on the entire developmental dimension of emotional and behavioural development.

ATTAINMENT OF EMOTIONAL AND BEHAVIOURAL DEVELOPMENT OBJECTIVES OF CHILD WELFARE SYSTEM:

B23: Objective 1: The young person displays behaviours appropriate to his/her age in a range of situations.

- ☐ Always
- ☐ Sometimes
- ☐ Most of the time
- ☐ Infrequently

B24: Objective 2: The young person displays emotional reactions appropriate for his/her age in a range of situations.

- ☐ Always
- ☐ Sometimes
- ☐ Most of the time
- ☐ Infrequently

B25: Objective 3: The young person is free of serious emotional and behavioural problems.

- ☐ No problems
- ☐ Problems exist that need remedial action
- ☐ Minor problems
- ☐ Serious problems exist which need specialized assistance

B26: Objective 4: The young person is receiving effective treatment for all persistent problems.

- ☐ Does not need treatment
- ☐ Is receiving some treatment
- ☐ Is receiving effective treatment
- ☐ Is not receiving effective treatment

Note to the child welfare worker: *If anyone disagrees with these answers to the Emotional and behavioural development objectives, please note the details on the opposite page.*

DEVELOPMENTAL DIMENSION 7: SELF-CARE SKILLS

The questions in this dimension are designed to find out if the young person is learning to care for himself/herself at a level appropriate to his/her age and ability when given the necessary resources and support.

During the AAR conversation, the **CAREGIVER** is to answer the following section with assistance, as needed.

Now, I would like to ask you some questions about ...'s self-care responsibilities.

Is ... able to:	Yes	No	Not applicable
S1: Make his/her bed?	☐	☐	☐
S2: Clean his/her own room?	☐	☐	☐
S3: Pick up after himself/herself?	☐	☐	☐
S4: Help keep shared living areas clean and straight?	☐	☐	☐
S5: Do routine chores such as help with dinner, wash dishes, mow the lawn, etc.?	☐	☐	☐
S6: Help manage his/her own time (get up on time, be ready for school, etc.)?	☐	☐	☐
S7: Brush his/her teeth without being told?	☐	☐	☐
S8: Bathe or shower without being told?	☐	☐	☐
S9: Use the vacuum cleaner?	☐	☐	☐
S10: Use the washer and the dryer?	☐	☐	☐
S11: Undertake simple first aid?	☐	☐	☐
S12: Use a public telephone?	☐	☐	☐
S13: Make or receive a call appropriately?	☐	☐	☐
S14: Use the library?	☐	☐	☐
S15: Use the Internet to research information?	☐	☐	☐
S16: Utilize public transportation?	☐	☐	☐
S17: Prepare his/her own breakfast?	☐	☐	☐
S18: Prepare his/her own lunch?	☐	☐	☐
S19: Prepare a simple meal?	☐	☐	☐
S20: Remain at home alone?	☐	☐	☐

S21: Is ... receiving all necessary assistance to learn independent living skills that are appropriate for his/her age?

☐ Yes ☐ No

FINANCIAL LITERACY: At age 18, young people are eligible to access savings from the Ontario Child Benefit equivalent savings program. In order to access these funds, young people must demonstrate certain financial literacy competencies.

Is ... able to:	**Yes**	**No**	**Not Applicable**
S22: Find out what kinds of jobs are available for people his/her age?	☐	☐	☐
S23: Find information on different types of jobs he/she may be interested in when he/she has completed his/her post-secondary education?	☐	☐	☐
S24: Save money for things he/she wants to buy?	☐	☐	☐
S25: Use a bank machine?	☐	☐	☐
S26: Use a bank account?	☐	☐	☐
S27: Help with grocery shopping?	☐	☐	☐
S28: Understand what a budget is?	☐	☐	☐
S29: Keep track of what he/she earns and spends in a month?	☐	☐	☐

During the AAR conversation, the **YOUNG PERSON** is to answer the following section with assistance, as needed.

S30: Are there other self-care skills you would like to learn?

☐ Yes ☐ No

Specify:

____

____

____

During the AAR conversation the **CHILD WELFARE WORKER** is to answer the following section based on the information obtained on the entire developmental dimension of self-care skills.

ATTAINMENT OF SELF-CARE OBJECTIVES OF THE CHILD WELFARE SYSTEM:

S31: Objective 1: The young person is learning to care for himself/herself at a level appropriate to his/her age and ability when given the necessary resources and support.

☐ Already competent ☐ Learning to care for himself/herself ☐ Not learning to care for himself/herself

S32: Objective 2: The young person is learning money management skills.

☐ Already competent ☐ Learning money management skills ☐ Not learning money management skills

S33: Objective 3: The young person has a Learning Plan to build financial literacy skills.

☐ Has a plan and it is implemented ☐ No action

☐ A plan is under development ☐ Not applicable

Note to the child welfare worker: *If anyone disagrees with these answers to the Self-Care Skills objectives, please note the details on the opposite page.*

The **CHILD WELFARE WORKER** is to answer the following section based on the information obtained from the entire Assessment and Action Record. **"Yes" should only be answered if you are very certain that the young person truly possesses the asset.**

SUMMARY PROFILE OF YOUNG PERSON'S ASSETS. The Search Institute has identified the following assets as building blocks that help young people grow up healthy, caring, and responsible.

Asset Category, Name, and Definition:

SUPPORT	Yes	Uncertain	No
A1: ***Caregiver support:*** Caregivers provide high levels of love and support.	☐	☐	☐
A2: ***Positive communication:*** Young person and caregivers communicate positively, and young person is willing to seek advice and counsel from caregivers.	☐	☐	☐
A3: ***Other adult relationships:*** Young person receives support from other adults besides caregivers.	☐	☐	☐
A4: ***Caring neighbourhood:*** Young person experiences caring neighbours.	☐	☐	☐
A5: ***Caring school environment:*** School provides a caring, encouraging environment.	☐	☐	☐
A6: ***Caregiver involvement:*** Caregivers are actively involved in helping young person succeed in school.	☐	☐	☐

EMPOWERMENT	Yes	Uncertain	No
A7: ***Community values youth:*** Young person perceives that adults in the community value youth.	☐	☐	☐
A8: ***Youth as resources:*** Young person is given useful roles in the community.	☐	☐	☐
A9: ***Service to others:*** Young person serves others in the community on a regular basis.	☐	☐	☐
A10: ***Safety:*** Young person feels safe at home, school, and in neighbourhood.	☐	☐	☐

BOUNDARIES AND EXPECTATIONS	Yes	Uncertain	No
A11: ***Caregiver boundaries:*** Caregivers have clear rules and consequences and monitor the young person's whereabouts.	☐	☐	☐
A12: ***School boundaries:*** School provides clear rules and consequences.	☐	☐	☐
A13: ***Neighbourhood boundaries:*** Neighbours take responsibility for monitoring the young person's behaviour.	☐	☐	☐
A14: ***Adult role models:*** Caregivers and other adults model positive, responsible behaviour.	☐	☐	☐
A15: ***Positive peer observations:*** Young person's best friends model responsible behaviour.	☐	☐	☐
A16: ***High expectations:*** Both caregivers and teachers encourage young person to do well.	☐	☐	☐

CONSTRUCTIVE USE OF TIME	Yes	Uncertain	No
A17: ***Creative activities:*** Young person spends time regularly in lessons or practice in music, theater, or other arts.	☐	☐	☐
A18: ***Youth programs:*** Young person spends time regularly in sports, clubs, or organizations at school and/or in the community.	☐	☐	☐
A19: ***Religious or spiritual community:*** Young person spends time regularly in religious or spiritual activities.	☐	☐	☐
A20: ***Time at home:*** Young person is out with friends "with nothing special to do" two or fewer nights per week.	☐	☐	☐

COMMITMENT TO LEARNING	Yes	Uncertain	No
A21: ***Achievement motivation:*** Young person is motivated to do well in school.	☐	☐	☐
A22: ***School engagement:*** Young person is actively engaged in learning.	☐	☐	☐
A23: ***Homework:*** Young person reports doing homework regularly.	☐	☐	☐
A24: ***Bonding to school:*** Young person cares about his/her school.	☐	☐	☐
A25: ***Reading for pleasure:*** Young person reads for pleasure regularly.	☐	☐	☐

POSITIVE VALUES	Yes	Uncertain	No
A26: ***Caring:*** Young person places high value on helping other people.	☐	☐	☐
A27: ***Equality and social justice:*** Young person places high value on promoting equality and reducing hunger and poverty.	☐	☐	☐
A28: ***Integrity:*** Young person acts on convictions and stands up for his/her beliefs.	☐	☐	☐
A29: ***Honesty:*** Young person "tells the truth even when it is not easy".	☐	☐	☐
A30: ***Responsiblity:*** Young person accepts and takes personal responsibility.	☐	☐	☐
A31: ***Restraint:*** Young person believes it is important not to be sexually active or to use alcohol or other drugs.	☐	☐	☐

SOCIAL COMPETENCIES	Yes	Uncertain	No
A32: ***Planning and decision making:*** Young person knows how to plan ahead and make choices.	☐	☐	☐
A33: ***Interpersonal competence:*** Young person has empathy, sensitivity, and friendship skills.	☐	☐	☐
A34: ***Cultural competence:*** Young person has knowledge and comfort with people of different cultural, racial, and/or ethnic backgrounds.	☐	☐	☐
A35: ***Resistance skills:*** Young person can resist negative peer pressure and dangerous situations.	☐	☐	☐
A36: ***Peaceful conflict resolution:*** Young person seeks to resolve conflict nonviolently.	☐	☐	☐

POSITIVE IDENTITY	Yes	Uncertain	No
A37: ***Personal power:*** Young person feels that he/she has control over "things that happen to me".	☐	☐	☐
A38: ***Self-esteem:*** Young person reports having high self-esteem.	☐	☐	☐
A39: ***Sense of purpose:*** Young person reports that "my life has a purpose."	☐	☐	☐
A40: ***Positive view of personal future:*** Young person is optimistic about personal future.	☐	☐	☐

ATTAINMENT OF THE GOALS OF LOOKING AFTER CHILDREN: Overall, in working with this particular young person and his/her caregivers, how successful do you think you have been up to now in attaining the following goals of Looking After Children? **(Please answer each item as honestly and frankly as possible.)**

	Very successful	Somewhat successful	Not very successful
T1: Helping the young person develop his/her potential to a maximum rather than a minimum level.	☐	☐	☐
T2: Focusing on the young person's successes, not just on his/her problems.	☐	☐	☐
T3: Planning according to the young person's individualized needs.	☐	☐	☐
T4: Believing your work with the young person can bring about positive change, even in less than ideal circumstances.	☐	☐	☐
T5: Achieving ambitious but feasible objectives in all major areas of the young person's development.	☐	☐	☐
T6: Helping the young person to develop a positive cultural identity and feeling of cultural safety.	☐	☐	☐

COMPLETION OF THE AAR:

Q1: How many conversations did it take to complete this AAR (including the Background Information Section)?

☐ 1 session ☐ 2 sessions ☐ 3 sessions ☐ 4 or more sessions

Q2: Total time to complete the AAR (including the Background Information section)?

☐☐ hours and ☐☐ minutes

Q3: Total time that the young person participated in completing the AAR?

☐☐ hours and ☐☐ minutes

Q4: The young person for whom the AAR is being completed:

- ☐ Participated in the entire AAR conversation
- ☐ Participated in only part of the AAR conversation
- ☐ Participated in only part of the AAR conversation because of refusal
- ☐ Participated in only part of the AAR conversation because of lack of capacity
- ☐ Participated in none of the AAR conversation because of refusal
- ☐ Participated in none of the AAR conversation because of lack of capacity

Q5: Who else took part in the AAR conversation? **(Mark as many as apply.)**

- ☐ Child welfare worker
- ☐ One foster parent
- ☐ Two foster parents
- ☐ FNMI Band or Community representative
- ☐ FNMI Elder or Cultural Teacher
- ☐ Family worker
- ☐ One adult caregiver other than a foster parent
- ☐ Two adult caregivers other than a foster parent
- ☐ One birth parent
- ☐ Two birth parents
- ☐ Other

Q6: If a FNMI Band or Community representative, Elder, or Cultural Teacher took part in the AAR conversations, was he/she familiar with the Looking After Children approach?

☐ Yes ☐ No ☐ Uncertain ☐ Not applicable

Q7: The AAR is intended to be completed in face-to-face conversations, unless for some reason this is impossible. How was this AAR conversation being completed? **(Mark as many as apply.)**

- ☐ In a face-to-face conversation conducted by the child welfare worker
- ☐ In a face-to-face conversation conducted by the child welfare worker in conjunction with a member of ...'s FNMI community
- ☐ In a telephone conversation conducted by the child welfare worker
- ☐ Through self-administration by the caregiver
- ☐ Through self-administration by the young person
- ☐ Other

Thank you for your participation!

The AAR-C2-2010 is the 2010 version of the second Canadian adaption of the Assessment and Action Record from the Looking After Children international initiative. The authors of this new version are Robert Flynn and Meagan Miller (Centre for Research on Educational and Community Services [CRECS], University of Ottawa), Lynn Desjardins and Hayat Ghazal (Ottawa Children's Aid Society [CAS]), and Louise Legault (Social Research and Demonstration Corporation, Ottawa).

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