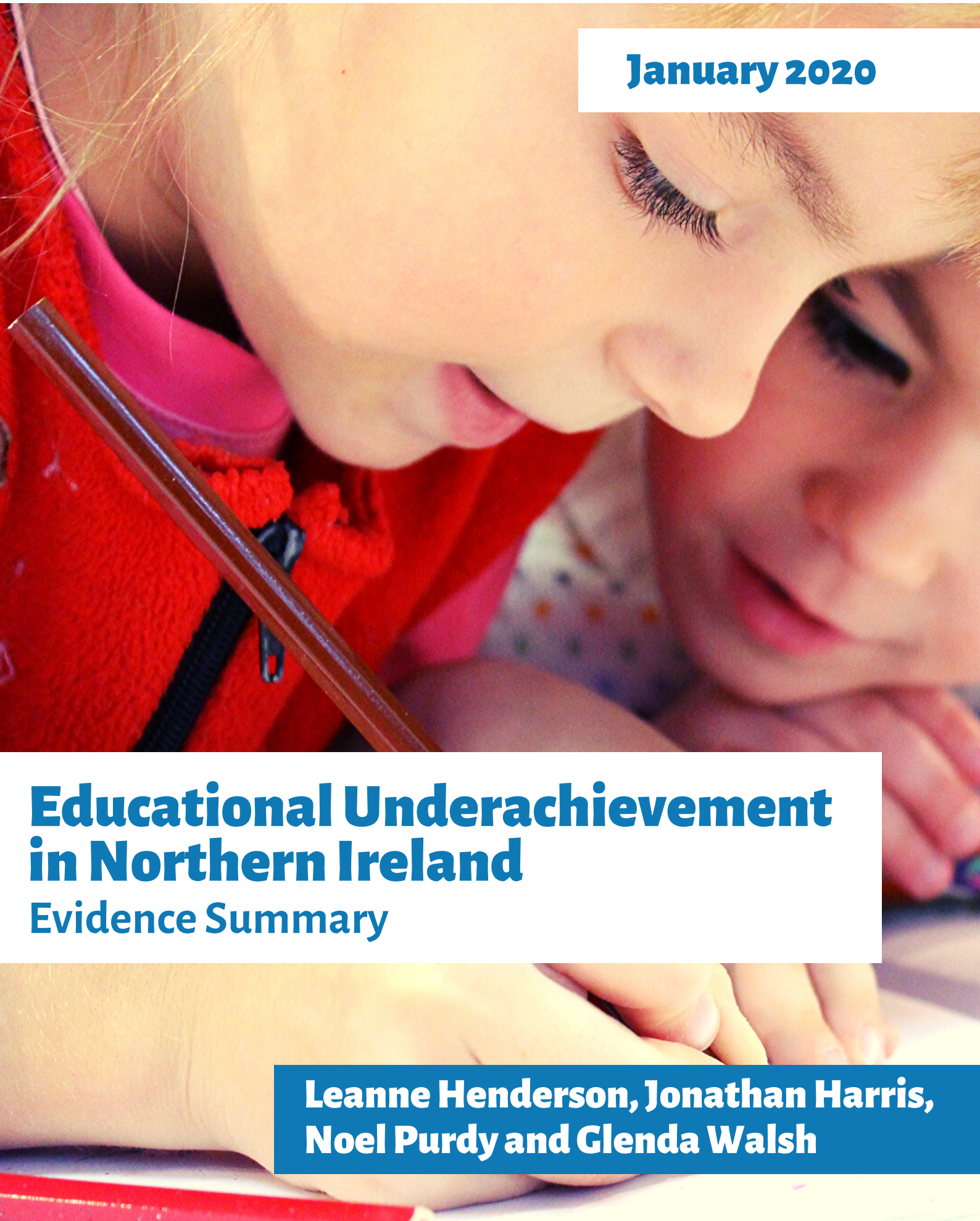
Centre for Research in Educational Underachievement

STRANMILLIS UNIVERSITY COLLEGE
A College of Queen's University Belfast



January 2020

Educational Underachievement in Northern Ireland

Evidence Summary

Leanne Henderson, Jonathan Harris, Noel Purdy and Glenda Walsh

Cite this publication as:

Henderson, L., Harris, J., Purdy, N., and Walsh, G. (2020) *Educational Underachievement in Northern Ireland: Evidence Summary.* Stranmillis University College, Belfast: Centre for Research in Educational Underachievement

Contact:

Centre for Research in Educational Underachievement (CREU)
Stranmillis University College, Belfast, BT9 5DY

Web: www.stran.ac.uk/research/creu
Email: creu@stran.ac.uk
@strancreu

1. Executive Summary

Addressing educational underachievement is a significant and complex challenge (CREU, 2018). This paper aims to provide an overview of current knowledge related to educational underachievement in Northern Ireland. It focuses on the significant relationship between underachievement, social disadvantage and the myriad of in-school and out-of-school factors which are associated with student achievement.

The report of the Chief Inspector of Schools for Northern Ireland (ETI, 2018) provides numerous insights into factors associated with pupil achievement across the various sectors and phases. A key theme is the need for education provision to address the educational needs of every child across all phases and sectors, and multiple studies considered in this review highlight the priority given to inclusion as a strength of education policy provision in Northern Ireland.

This evidence summary brings together research published since 2000 relating to educational underachievement in the context of Northern Ireland. The main aim is to establish what is currently known about underachievement and its implications for children and young people, and make recommendations for future research.

1.1. Summary of key findings and recommendations

1. Research on educational underachievement in Northern Ireland since 2000 has not been comprehensive, with only one substantial academic research project (Leitch *et al.*, 2017) fully focused on this issue, despite policymakers' repeated calls for progress in this area.

2. Internationally, a long tail of underachievement belies Northern Ireland's reputation for producing academically high-achieving pupils, indicating a country-level problem requiring a Northern Ireland-specific focus.

3. Following the application of the Foundation Stage Curriculum in 2007, which integrated a play-based learning approach prior to Key Stage 1 (KS1), no systematic evaluation has taken place on its effects for literacy and numeracy into Key Stage 2 (KS2) and beyond.

4. A broad range of research linked to inclusion shares a concern with *empowering* learners, whether through literacy interventions in mainstream education or through alternative provision.

5. A shift in policy regarding schools and communities has seen numerous studies of the impacts of Shared Education and Extended Schools Provision, but academic selection remains a largely untouched element of education policy in Northern Ireland since Gallagher and Smith (2000), despite its determinant effects on pupils' attainment.

6. Research considering school level decisions about assessment, which have significant impacts on young people and implications for their future education and employment, merits further attention.

Table of Contents

2. Introduction

Addressing educational underachievement is a significant and complex challenge (CREU, 2018). This paper aims to provide an overview of current knowledge related to educational underachievement in Northern Ireland. It focuses on the significant relationship between underachievement and social disadvantage and the myriad of in-school and out-of-school factors which are associated with student achievement. The paper begins with this introduction which defines educational underachievement and gives an overview of how this issue has been addressed in education policy. The main focus of the paper is a rapid review of the research literature which considers educational underachievement in its broadest sense in the context of Northern Ireland. The overarching purpose is to identify gaps in the existing literature and to make recommendations for future research.

2.1. Defining educational underachievement

The uses of the term educational underachievement vary across disciplines (Plewis, 1991), making it a unifying concept that nonetheless requires careful definition and contextualisation. Psychologists generally apply the term underachievement to differences between actual and predicted attainment (examination grades, typically) for individuals or groups, with predictions of potential attainment generally based on IQ scores or other prior summative assessment. Sociologists are more likely to consider the relative performance of groups of pupils, known as differential attainment, one common example being a gender attainment gap with boys 'underachieving' when compared with girls (Connolly, 2008). Both the psychological and sociological definitions of underachievement are of interest in this research, since the intention is to understand the factors which promote and limit individual and groups of children to fulfil their educational potential.

The term 'educational underachievement' remains a useful concept, although it is perceived to be an 'imperfect descriptor' by some (Gorard & Smith, 2004), because of its potential to represent the full range of issues considered by this research. An interesting discussion of the complexities of researching achievement gaps and underachievement is provided by Connolly (2008) who emphasises the need for critical research in this area to pay due attention to context. It should also be noted that a policy priority outlined in the Programme for Government (PfG) is addressing underachievement (Northern Ireland Executive, 2016) and this research responds directly to this by exploring the extent of existing knowledge related to educational achievement in Northern Ireland.

The report of the Chief Inspector of Schools for Northern Ireland (ETI, 2018) provides numerous insights into factors associated with pupil achievement across the various sectors and phases. A key theme is the need for education provision to address the educational needs of every child across all phases and sectors, and multiple studies considered in this review highlight the priority given to inclusion as a

strength of education policy provision in Northern Ireland (Arnold & Reed, 2016; Hunter & O'Connor, 2006; Smith, 2014). Nonetheless, educational underachievement remains a significant challenge, and persistent inequalities in educational outcomes are evidenced in relation to socio-economic status, religion, gender and geography (Perry, 2012; 2016a).

Numerous conceptualisations of the factors which influence student achievement can be found in the literature and these almost invariably consider factors beyond individual student characteristics. Factors which are associated with differences in individual achievement include pupil, family and school factors (Perry, 2016a), system-level factors (OECD, 2016), as well as social and community factors (Leitch *et al.*, 2017). Therefore, no single remedy can assure improvements in academic achievement for all children because low achievement results from 'an interaction and accumulation of experiences and processes over time that hinder learning' (OECD, 2016:41). This paper, using a (rapid) systematic approach to examining the literature base will explore the necessarily diverse existing knowledge in relation to educational underachievement within the Northern Ireland context.

2.2. The measurement of achievement gaps

In her analysis of the Department of Education for Northern Ireland's (DE) role in the Programme for Government (PfG) Perry (2016b) outlines that the overall proportion of young people achieving the different 5 GCSE benchmarks (for example, 5 GCSEs Grades A*-C or the enhanced benchmark which also includes English and Mathematics as an additional requirement) shows year on year improvement. She also points to a need to acknowledge the interplay of contributory factors beyond the current key area of social disadvantage. This would include both in and out-of-school factors which are known to be associated with achievement (Perry, 2012; 2016a). Her recommendations moving forward suggest the need to widen the scope of indicators of educational inequality to accommodate multiple sub-groups not previously included in the outcome measures. For example, the commitment to increase the proportion of Free School Meals Entitlement (FSME) pupils achieving the 5 GCSE benchmark is insufficient to gain a holistic understanding of achievement patterns across the full population of young people. Indeed, the OECD (Shewbridge *et al.*, 2014) has identified this limitation on the potential effectiveness of attainment targets for Northern Ireland. Differential performance for sub-groups by gender, religious/community identity, school type and geographical area would be valid areas of focus which are consistently explored in other contexts, for example, in England and Wales (See Connolly, 2013). Additional issues such as the known impact of school socio-economic composition on student achievement would be equally valid areas of investigation (OECD, 2016).

Although headline attainment data can provide multiple insights into achievement patterns there are several limitations with such analyses, not least that comparisons can only take account of those pupils who actually sit the examinations (Connolly, 2008). Some examples raised by the Chief Inspector (ETI, 2016) illustrate the problem of comparing data which does not accurately represent the cohort. First, accountability pressures are associated with the exclusion of Year 12 pupils from

school performance data, which the ETI (2016) estimates to equate to 7% of the cohort. Second, concerns are expressed about the number of Year 13 pupils who did not progress to Year 14 (calculated by the authors as 15.1% of the cohort[1]). The possibility that these young people are excluded in the interests of school headline attainment data rather than the interests of pupils must be considered. In effect the Year 14 data, as it is currently reported, inadequately represents the cohort. The report identifies a need for additional research in this area to evaluate the mechanisms for excluding pupil performance data and pupils themselves in order to understand the extent to which these are both accurate and transparent.

2.3. Policy context: Education in Northern Ireland

This section considers the policy context in terms of both the policy positions of the five main Northern Irish political parties and current policy provision applicable to the broad theme of educational underachievement. The draft Strategy for Children and Young People (NIE / DE, 2016) identifies learning and achievement as a priority in improving children and young people's well-being. In addition, recognition of the need to improve educational opportunities for every child has led to the inclusion of several indicators in the Draft Programme for Government (Northern Ireland Executive, 2016). DE is leading the development of Delivery Plans for 4 of the total 42 indicators:

Indicator 11: Improve Educational Outcomes

Indicator 12: Reduce Educational Inequality

Indicator 13: Improve the Quality of Education

Indicator 15: Improve Child Development

Beyond these, it will undoubtedly contribute to others that fall under the remit of other departments, for example, *improving support for looked after children (Indicator 10)* (Perry, 2016b)

Whilst at present the Northern Ireland Assembly is in a state of haitus, civil servants have been active in pursuing various policy agendas (BBC, 2018) with a view to ensuring 'that the operational business of government is discharged as effectively as possible' (Northern Ireland Executive Office, 2018).

Improving the educational experiences of every child and young person in Northern Ireland is a policy priority for each of the five main parties: The Democratic Unionist Party (DUP), Sinn Féin, Social and Democratic Labour Party (SDLP), Ulster Unionist Party (UUP) and Alliance Party (in order of vote share in the last Northern Ireland Assembly election (BBC, 2017)). However, the means by which they hope to achieve this aim do show some variation. Overall, the main area of divergence between the policy positions of the five political parties relates to academic selection at the transition to post-primary school. The international evidence clearly demonstrates

[1] In 2015/16 there were 16,282 Year 13 pupils (DE, 2016) whilst in 2016/17 there were 13,818 Year 14 pupils (DE, 2017). The difference of 2,464 pupils equates to 15.1% of the Year 13 cohort not progressing to Year 14

that both horizontal (sorting of pupils into different educational tracks) and vertical (grade repetition) forms of stratification in education systems magnify inequality, although variations on both forms of stratification are in continued use across OECD countries (OECD, 2016). A reading of the education policies of each of the main parties illustrates multiple areas of consensus in relation to how the education needs of all children can be best met by the education system (Alliance Party, 2018; Democratic Unionist Party, 2016; Sinn Féin, 2015; Social and Democratic Labour Party, 2017; Ulster Unionist Party, 2017). The broadly common policy areas include: giving priority to improving literacy and numeracy; support for effective early years provision; early intervention and adequate support for children with special/additional educational needs; addressing the legacy of the past through funding for shared and/or integrated education; and assuring access to a broad and balanced curriculum suited to the needs of every child. Some differences in policy are also evidenced, for example the DUP (2016) describes the need to achieve parity of esteem between vocational and academic pathways whilst Sinn Féin (2015) advocates specific measures to address poverty in the education system through initiatives such as breakfast clubs and school meals. It is likely that such initiatives would be supported across the political spectrum and do not necessarily illustrate ideological divergence.

2.4. Research aims and questions

This research seeks to identify and discuss research relating to educational underachievement in the context of Northern Ireland. The main aim is to establish what is currently known about underachievement and its implications for children and young people. The intention is to consider how underachievement arises and can be addressed effectively.

What is the nature and extent of educational underachievement in Northern Ireland since 2000?

- What factors are linked to educational underachievement?
- What evidence exists of factors which mitigate against educational underachievement?
- What are the potential gaps in the research evidence?

3. Methodology

This paper adopts a rapid review methodology to synthesise the research evidence relating to educational underachievement in Northern Ireland. Systematic evidence reviews are increasingly common in the field of education and remain the 'gold standard in knowledge synthesis' (Khangura *et al.*, 2012:2). Rapid reviews are gaining popularity, particularly in the area of health, due to their potential to accelerate evidence-informed decision making (Ganann *et al.*, 2010). More recently, the approach has been adopted at the intersection of the fields of health care and education (Liao, 2017). This rapid review is intended to provide a broad scoping of existing evidence and to inform future research priorities within the Centre for Research in Educational Underachievement (CREU). That the rapid review process is limited in terms of its scope, transparency and comprehensiveness, as compared to traditional systematic review, is fully acknowledged (Kelly *et al.*, 2016). Nonetheless, the approach is considered to be the most appropriate means of synthesising relevant research evidence within the timing and resourcing limitations of the project. In order to minimise these limitations a transparent approach to the review process is adopted (Ganann *et al.*, 2010).

3.1. Inclusion criteria

Studies selected for inclusion in this review met the following selection criteria:

1. Were published between January 2000 and July 2018 in peer-reviewed journals or as research reports.
2. Related to Northern Ireland
3. Related to educational (under)achievement (see introduction for a discussion)
4. Focused on primary or secondary education (and excluded tertiary education)
5. Were categorised as primary research: both empirical and theoretical

Searches were limited to research published between January 2000 and July 2018, although studies relating to earlier time periods were not always excluded, for example, studies relating to historical records. These were therefore excluded manually within the database at the screening stage, with studies required to both be published during the time period and describe research conducted not earlier than 1998. The search was not limited by the subject 'Northern Ireland' because when this limiter was tested in the development of the search string it was found to exclude several relevant studies which the authors were aware of. Therefore, those studies not relating directly to Northern Ireland were eliminated at the screening or eligibility stages (by title, abstract or full text). Within this review the broad areas of educational achievement and underachievement were considered relevant with studies providing empirical evidence of children's and young people's experiences of educational progress or outcomes included. Studies relating to tertiary education were excluded under criterion 4 as not relevant for this review which considers student achievement in primary and secondary education settings. However, studies discussing data about HE and FE trajectories or conditions for HE or FE admissions were included as directly relevant to attainment in high-stakes external examinations. The intention to build a research evidence base underpinned the decision to exclude

opinion articles, although these were screened for references to relevant research with the intention that these could be manually added to the database.

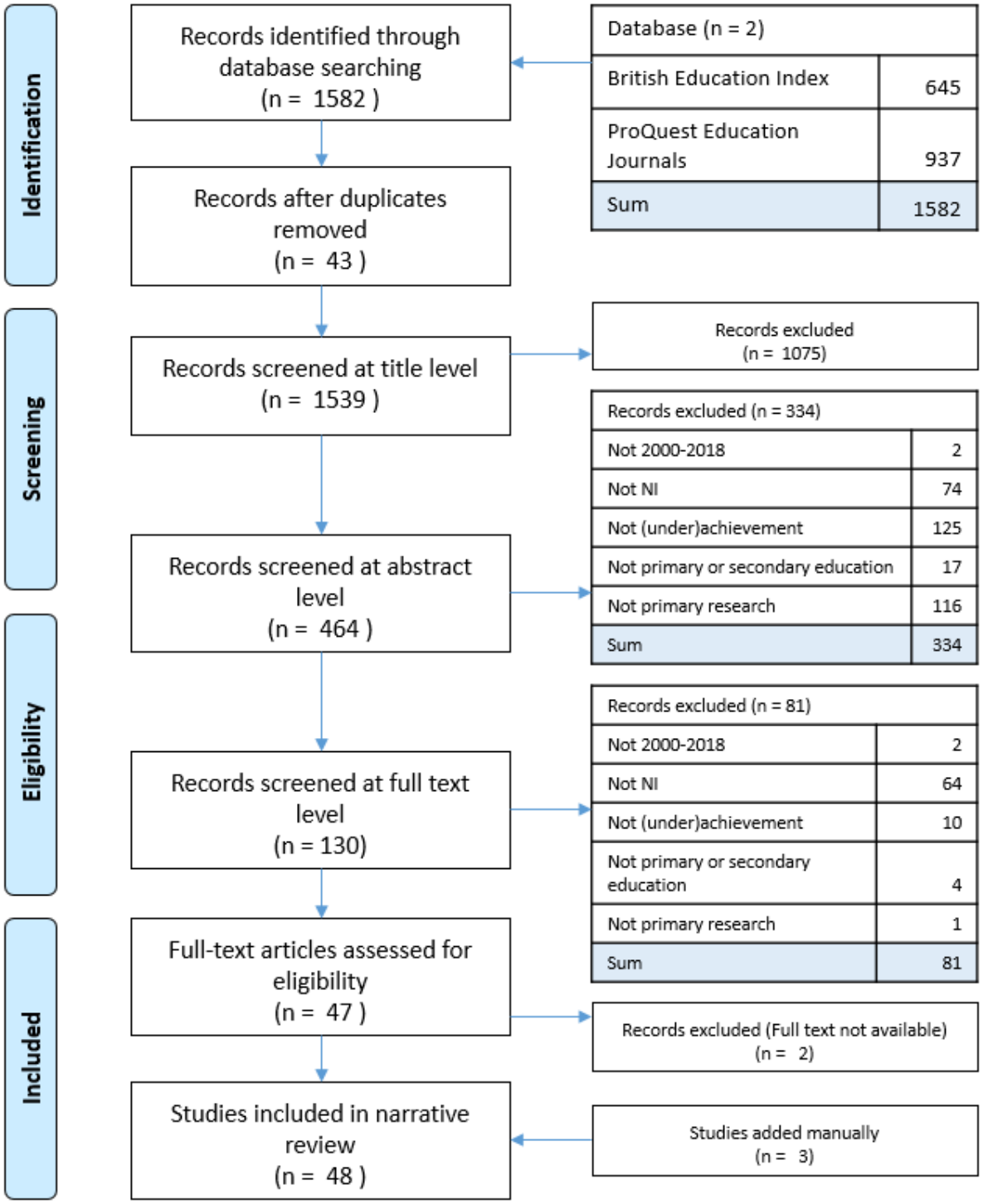
3.2. Searching and screening

The British Education Index and ProQuest Education Journals databases were searched using the search string outlined in Appendix 1. The search string was developed in an effort to include the broadest possible range of studies, therefore in considering ‘achievement’, synonyms such as ‘progress’ and ‘outcome’ were used. In order to improve the efficacy of the search string Boolean operators (AND, OR), the truncation symbol (*) and phrase searching (" ") were used as outlined by Keenan (2018). Prior to screening, duplicates were identified and removed from the database. Screening was conducted in three stages: at title; abstract; and full text levels. Three references were added manually before the narrative review of the qualifying studies was undertaken: two relevant reports known to the authors and one study which was reported in an opinion article.

3.3. PRISMA chart of rapid review

In an effort to achieve transparency the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) convention is followed (Moher *et al.*, 2009). Figure 1 provides an overview of the flow of information through the different phases from initial identification of records, screening and assessing eligibility (title, abstract and full-text) and finalising the studies to be included in the narrative review of the literature. Drawing on Khangura *et al.* (2012), the intention is to use the search to identify relevant research which can be closely read and included in a summary of the relevant evidence relating to the phenomenon under investigation. Beyond making use of quantitative data reported in the various studies to describe a given issue, no quantitative analysis will be undertaken.

Figure 1: PRISMA Chart of rapid search – Educational (Under)achievement



4. Narrative Review of literature

This narrative review summarises the studies identified through the rapid search of the literature discussed in section 3. These are grouped thematically into five substantive areas. The first section focuses on several international comparisons which feature Northern Ireland, in order to frame the sections that follow. The second section discusses papers on innovation and continuities in curriculum reform relating to educational underachievement. The third section reviews studies which broadly relate to inclusion in policy and practice, in terms of specific interventions and engagements with children. A fourth section considers the impact of different system-level policies of school and community collaboration and how these are associated with achievement and development, alongside how out-of-school experiences of young people can have a significant and complex impact on how they experience school. Finally, assessment-specific research is discussed in section five with a particular focus on how assessment arrangements can impact young people, their likelihood of demonstrating their potential in formal examination situations, and the impact on their life and work trajectories. Due to the broad range of studies considered it is not always possible to explore each individual research project in depth. Nonetheless, this narrative outline does provide a much needed and timely snapshot of existing knowledge in relation to the factors which have been associated with achievement and underachievement in the context of Northern Ireland.

4.1. International comparisons: large-scale assessment studies

A number of international comparisons have been based on large-scale assessment studies in recent years. Machin *et al.* (2013) have made a significant contribution to the literature on educational underachievement through their analysis of attainment across the four UK nations, whilst Shiel and Gilleece (2015) have analysed similar data to compare Northern Ireland and Republic of Ireland outcomes. Others (Pensiero & Green, 2018; Wendt & Kasper, 2016) have published analyses based on the same data, namely: Progress in International Reading Literacy Study (PIRLS) in 2011; Trends in International Mathematics and Science Study (TIMMS) in 2001; Programme for International Student Assessment (PISA) in 2012; and Programme for the International Assessment of Adult Competencies (PIAAC) in 2012.

4.1.1. Northern Ireland comparative performance

Machin *et al.* (2013) considered pupil attainment at 4 intervals from age 7 to 18 using multiple comparable indicators. The findings show that Northern Ireland performs less well than other constituent countries of the UK on two indicators: reading at age 7, and proportion of pupils achieving 5 or more GCSEs (A*-C). Comparatively performance is better in: maths at age 7; and the proportion of pupils leaving school with 2 A-levels. However, Northern Ireland has a significantly higher proportion of 17-24 year olds who have no qualifications than the other UK countries. This is of grave concern and suggests that a priority in addressing educational underachievement is to ensure appropriate opportunities for this group to access courses which have the potential to allow them to progress to further study or work. They found that a gender

difference in favour of girls, in terms of GCSE and A-level attainment and PISA performance, to be greater in Northern Ireland than the rest of the UK. A similar analysis by socio-economic status shows large variation between FSME and non-FSME pupils in each of the regions at GCSE level, although these differences by comparison are relatively small at age 7. This demonstrates that the socio-economic attainment gap widens as children progress through the education system, a further area for concern and certainly a valid avenue for future research.

Overall, within countries, pupils tend to achieve at similar levels in the different domains assessed in international comparative studies (Wendt & Kasper, 2016). Correlations between domain-specific scores on PISA, TIMMS and PIRLS are taken to confirm the psychological perspective that 'development in competence domains is based on transferrable skills and dispositions common to all subjects' (Wendt & Kasper, 2016 referencing Weinart, 1999). Where variations emerge in attainment between the domains tested these are generally small but Northern Ireland emerges as one of two contexts, the other being Malta, where larger differences are evidenced in TIMMS and PIRLS (2011). Of the 17 countries considered, Northern Ireland has the second highest proportion of high achievers, second to Finland, which appears to confirm the public perception that the education system is high performing. However, two issues identified in this study show room for significant improvement. Firstly, Northern Ireland shows some of the largest average differences between domains of assessment (Science, Mathematics, Reading) for pupils across the achievement profile range. Secondly, achievement in Science is identified as being consistently weak when compared to Reading and Mathematics.

4.1.2. A long tail of underachievement

Shiel and Gilleece's (2015) comparative analysis of Northern Ireland and the Republic of Ireland provides useful analysis of country outcomes in PIRLS, TIMMS, PISA and PIACC. PIRLS and TIMMS, administered to 10-year-old pupils (year 6) in 2011, showed that Northern Irish pupils overall performed well in comparison to the international averages, ranking 5th in the literacy test and 6th in the numeracy test (Shiel & Gilleece, 2015). Despite this seemingly positive picture, particularly the very high performance in PIRLS, the ranking disguises the significant gap between Northern Ireland and the highest achieving countries in TIMMS. Furthermore, within group comparisons show, for example, that a significantly higher proportion of Northern Irish pupils performed at the 'Low TIMMS benchmark' when compared with other countries.

PISA, administered to 15-year-old pupils in 2012, showed that Northern Ireland pupils were performing at the international average. The reading literacy data showed a number of favourable trends, with Northern Ireland having a lower than average gender difference and proportion of low-achieving pupils. However, the 2012 data shows Northern Ireland to have an average proportion of higher achieving pupils, and a significant decline from the 2000 data, which illustrates a need for continuing improvement in literacy. The mathematical literacy data (2012) shows Northern Ireland performance to be below the international average, and to have declined at each interval since 2000 when it was above average. In addition,

variations in the highest and lowest performing groups also show Northern Ireland to compare unfavourably to the international averages.

Performance on PIACC (2012) again showed Northern Ireland to perform poorly by comparison to the international average on literacy and numeracy measures. However, the significant decline shown in the proportion who perform at the lowest levels in literacy can be taken as a positive shift. International comparisons act as a reminder that differences in approaches to understanding learner performance can limit the usefulness of our interpretations. In essence, whilst Northern Ireland has performed favourably in a number of international comparisons it is important to emphasise that the proportions of young people who leave formal education without the necessary qualifications remains relatively high (Pensiero & Green, 2018). Of the 24 countries included in Pensiero and Green's study, Northern Ireland showed relative declines in both literacy and numeracy. Once again the positive effect of 'prevalence and esteem of vocational education' (p. 248) is identified. Any attempt to address underachievement more broadly must take account of the international evidence which demonstrates the importance of educational opportunities beyond formal education, greater opportunities to continue study in Mathematics and home language and adequate access to appropriate academic and vocational pathways. International comparisons also show that attainment gaps widen as children progress through the education system, indicating that further research to identify ways of addressing the gap early on, before it becomes unmanageably wide, would be of international relevance.

In summary, a long tail of underachievement belies Northern Ireland's reputation for producing academically high-achieving pupils, indicating a country-level problem requiring a Northern Ireland-specific focus

4.2. Curriculum Innovation and Continuity

4.2.1. Early years and primary education

There is a known association between effective early years provision and future educational attainment with particular benefits for the most disadvantaged children (Perry, 2012; Melhuish *et al.*, 2013). The benefits of developmentally appropriate practices such as a play-based curriculum for Foundation Stage learners (4-6 years old) have been shown to be effective in preparing learners from diverse socio-economic backgrounds for formal education (McGuinness *et al.*, 2014; Hunter & Walsh, 2014). McGuinness *et al.*'s evaluation of the application of the Enriched Curriculum, an innovative pedagogical approach which applied the principles adopted in early years settings to the first years of the primary setting, demonstrated that whilst it achieved a more balanced approach to learning by creating more opportunities for child-led activities, it had no statistically significant impact on children's literacy and numeracy proficiency. The study took contextual factors into account, such as the need for curriculum change to become embedded, and the need for measures of pupil learning to be taken over time and interpreted appropriately. It would, therefore, be of interest to undertake a similar evaluation of the Foundation Stage Curriculum (the 2007 curriculum reform which took inspiration

from the outcomes of this research) to evaluate the extent to which children's learning experiences reflect the intentions of curriculum reform and to better understand the longer-term impact on literacy and numeracy for the relevant cohorts of pupils.

Policy discourse in Northern Ireland has consistently prioritised the need for effective early years provision and such a policy position is certainly evidence-based since preschool experiences are associated with improvements in children's future attainment. Melhuish *et al.* (2013) conducted multiple analyses considering background variables and children's preschool experiences show variations in the attainment benefits, ranging from there being no significant or lasting difference to significant benefits for attainment in KS2 English and Mathematics. These variations are evidence that preschool provision in itself is insufficient to achieve lasting benefits, but that the type and quality of preschool provision is important. Although it is difficult to isolate factors which have the greatest impact, levels of training of pre-school staff in different types of provision are expected to be a significant factor in children's attainment with the differences between Northern Ireland and England anticipated to be accounted for by the higher level of training evidenced in the former jurisdiction.

Curriculum reform at primary level created improved opportunities for integrated cross-curricular learning which has increased over time and been embraced by a majority of teachers (Greenwood, 2013). The approach is shown to create potential for holistic, meaningful and relevant learning experiences for pupils but some concerns have been raised in relation to potential limitations such as a lack of progression and difficulties in assessing student learning. Greenwood's study sought the perspectives of teachers and other stakeholder adults. Perhaps future research in this area might engage with children's experiences of this curriculum approach in order that its value can be understood from their perspectives.

4.2.2. Skills-based and knowledge-based curricula

Attainment gaps have been widely researched in the UK context where the problem of a 'long tail of underperformance' (Whitty, 2010), or 'underachievement' (Perry, 2012) is persistent. As discussed elsewhere in this review, this pattern disproportionately affects socially disadvantaged children which raises significant equity concerns. Much research has considered structural barriers to equity, such as the organisation of post-primary schooling, however, Whitty (2010) is particularly concerned about the content of schooling and its organisation as curricula. One element of the discussion is how the curriculum, by prioritising knowledge valued by the middle class, disadvantages working class children. He discusses the reduction of content and renewed emphasis on skills and capabilities in the 2007 Northern Ireland curriculum reform (CCEA, 2007a) within a wider context of similar reforms across countries which sought to improve the accessibility of the curriculum for all children. Drawing on the work of Young (2008), he questions whether the reforms may in fact exclude working class children from accessing 'powerful' knowledge, thus magnifying existing disadvantage. He proposes that curricula conceived at

either extreme of the continuum between skills-based and knowledge-based are unlikely to interrupt the perpetuation of disadvantage in education systems.

Nehring and Szczesiul go further to suggest that 'Twenty-first century skills' are 'what students need to know and be able to do to thrive as workers and citizens in a globalized environment' (2015:5). An increased focus on these skills, which are often thought of as higher order skills, in global education policy initiatives are not often manifested at a classroom level because high-stakes tests which are used as accountability mechanisms are rarely designed to measure such skills. Therefore, although the Northern Ireland Curriculum (CCEA, 2007), was intended to equip young people with skills fit for life and work in the twenty-first century, the extent to which teaching and learning has been transformed is reported as relatively limited. The dominance of core academic subjects, assessed through external examinations, are thought to act as a constraint on twenty-first century learning and the need for alternative assessment strategies, such as portfolios, which would promote exposure to such learning is recommended (Nehring & Szczesiul, 2015). This criticism of Northern Ireland's reliance on external examinations and a knowledge-based curriculum over a more dynamic skills-based curriculum is echoed by others (Davies, 2002; Gardner & Cowan, 2005). Davies's paper (2002) demonstrates the gap between 'static' attainment descriptors which are used for summative purposes and the 'dynamic' ones more common to formative purposes, and proposes describing attainment in ways that capture both elements. Meanwhile, Gardner and Cowan's review (2005) of the appropriateness of the mechanisms used for academic selection at transition to secondary education in Northern Ireland estimated that upwards of 30% of test candidates' grades were likely to have been misclassified. Therefore, any consideration of educational underachievement would be remiss were it not to consider the fallibility of high-stakes external tests throughout the curriculum.

4.2.3. Gender, literacy and STEM

Differential attainment by gender is a common theme in academic research, although care must be taken to avoid 'simplistic binary oppositions' (Hanratty, 2011:417). Nonetheless, public rhetoric commonly portrays literacy curricula as gendered in favour of females, as Hanratty argues to be particularly the case in some specific curriculum areas, such as poetry (2011). Interventions aiming to make critical engagement with poetry more accessible for KS4 pupils has had a positive impact on the attitudes of both male and female pupils and the potential benefits are argued to go beyond improving academic attainment.

Analyses which show, for example, girls' overall higher attainment in GCSE and A-Level examinations, whilst useful in describing patterns of achievement, as with all headline data, have the potential to conceal the complexities of pupil engagement with curriculum and assessment mechanisms. For example, PISA data (OECD, 2014) are shown in a cross-national (Northern Ireland and Republic of Ireland) study to illustrate a gender disparity for Mathematics performance and intrinsic motivation (Cantley *et al.*, 2017). In Northern Ireland, there is a known problem with recruitment to STEM professions (ETI, 2016) and Cantley *et al.*'s research proposes that

improving girls' intrinsic motivation for Mathematics may improve uptake of the subject amongst this group at A Level and continued participation in STEM subjects at tertiary level. At GCSE level, there is only a small difference in the proportion of GCSE Mathematics entrants who are male and female (48.8%: 51.2%[2]). However, a much larger gender gap is evidenced at A Level where the proportion of candidates who are male is 8.8% greater than those who are female (54.4%: 45.6%[3]). Although this difference is not extreme, it nonetheless indicates a lower preference for continued study of Mathematics amongst female pupils despite the performance of girls being comparable to that of boys across the full range of grades available at GCSE level. For example, GCSE Mathematics attainment data shows that 10.9% of boys achieve grade A* compared to 11.2% of girls and 70.5% of boys achieve grade C or above compared to 69.9% of girls (CCEA, 2018b). Cantley *et al.*'s (2017) study illustrates the potential positive impact of an innovative curriculum programme informed by feminist mathematical pedagogy on girls' disposition to Mathematics. The authors fully acknowledge the problematic nature of dichotomous conceptualisations of gender in pedagogical development and argue that 'cognitively-active' teaching approaches, rather than reinforcing this binary, align with a gender neutral sociocultural theoretical framework. In effect, the collaborative approach which they advocate encourages pupils to critically evaluate their choice of strategies in mathematical problem solving. They propose that additional research in the area is necessary to establish the merit of more widespread implementation.

4.3. Inclusion in policy and practice

4.3.1. Additional learning needs: policy

Since education is a devolved policy area there are multiple divergences and convergences in policy provision in Northern Ireland and the other regions of the UK (Gray & Birrell, 2011). Cross-national policy studies have a significant contribution to make to understanding education provision across the regions (Hodgson & Spours, 2016). Chaney's (2012) study, contrasting provision for Additional Learning Needs (ALN) in the devolved regions, offers significant insight into how the educational experiences of this group of learners can be safeguarded through effective curriculum development and delivery, and its monitoring and evaluation. Priority is given to the early identification of ALN, through effective assessment and the provision of adequate support. Chaney identifies 'the need for effective performance measures for ALN' (2012:31) as a specific gap in policy discourse. This gap is discussed elsewhere in this present review in relation to special/additional needs specifically (see Arnold & Reed, 2016) and of learning generally (Davies, 2002; Gardner & Cowan, 2005). In order to ensure that a group of pupils at significant risk of 'underachievement' in traditional assessments can reach their potential the

[2] GCSE Mathematics uptake: 10559 males; and 11084 females (CCEA, 2018b). Year 12 cohort 22091 (DE, 2017). Males GCSE candidates account for 47.8% of the Y12 cohort whilst females account for 50.2%.

[3] GCE Mathematics uptake: 1396 males; and 1170 females (CCEA, 2018a) Year 14 cohort 13818 (DE, 2017). Males GCE candidates account for 10.1% of the Y12 cohort whilst females account for 8.5%.

assessment mechanisms used to understand and measure their progress must be fit for purpose and this issue merits attention from decision makers.

In addition to a shift in how diversity was conceptualised in policy during the first decade of the twenty-first century, the need to assure improvements in the learning experiences and learning outcomes of all pupils was prioritised (Smith, 2014). Smith argues that little progress has been made in embedding the conceptual shift in practice despite multiple initiatives to address underachievement in literacy and numeracy.

4.3.2. Identifying and assessing specific learning needs

Hunter and O'Connor (2006) outline the relationship between variations in the quality of provision for SEN in mainstream schools and the proportion of young people leaving school without the qualifications they will need for further study and employment. Their data is now fairly dated but showed an increasing proportion of young people with statements. However, more recently Arnold and Reed (2016) have expressed a concern that a failure to accurately describe a child's ability in a particular domain is having potentially negative consequences for their learning and the educational opportunities made available to them (Arnold & Reed, 2016). Traditional reading assessments which require test-takers to read aloud were considered to be an unsuitable means of assessing the reading ability of some specific groups. In their study, Arnold and Reed described a lack of confidence amongst practitioners in the capacity of the three most commonly used reading tests to accurately describe the reading abilities of children with ASD, with their unsuitability particularly pronounced for nonverbal children with ASD. Where such assessments fail to accurately represent the reading ability of a child, the likelihood is that their potential to experience an inclusive curriculum is diminished.

Literacy difficulties are known to be associated with developmental delays, although isolating the factors associated with reading difficulties is a complex task which is the focus of multiple studies considered within this review. Research has shown verbal IQ, which is associated with social disadvantage, to be the most significant predictor of reading level amongst children aged 9-10 (McPhillips & Sheehy, 2004). In essence this study illustrates that improvements in children's literacy skills cannot be achieved through educational interventions alone but must also address social factors such as poverty and deprivation since these are important contributing factors.

4.3.3. Empowering children with literacy difficulties

The motivation and capacity to improve special educational needs policy and practice in Northern Ireland has evolved over the past two decades (Beck *et al.*, 2017). The broadened definition of dyslexia agreed by the Task Group on Dyslexia in 2002, marked a significant turning point in conceptualising this specific learning difficulty. Viewing dyslexia as a continuum created the ground work for more individualised support: highlighting the need for differentiated identification and assessment of learners with dyslexia. Consequently, multiple initiatives were put in

place that aimed to address the diversity of needs within the dyslexia continuum. Beck *et al.*'s research considers several specific programmes and assesses the extent to which these are effective and sustainable in addressing learner need. Effectively two models of support are discussed: an outreach model with specialist teachers providing support for learners in the mainstream school environment; and a CPD model which developed in-school capacity to provide support. The accounts of research participants identified many positive aspects of these interventions, including improved learner experiences and potential for their improved achievement. Nonetheless, variations in the extent to which good practice had become a consistent reality were observed and concerns raised around a lack of sustainability which would require a long-term commitment to adequate financial resourcing. A further significant concern was the perception that mechanisms put in place to address diverse learning needs were 'being used to reduce costs rather than improve services' (Beck *et al.*, 2017:158).

A similar investigation of the views and experiences of children with literacy difficulties in upper-primary school by Long *et al.* (2012), underpinned by a children's rights imperative, demonstrates the potential of creative methodologies to engage and empower young people. The potential for individualised participatory activities to create the appropriate conditions for learners to be active agents in their literacy learning experiences was demonstrated. Improvements in learner self-concept and motivation were achieved by actively challenging pupils' negative self-perceptions, building peer support and nurturing supportive adult relationships. Similarly to other studies discussed in this review, Long *et al.* (2012) highlight that achieving pupil empowerment requires teachers to be adequately trained and empowered to enable them to tailor learning to individual needs and that this can only take place in well-resourced, nurturing learning contexts.

Improving children's literacy outcomes, particularly for children with literacy difficulties, is a significant challenge. One essential aspect of improving provision in this area is ensuring that learning provision gives adequate attention to the underlying processes of literacy development (McMurray, 2006). A spelling programme designed to take account of the full range of cognitive processes underpinning literacy development is shown by McMurray to have a positive impact on both spelling and independent writing in children aged 5-6 across the full range of spelling ability. She advocates spelling proficiency as integral to raising literacy standards.

The complexities of monitoring children's literacy development and intervening appropriately mean that professionals are best placed to provide individualised phonics support, however, the constraints of classroom practice mean that such individual support is unlikely for a majority of children (McMurray, 2013). Programmes such as Lexia Reading software, a particular task-based phonics intervention which records and uses assessment data, have the potential to enable pupils to access learning appropriate to their individual progression. McMurray's (2013) evaluation demonstrates that a majority of children following the programme improved their standardised reading scores and self-reported that the programme helped them. In addition, the software produced detailed assessment data relating to

the phonological knowledge of individual children which was a useful resource for teachers.

Many educational interventions, including the use of computer-based literacy programs, are introduced and embedded without rigorous evaluations of their effectiveness. In the case of Lexia Reading software, multiple international studies had shown variations in effectiveness and so O'Callaghan *et al.* (2016) undertook a Randomised Controlled Trial as an important contribution to understanding its potential contribution to children's literacy acquisition. The trial demonstrated measurable positive effects in skill areas underpinning literacy development, which align with the findings of McMurray's (2013) quasi-experimental study. However, O'Callaghan *et al.*'s (2016) trial did also reveal a significant minority within the intervention group whose use of the Lexia Reading software did not lead to significant progress.

4.3.4. School exclusion

For those young people excluded from school on a temporary or permanent basis, the interventions intended to enable them to access the curriculum and excel in mainstream education settings have fallen short. Whilst school exclusion is a reality for a relatively small number of pupils, these are some of the most disadvantaged pupils in terms of economic and social deprivation (Gallagher, 2011). Exclusion has significant consequences for prospective educational achievement and future employment. Many young people formally excluded from school access Alternative Education Provision (AEP), although the number of places available is extremely limited and varies across Northern Ireland (DE, 2015). Gallagher's (2011) paper documents a case study of Loughshore Educational Resource Centre, a post-primary school which serves young people excluded from mainstream school. Pupil attainment at GCSE level has shown improvement over time (although figures given in this paper are now dated) which is attributed to a whole-school approach which fosters the holistic development of a young person's potential. Targeted support focuses on developing confidence and self-esteem, improving attendance and providing individualised curriculum and assessment support. The latter, in addition to addressing diverse needs and circumstances, creates the appropriate conditions for young people to gain the educational credentials which they will need to pursue future education and employment which can mitigate against earlier experiences of underachievement. This paper identifies a significant need for additional research in this area to fully understand the impact of AEP.

The broad range of research linked to inclusion reviewed above shares a concern with *empowering* learners, whether through literacy interventions in mainstream education or through alternative provision. This is argued to be achievable through child-centred curriculum and assessment design, and developing children's confidence, self-esteem and motivation to learn.

4.4. Schools and Communities

4.4.1. Multiple socio-political influences on achievement

Academic selection is a form of horizontal stratification where pupils with similar abilities are sorted into separate educational 'tracks', with the mechanisms used to conduct this sorting varying by context and taking place at different ages (OECD, 2016). One of the most comprehensive programmes of education research undertaken in Northern Ireland considered the effects of the academically selective system (Gallagher & Smith, 2000). The resulting series of reports provides significant insights into the social, educational and economic consequences of selection. For our present purposes the area of greatest concern is the finding that the most important factor which influenced student achievement at GCSE level was whether individuals had been placed in a grammar school or not. This is of particular concern given that access to and performance in the transfer tests, and eventual placement in a grammar school were found to be mediated by socio-economic status. Whilst the data from Gallagher & Smith's (2000) study is now almost two decades old, more recent evidence does show that similar patterns persist under the current arrangements (Gardner & Cowan, 2005; Connolly *et al.*, 2013, Leitch *et al., 2017*). Connolly *et al.* suggest that non-subject specialists are significantly more likely to deliver learning in non-grammar rather than grammar schools. As discussed elsewhere in this present review there is a pressing need for statistical analyses of pupil attainment which take account of the complexity of factors associated with differential achievement.

Whilst not exclusively focusing on academic selection, a comprehensive and in-depth mixed-methods case-study investigation of the links between achievement and deprivation (Leitch *et al.*, 2017) conducted more recently provides insight into the diversity of factors which were found to enhance and inhibit educational achievement. These factors were categorised at three levels: immediate (individual-home-community); school; and structural/policy. At the immediate level, where parental support, individual resilience, and connectedness and participation in community were stronger, educational attainment was enhanced. However, attainment was inhibited where these factors were weak and compounded by negative parental experiences of education, low expectations, low self-esteem, poor aspirations and mental ill-health. Enhanced attainment at the school level relied upon strong leadership, community and parental links, diverse and appropriate curriculum provision, quality teacher-pupil relationships and collaboration, and full-service schooling. Perceptions of low expectations and distance in home-teacher relationships, school absenteeism and exclusion, and inadequacy of SEN support were shown to inhibit attainment. Structural and policy level factors associated with improving attainment were collaborative, proactive service provision, high quality learning environments and grammar school attendance. The negative factors were lack of employment opportunities, legacy of conflict, spatial detachment of school and community, variation in pre-school provision and negative consequences of academic selection. The sheer extent of factors considered in Leitch *et al.*'s (2017) research cannot be explored in depth within this review but any future research in

this area ought to take inspiration from its outlined recommendations for policy and practice. Strategies should take account of the local context but systematically address the full range of enhancing and inhibiting factors related to achievement. This would include incorporating existing evidence which may have wide-ranging impacts across policy and practice levels. A key recommendation is that overly simplistic 'quick fixes' ought to be avoided through acknowledging the complexity of local circumstances and developing long-term solutions through meaningful collaborations. Such collaborations are demonstrated to have the capacity to address achievement gaps by building networks within and beyond communities.

Because of the prevalence of academic selection, Northern Ireland's education system is publicly perceived as high performing (Borooah & Knox, 2015). However, significant differences persist in the performance of sub-groups of children in external examinations at the end of Key Stage 4 and 5. Borooah and Knox (2015) provide several interesting insights in relation to access and performance inequalities: the intakes of Controlled schools are less religiously homogenous than Catholic Maintained schools; performance inequalities between grammar and non-grammar schools persist in Controlled and Catholic Maintained schools but are less pronounced in the latter; and FSME children are underrepresented in both Catholic Maintained and Controlled grammar schools but access to grammar places is less likely for FSME Protestant children.

Borooah and Knox (2017) use probability modelling to map the nature of differential performance at GCSE and A Level, and similarly to their other research propose the potential for inter-school collaborative partnerships between 'stronger' and 'weaker' schools to raise educational standards. It is unclear how acceptable this proposal would be across the system. Their analysis confirms well-known performance gaps by gender and religious identity, and concludes that a non-FSME, non-SEN, Catholic female from an area of low deprivation is most likely to achieve the 5+ GCSE benchmark whilst an FSME, SEN, Protestant male from an area of high deprivation is situated at the opposite end of a spectrum of achievement and is least likely to meet the same GCSE benchmark.

4.4.2. Identity and community factors

Ingram's insightful study (2009) explores how the institutional habitus (ingrained and implicit practices and norms) of school is encountered by working-class boys, and shows that their placement in different schools can interact differently with dimensions of their identity in terms of locality and academic success. The paper claims that being part of a working-class locality can limit social, educational and career aspirations. His research found that experiences of academic 'success' and 'failure' interact differently with boys' likelihood of resisting or maintaining their local identity which can have consequences for whether the limitations of locality are manifested as described above. Within Northern Ireland's selective system, Ingram argues that institutional habitus varies by school type: grammar school habitus perpetuates middle-class values and gives priority to academic success; and secondary school habitus accommodates working-class values but 'does not permit traditional academic success' (2009:432). This study proposes that understanding

the deeply-rooted nature of these differences is a first step in challenging the perpetuation of social and educational inequalities. It would follow that further work in this area would prove useful in gaining better insight into the school and community factors which can impact on young people's likelihood of accessing positive educational experiences which accommodate their identity.

It is well known that there are multiple in school and out of school contributory factors which must be considered in understanding pupil attainment (Perry, 2012; 2016). Adopting a social ecology approach it is possible to improve understanding of the association between family and community level factors and educational attainment with particular reference to the legacy of the troubles (Goeke-Morey *et al.*, 2013). The findings of this study show that family life characterised by conflict and lack of cohesion predicts lower academic achievement among adolescents. Furthermore, awareness of antisocial behaviour in their own communities was associated with instances of poor behaviour amongst young people which has a potential impact on ability to access learning in the school environment. This is concerning because research evidence shows significant impacts of ethnic segregation and violence on even very young children, which may have consequences for the success of measures intended to address educational underachievement (Healy, 2006). Having controlled for other variables, Goeke-Morey *et al.* (2013) showed that Catholic young people had lower attainment than their Protestant peers (mean age of participants = 13.6 years). This finding does not align with much of the existing statistical evidence around patterns of attainment in Northern Ireland, and may be explained by the paper's measure of 11+ grades within their sample. On the other hand, the anticipated school leaving age amongst Protestant youths was reported to be lower than for Catholic peers. The insights offered by the multiple regression models undertaken as part of this study demonstrate how methodological decisions can improve the efficacy of investigations into the relative performance of subgroups. Therefore, future research should take note of the need to accommodate the complex interplay of factors which would improve understanding of attainment patterns.

Relatively little is understood about the educational achievement of minority ethnic children in Northern Ireland, as so much attention has focused on the sectarian divide. This significant gap in administrative data and relevant quantitative research is identified by Biggart *et al.* (2013), whose research discusses three main minority ethnic groupings; the Chinese community, the Traveller community and European migrants. Whilst this paper focuses predominantly on the need to address aspects of the educational experiences of minority children which go beyond a focus on educational outcomes, some useful information relevant to educational achievement is provided. Firstly, children from the Chinese community are higher achievers on average, but their experiences of educational success are not an indication that they are happy at school. Secondly, Traveller children have generally negative experiences of education, characterised by lack of engagement, low teacher expectations and peer-group exclusion which includes bullying. Many traveller children leave education with few formal qualifications and low levels of literacy. Thirdly, there is little data on the educational experiences or attainment of European

migrant children, although this group are shown to be at risk of harassment in the community generally and are therefore likely to experience fear of bullying in the school environment. Biggart *et al.* (2013) point to the need for a holistic understanding of the educational experiences of minority ethnic children in Northern Ireland which spans the full age range. Nonetheless, they identify a significant gap in our understanding of the educational attainment of these sub-groups of children which represents an area which necessitates further research.

4.4.3. Community-collaboration initiatives

Shared education in Northern Ireland is widely recognised as an opportunity for promoting social cohesion within a largely segregated education system (Gallagher, 2016). There is now substantial evidence that school collaboration contributes to school improvement, which has the potential to improve children's educational experiences and outcomes (Borooah & Knox, 2013; Duffy & Gallagher, 2015; Gallagher, 2016). In addition to providing a forum for school staff to draw on the collective expertise of a wider professional network in achieving common goals in curriculum planning and delivery, there is also the potential for targeted school improvement to emerge from sustained supportive collaborative school networks, as discussed by Duffy and Gallagher (2017). The potential of such collaborative school partnerships, under shared education initiatives, has also been explored in relation to school improvement processes and addressing educational inequalities (Borooah & Knox, 2015). This study contributes to knowledge in relation to educational achievement with several findings relating to access and performance inequalities (See section 4.4.1). The data confirms that FSME and SEN pupils experience differential access to grammar schools and differential performance at the end of compulsory schooling. Borooah and Knox (2015) propose collaborative cross-community school partnerships as having the potential to contribute to improved teaching and learning, leadership and management of change and enhanced provision of CPD which have been identified as underpinning school improvement.

Those pupils who experience success at GCSE level are more likely to progress to A level and Higher or Further Education (Borooah & Knox, 2013). The data analysed in this study (from 2009/10 and therefore somewhat dated) showed that more than a quarter of young people in Northern Ireland left formal education without having achieved 5 or more GCSEs at grades A*- C, including English and Maths. The authors describe factors which influence pupil achievement as including in-school and out-of-school factors as well as an individual's cognitive ability. Their view of achievement, as being associated with multiple factors, is widely accepted (See Perry 2012; 2016a). The research concentrates on modelling the potential for shared education initiatives to improve the attainment of some sub-groups of pupils and understand the potential impact on their education trajectory and ultimate earning potential. For example, one strand focused on a partnership which offered a shared modern language initiative which would address a recognised skills gap (ETI, 2016), in line with area learning community cooperation encouraged in policy (Duffy & Gallagher, 2015). The modelling process illustrates that the minimum per pupil benefit, over their 40 year working life, is estimated at over £55000. The aggregate

figure they propose as the potential total economic benefit of the four shared education partnerships modelled is in excess of £23 million.

Another project that aimed to strengthen collaborations between schools and organisations across the community was the Northern Ireland extended schools project, which was primarily intended to improve the delivery of coordinated services to children, young people and their families (McGill, 2011). An evaluation of the efficacy of Extended Schools in England showed pupil attainment, attendance and behaviour were improved. The implementation of Extended Schools in Northern Ireland was specifically identified in policy as aiming 'to reduce underachievement and improve the life chances of children and young people' (DE, 2006:1) by addressing their health and social development in addition to their educational progress (McGill, 2011). For the purposes of this report perhaps the most significant dimension is the evidence that this policy was directed to bring 'joined-up' solutions to the multiple social disadvantages which are linked to educational disadvantages.

A collaborative approach has also been proposed in relation to school accountability and improvement. School inspections can be conducted using objectivist or subjectivist approaches: objectivist 'monocentric' inspections are more reliant on inspector judgements and standardised decision making using criteria and indicators whilst in subjectivist polycentric systems there is greater emphasis on collaborative judgements which accommodate multiple perspectives and realities, including those of stakeholders and users (Ehren *et al.*, 2017). A majority of school inspections in Northern Ireland are conducted for single schools, however, area inspections which evaluate provision within area learning communities, until recently, were a significant dimension of the work of the Education and Training Inspectorate (ETI) (Ehren *et al.*, 2017). Adopting a polycentric model, these area inspections were positively received by schools and education providers because of improved potential for collaboration between providers, a renewed emphasis on improvement and self-evaluation rather than accountability and the potential for support from the ETI to enable better strategic planning. Whilst it is possible that these principles are similarly prioritised in single-school inspections it is disappointing that the potential positive impact of the polycentric approach described here, whilst considered a model of good practice, will no longer benefit the system in Northern Ireland. Janssens and Ehren (2017) propose improved school collaboration, characteristic of polycentric inspection models, as a remedy to existing hierarchical inspection arrangements which are centrally managed and imposed in a top-down mode. Changing the dynamics of relationships between inspectorates, schools and other agencies working in educational collaborations along a partnership model is thought to offer the potential for more intelligent and flexible evaluation which would promote purposeful school improvement.

4.5. Assessment

4.5.1. Examinations: Reform, choice and young people's agency

The DE's Entitlement Framework is intended to provide access to a broad range of academic and vocational subject choices at Key Stage 4 by setting out a minimum

number and range of courses a school should offer (CCEA, 2007b). Policy priority is given to offering 'a wide and better balanced range of courses that are relevant to their needs, aptitudes, interests and their future job prospects' (DE, 2018). However, recent research shows significant variation in the degree of choice experienced by young people in accessing GCSE qualifications (Barrance & Elwood, 2018a). Drawing on focus group (n=120) and survey (n=1600) data from research activity conducted across Northern Ireland and Wales, Barrance and Elwood (2018a) found that potential constraints on choice were imposed at a system level through national assessment policies and related ministerial decisions which limit teacher decisions about suitable subjects and specifications. Similarly, at school level, young people reported that in addition to having subject choices constrained by, for example, timetabling priorities, other important decisions were imposed upon them, such as which examination specification to follow or which tier they were entered for. Pupils identified the failure to take their views into account in making decisions about assessment as having potential implications for their future educational chances.

Research shows that in addition to inadequate opportunities for young people's views to be taken into account in relation to their own assessment experiences (Barrance & Elwood, 2018a) their views in relation to assessment policy and its reform are equally poorly considered (Barrance & Elwood, 2018b). Recent reforms to GCSE examinations in England, Northern Ireland and Wales mean that they are no longer common across the three jurisdictions, nor are they jointly regulated (Barrance & Elwood, 2018b). Although the reformed qualifications continue to share a name, a GCSE may be achieved differently by pupils across the regions. This divergence may present challenges for young people in terms of equivalency, both because of differences in how assessments are administered, for example, use of controlled assessments or modules, and also the use of different systems of grading (9-1 or A*-G). Whilst these issues are not directly related to underachievement, the consequences in terms of how these differences manifest in the potential for young people to access further study and employment in other UK regions, are as yet unknown. This research illustrates the need for future policy decisions in relation to assessment reform to take account of the views of young people who are demonstrated to have a significant contribution to make.

Evidence suggests that tiering practices are potentially problematic in terms of student and teacher choice in relation to GCSE exam entries (Barrance & Elwood, 2018a). Recent reforms eliminating tiering from some specifications are expected to have a significant impact on classroom practices and young people's experiences of the curriculum (Dunn & Darlington, 2016). Whilst the impact of tiering reforms is uncertain, significant changes to differentiation practices are anticipated by Dunn and Darlington (2016), whose paper considers the example of GCSE Geography. The consequences may improve learning opportunities, for example, benefits are expected to be derived from operating mixed-ability classes. However, there is also the potential for accountability pressures to encourage schools to exclude some pupils from un-tiered examinations.

School-related stress which may interfere with student learning is experienced in relation to many areas of schooling (Finch *et al.*, 2010). The assessment

arrangements at KS4 and KS5 mean that those pupils remaining in school until age 18 may take external examinations over 3 or 4 consecutive years. This study, drawing on quantitative and qualitative data, illustrates the extent of stress experienced by pupils due to multiple factors: a lack of agency in relation to subject choices; the volume of material to be covered in preparation for exams; and feelings of pressure due to self-comparison with other pupils. Student responses to these experiences of stress were both physical and emotional with the data illustrating a worrying range of symptoms. In addition to negative consequences for student well-being there is an associated impact on student ability to engage with learning and significant potential implications for academic performance.

4.5.2. Understanding attainment data: the impact of age

Standardised age scores are designed to take account of differences in children's proficiency in skills areas which are associated with their age. A study conducted in Northern Ireland to consider the effects of season of birth and age-position provides insight into children's attainment across the age ranges from early years to the end of compulsory schooling (McPhillips & Jordan-Black, 2009). The analysis shows that month of birth is associated with core literacy skill attainment in the early years but that by Year 7 this association is not evidenced. Note should be taken of the differences in attainment associated with assessment type: whether these are administered in a group or one-to-one format. Contrary to other research this study shows no evidence that gender has a mediating effect at primary level, only at secondary level (KS3 & KS4). Similarly, at the KS3 and KS4 intervals age-position in the peer group has a significant effect on attainment. This is of particular concern in terms of GCSE performance which is generally the stage at which young people make decisions about future work and study.

4.5.3. Higher education and career trajectories: Access and completion

Preparing young people for life and work has gained significant attention in the Northern Ireland Curriculum (CCEA, 2007a) in recent years. Similarly, effective career guidance has increased since the millennium with a focus on the need to address the diverse needs and career aspirations of young people. The potential for appropriate career guidance to improve social inclusion and employability has been recognised at a policy level (McCarthy & Millar, 2006). However, Croxford and Raffe (2014) highlight that Northern Ireland has a significant proportion of students (11.2%) studying for higher education (HE) courses through FE colleges. These students are more likely to come from disadvantaged backgrounds and whilst it may be reassuring to think of these young people having the potential to pursue HE courses despite not having accessed an HE institution it also raises concern around the admissions processes which have excluded them. Understanding patterns of HE access is essential to gaining an understanding of the extent to which factors other than achievement may have an impact on a young person's decision to enter HE. The proportion of young people from the two least economically advantaged groups entering HE in Northern Ireland declined between 2006 and 2010. However, whilst the admissions process is deemed to be 'slightly unfair with respect to social class'

(Croxford & Raffe, 2014:13), the pattern is broadly comparable across the UK. Successful completion of a HE course is higher (4-7%) amongst those from the professional and managerial class when compared to the intermediate and working class. Male candidates were more likely than female to enter HE with the gender difference larger in Northern Ireland compared to the other regions.

Research considering school level decisions about assessment, which have significant impacts on young people and implications for their future education and employment, merit further attention.

5. Conclusions and recommendations

This evidence summary provides an overview of much of the research relating to educational underachievement in Northern Ireland. The studies selected for inclusion using the rapid review methodology have been discussed above and a number of different areas of focus emerged in the course of the narrative review.

The comparative performance of Northern Ireland learners in international large-scale assessments does show that the Northern Ireland education system consistently produces academically high-achieving pupils. However, in terms of educational underachievement the less favourable comparisons provide greater insight and assist in the identification of areas for improvement. Of particular concern is the fact that the socio-economic attainment gap widens as children progress through school, demonstrating that social mobility is not being helped by the current education system (Machin *et al.*, 2013). Despite overall high achievement, a high proportion of Northern Irish pupils showed low achievement on TIMMS, indicating that numeracy at KS1 is lagging behind other countries. There also appears to be a decline in teenagers' performance on literacy and numeracy in PISA with adults also showing poor performance in PIACC. A particular concern is consistently weak performance in Science. Each of these issues merit further investigation and perhaps analysis of complete within country data would offer useful insight. In addition, the development and evaluation of curriculum interventions which seek to address any of the areas identified as problematic are likely to be valid areas of enquiry. Overall, a long tail of underachievement belies Northern Ireland's reputation for producing academically high-achieving pupils, indicating a country-level problem requiring a Northern Ireland-specific focus.

Curriculum experience underpins educational achievement and several innovative approaches to improving the extent to which different curriculum areas can be positively experienced by learners are discussed in this review. A need was identified for a follow-up of the educational impact of the 2007 Foundation Stage Curriculum reform. The potential to engage children in such evaluations was also identified and would be an interesting avenue for future research. Differences in children and young people's experiences of schooling are associated with differential educational outcomes at each stage of their education. The policy priority given to early years provision is indeed evidence-based with effective provision associated with significant and lasting educational benefits. However, the possibility that provision is not high-quality and effective for a significant number of children has potentially damaging consequences for their future educational progression. Therefore, significant attention must be paid, both to evaluating the effectiveness of early years settings but also to building capacity within the system to enable providers to improve quality. Following the application of the Foundation Stage Curriculum in 2007, which integrated a play-based learning approach prior to KS1, no systematic evaluation has taken place on its effects for literacy and numeracy into KS2 and beyond. Other areas which receive much attention in the international literature and in public awareness are the different experiences for boys and girls of literacy and STEM curricula. Two examples of innovative approaches which identify

how the perpetuation of gendered experiences, associated achievement, and continued uptake might be mitigated against are provided. Further research is much needed in this area if differential uptake and outcomes are to be reduced.

The education system in Northern Ireland accommodates an increasingly diverse range of pupils and a number of studies relate to how well the needs of specific groups of pupils are accommodated within the system. In addition to considering policy provision the experiences of young people are a strong theme. Several initiatives aimed at improving literacy are discussed with the need for effective and timely assessment and intervention highlighted as areas of need. A gap in individualised approaches to assessments of learning needs has been identified and merits further attention. Concerns are raised by research participants in relation to the sustainability of funding for interventions which have improved learner experiences and achievement. Future evaluations of interventions, in addition to addressing educational outcomes ought to prioritise the potential continuation of initiatives and identify resourcing required to sustain improvements in educational outcomes evidenced.

Several studies reviewed provide in-depth discussion of how identity and community factors impact on individuals' engagements within the school environment, with a particular focus on how these can limit educational achievement. A significant area where little is known about educational outcomes is amongst ethnic minority children, in a research and policy context mainly focused on the sectarian divide. The myriad of factors identified as enhancing or limiting educational attainment at the school/community level provide a valuable resource for future research, particularly because many of these areas have only been touched upon by the selection of studies reviewed here. A shift in policy regarding schools and communities has seen numerous studies of the impacts of Shared Education and Extended Schools Provision, but academic selection remains a largely untouched element of education policy in Northern Ireland since Gallagher and Smith's comprehensive study (2000), despite its determinant effects on pupils' attainment. A consistent theme of research in this area is that of collaboration, with schools working together with their communities to secure improvements in provision. Collaboration is exemplified in a number of areas, including professional networking and shared curriculum provision within shared education initiatives. Given that the promotion of shared education is a policy priority it is likely that ongoing work will continue to evaluate the social and educational benefits of existing programmes. In terms of school accountability much international attention has been paid to the collaborative approach to school improvement adopted within the remit of the inspectorate. Whilst this innovative and empowering inspection model has shown significant potential to contribute to strategic planning at a school and network level it is of concern that this evidence is not being built upon.

In considering educational achievement evidently issues of assessment are pertinent. Of particular relevance is the continual reform of the certification qualifications available at KS4 and KS5. Evidence that young people's views are not taken into account at a system or school level is worrying. This is particularly so given the emphasis on Assessment for Learning (AfL) which dominates the statutory

assessment arrangements in the earlier phases and creates opportunities for children and young people to be active in decision making about their own learning. The research considering, for example, school level decisions about tiering which have significant impacts on young people, and implications for their future education and employment, merit further attention. In addition, young people's engagements with formal assessment arrangements can have considerable social and emotional effects. Further research in this area would enable schools and policy makers to better understand the experiences of candidates in the development and administration of examinations. The potential constraints of external assessments on the full implementation of the curriculum were identified as an issue which would merit further data. A now dated study considering the provision and impact of careers education, whilst a valid area of enquiry, would benefit from more recent data. Similarly, the vocational pathway gap identified repeatedly in this review merits attention.

This evidence summary brings together multiple insights into the factors which are associated with educational underachievement in Northern Ireland and discusses evaluations of measures which have been put in place to mitigate against it. What is clear is that experiences of educational underachievement are multi-faceted and have significant consequences for young people. However, the extent of existing research does not fully address many of the issues discussed here. There remain significant gaps in the current body of knowledge. Of course, much of the international literature has a contribution to make to the development of further research. Nonetheless, research is also needed in the specific context of Northern Ireland in order for local solutions to be developed and proposed which can adequately address the broadest possible range of needs that underlie the persistent phenomenon of educational underachievement.

6. References

Alliance Party, 2018. Our policies: Education and skills. [Online]
Available at: https://allianceparty.org/page/education-and-skills
[Accessed 1 September 2018].

Arnold, S. & Reed, P., 2016. Reading assessments for students with ASD: a survey of summative reading assessments used in special educational schools in the UK. British Journal of Special Education, 43(2), pp. 122-141.

Barrance, R. & Elwood, J., 2018a. Young people's views on choice and fairness through their experiences of curriculum as examination specifications at GCSE. Oxford Review of Education, 44(1), pp. 19-36.

Barrance, R. & Elwood, J., 2018b. National assessment policy reform 14-16 and its consequences for young people: student views and experiences of GCSE reform in Northern Ireland and Wales. Assessment in Education: Principles, Policy and Practice, 25(3), pp. 252-271.

Beck, G., Hazzard, D., McPhillips, T., Tiernan, B. & Casserly, A. 2017. Dyslexia policy and practice: cross-professional and parental perspectives on the Northern Ireland context. British Journal of Special Education, 44(2), pp. 144-164.

Biggart, A., O'Hare, L. & Connolly, P., 2013. A need to belong? The prevalence of experiences of belonging and exclusion in school among minority ethnic children living in the "White hinterlands". Irish Educational Studies, 32(2), pp. 179-195.

Borooah, V. & Knox, C., 2013. The contribution of 'shared education' to Catholic-Protestant reconciliation in Northern Ireland: a third way? British Educational Research Journal, 39(5), pp. 925-946.

Borooah, V. & Knox, C., 2015. Segregation, inequality, and educational performance in Northern Ireland: Problems and solutions. International Journal of Educational Development, Volume 40, pp. 196-206.

Borooah, V. & Knox, C., 2017. Inequality, segregation and poor performance: the education system in Northern Ireland. Educational Review, 69(3), pp. 318-336.

Cantley, I., Prendergast, M. & Schlindwein, F., 2017. Collaborative cognitive-activation strategies as an emancipatory force in promoting girls' interest in and enjoyment of Mathematics: A cross-national case study. International Journal of Educational Research, Volume 81, pp. 38.

CCEA, 2007a. Statutory Curriculum for Key Stage 3. [Online]
Available at:
http://ccea.org.uk/sites/default/files/docs/curriculum/area_of_learning/statutory_requirements/statutory_curriculum_ks3.pdf
[Accessed 14 March 2017].

CCEA, 2007b. The Key Stage 4 Entitlement Framework. [Online]
Available at: http://ccea.org.uk/curriculum/key_stage_4/entitlement_framework
[Accessed 14 March 2017].

CCEA, 2018a. GCE Examinations Advanced Specifications Results 2016/17 - Section 4.3.1. [Online]
Available at:
http://ccea.org.uk/sites/default/files/docs/research_statistics/qualifications/2016_2017/4.3.1%20-%20GCE%20Advanced%20Specifications.pdf
[Accessed 16 August 2018].

CCEA, 2018b. GCSE Examinations Full Course Specifications Results 2016/17 - section 4.2.1. [Online]
Available at:
http://ccea.org.uk/sites/default/files/docs/research_statistics/qualifications/2016_2017/4.2.1%20-%20GCSE%20Full%20Course%20Specifications.pdf
[Accessed 16 August 2018].

Chaney, P., 2012. Additional learning needs policy in the devolved polities of the UK: a systems perspective. Journal of Research in Special Educational Needs, 12(1), pp. 28-36.

Connolly, P., 2008. A critical review of some recent developments in quantitative research on gender and achievement in the United Kingdom. British Journal of Sociology of Education, 29(3), pp. 249-260.

Connolly, P., 2013. The effects of social class and ethnicity on gender differences in GCSE attainment: a secondary analysis of the Youth Cohort Study of England and Wales 1997–2001. *British Educational Research Journal,* 32(1), pp. 3-21.

Connolly, P., Purvis, D. & O'Grady, P., 2013. *Advancing Shared Education,* Belfast: Ministerial Advisory Group for the advancement of shared education in Northern Ireland, Queen's University Belfast.

CREU, 2018. Maximising Potential, Belfast: Centre for Research in Educational Underachievement: Stranmillis University College, Belfast.

Croxford, L. & Raffe, D., 2014. Social class, ethnicity and access to higher education in the four countries of the UK: 1996–2010. International Journal of Lifelong Education, 33(1), pp. 77-96.

Davies, P., 2002. Levels of Attainment in Geography. Assessment in Education: Principles, Policy and Practice, 9(2), pp. 185-204.

Democratic Unionist Party, 2016. Policy on Education: Every Child with the Opportunity to Succeed. [Online]
Available at: http://www.mydup.com/publications/view/every-child-with-the-opportunity-to-succeed
[Accessed 1 September 2018].

DE, 2016. Post-Primary school level enrolment data 2015/16. [Online]
Available at: https://www.education-ni.gov.uk/publications/school-enrolments-school-level-data-201516
[Accessed 15 August 2018].

DE, 2017. Post-Primary school level enrolment data 2016/17. [Online]
Available at: https://www.education-ni.gov.uk/publications/school-enrolments-school-level-data-201617
[Accessed 15 August 2018].

DE, 2018. Delivering the entitlement framework: guidance to schools 2018/19 Circular Number: 2018/06. [Online]
Available at: https://www.education-ni.gov.uk/sites/default/files/publications/education/Circular%20201806%20-%20Delivering%20the%20EF%20201819%20Guidance%20to%20Schools.PDF
[Accessed 13 August 2018].

DE, 2018. Entitlement Framework. [Online]
Available at: https://www.education-ni.gov.uk/articles/entitlement-framework
[Accessed 13 August 2018].

DE, 2006. Extended Schools: Schools, Families, Communities Working, Bangor: DE.

DE, 2015. Promoting and Sustaining Good Behaviour: A Discipline Strategy for Schools (School Improvement - the Northern Ireland Programme). [Online]
Available at: https://www.education-ni.gov.uk/sites/default/files/publications/de/six-pack-promoting-gd-behaviour-a-discip-strat-for-schs.pdf
[Accessed 22 August 2018].

Duffy, G. & Gallagher, T., 2015. Collaborative evolution: the context surrounding the formation and the effectiveness of a school partnership in a divided community in Northern Ireland. Research Papers in Education, 30(1), pp. 1-24.

Duffy, G. & Gallagher, T., 2017. Shared Education in contested spaces: How collaborative networks improve communities and schools. Journal of Educational Change, 18(1), pp. 107-135.

Dunn, K. & Darlington, E., 2016. GCSE Geography teachers' experiences of differentiation in the classroom. International Research in Geographical & Environmental Education, 25(4), pp. 344-358.

Eaton, P., Bell, I., Greenwood, J. & McCullagh, J., 2006. Who is teaching your child? The issue of unqualified subject specialists in Northern Ireland. Cambridge Journal of Education, 36(4), pp. 549-560.

Ehren, M., Janssens, F., Brown, M., McNamara, G., O'Hara, J. & Shevlin, P., 2017. Evaluation and decentralised governance: Examples of inspections in polycentric education systems. Journal of Educational Change, 18(3), pp. 365-384.

ETI, 2016. Chief Inspector's Report 2014-2016 - Noelle Buick, Bangor: Education and Training Inspectorate

ETI, 2018. Chief Inspector's Report 2016-2018 - Noelle Buick, Bangor: Education and Training Inspectorate

Finch, L., McCreight, B. & McAleavy, G., 2010. The existence of school-related stress in two grammar schools in Northern Ireland: contributing factors and moderation. Pastoral Care in Education, 28(4), pp. 311-330.

Gallagher, E., 2011. The second chance school. International journal of Inclusive Education, 15(4), pp. 445-459.

Gallagher, T., 2016. Shared education in Northern Ireland: school collaboration in divided societies. Oxford Review of Education, 42(3), pp. 362-376.

Gallagher, T. & Smith, A., 2000. *The Effects of the Selective System of Secondary Education in Northern Ireland,* Bangor: DE.

Ganann, R., Ciliska, D. & Thomas, H., 2010. Expediting systematic reviews: methods and implications of rapid reviews. Implementation Science, 5(56), pp. 1-10.

Gardner, J. & Cowan, P., 2005. The fallibility of high stakes "11-plus" testing in Northern Ireland. Assessment in Education: Principles, Policy & Practice, 12(2), pp. 145-166.

Goeke-Morey, M., Taylor, L., Merrilees, C., Cummings, E., Cairns, E., & Shirlow, P., 2013. Adolescents' educational outcomes in a social ecology of parenting, family, and community risks in Northern Ireland. School Psychology International, 34(3), pp. 243-257.

Gorard, S. & Smith, E., 2004. What is 'underachievement' at school?. School Leadership and Management, 24(2), pp. 205-225.

Gray, A. & Birrell, D., 2011. Coalition Government in Northern Ireland: Social Policy and the Lowest Common Denominator Thesis. Social Policy & Society, 11(1), pp. 15-25.

Greenwood, R., 2013. Subject-based and cross-curricular approaches within the revised primary curriculum in Northern Ireland: teachers' concerns and preferred approaches. Education 3-13, 41(4), pp. 443-459.

Hanratty, B., 2011. Poetry and gender: a comparative evaluation of boys' and girls' responses to poetry at Key Stage 4 in Northern Ireland. Research Papers in Education, 26(4), pp. 413-427.

Hanushek, E. & Woessmann, L., 2010. The High Cost of Low Educational Performance: The long-run economic impact of improving PISA outcomes, Paris: OECD Directorate for Education.

Healy, J., 2006. Locality matters: ethnic segregation and community conflict - the experience of Protestant girls in Belfast. Children & Society, 20(2), pp. 105-116.

Hodgson, A. & Spours, K., 2016. Restrictive and expansive policy learning – challenges and strategies for knowledge exchange in upper secondary education across the four countries of the UK. Journal of Education Policy, 31(5), pp. 511-526.

Hunter, J. & O'Connor, U., 2006. In search of inclusion. Support for Learning, 21(2), pp. 53-56.

Hunter, T. & Walsh, G., 2014. From policy to practice?: the reality of play in primary school classes in Northern Ireland, International Journal of early years Education, 22:1, pp. 19-36

Ingram, N., 2009. Working-class boys, educational success and the misrecognition of working-class culture. British Journal of Sociology of Education, 30(4), pp. 421-434.

Janssens, F. & Ehren, M., 2016. Toward a model of school inspections in a polycentric system. Evaluation and Program Planning, Volume 56, pp. 88-98.

Keenan, C., 2018. Campbell Collaboration UK & Ireland Meta-Evidence Blog: Searching part three – Speaking the database language. [Online]
Available at: http://meta-evidence.co.uk/searching-database/
[Accessed 2 September 2018].

Kelly, S., Moher, D. & Clifford, T., 2016. Quality of conduct and reporting in rapid reviews: an exploration of compliance with PRISMA and AMSTAR guidelines. Systematic Reviews, 5(79), pp. 1-19.

Khangura, S., Konnyu, K., Cushman, R., Grimshaw, J. & Moher, D., 2012. Evidence summaries: the evolution of a rapid review approach. Systematic Reviews, 1(10), pp. 1-9.

Leitch, R., Hughes, J., Burns, S., Cownie, E., McManus, C., Ievers, M. & Shuttleworth, I., 2017. Investigating Links in Achievement and Deprivation (the ILiAD study) - Final Report Volume 3, Belfast: Queen's University Centre for Shared Education.

Liao, Y., 2017. Early Applied Behaviour Analytic Interventions for Children Diagnosed with Autism Spectrum Disorder: A cross-national study of the UK and China, Belfast: Queen's University Belfast (PhD Thesis).

Long, L., McPhillips, T., Shevlin, M. & Smith, R., 2012. Utilising creative methodologies to elicit the views of young learners with additional needs in literacy. Support for Learning, 27(1), pp. 20-28.

Machin, S., McNally, S. & Wyness, G., 2013. Educational attainment across the UK nations: performance, inequality and evidence. Educational Research, 55(2), pp. 139-165.

McCarthy, M. & Millar, R., 2006. Career guidance in Northern Ireland: retrospect and prospect. British Journal of Guidance & Counselling, 34(1), pp. 73-92.

McGill, S., 2011. 'Extended Schools': an exploration of the feelings, beliefs and intentions of parents and teachers. Support for Learning, 26(1), pp. 4-12.

McGuinness, C., Sproule, L., Bojke, C., Trew, K. & Walsh, G., 2014. Impact of a play-based curriculum in the first two years of primary school: literacy and numeracy outcomes over seven years.. British Educational Research Journal, 40(5), pp. 772-796.

McMurray, S., 2006. Learning to spell: raising standards in spelling and independent writing. Support for Learning, 21(2), pp. 100-108.

McMurray, S., 2013. An evaluation of the use of Lexia Reading software with children in Year 3, Northern Ireland (6- to 7-year olds). Journal of Research in Special Educational Needs, 13(1), pp. 15-26.

McPhillips, M. & Jordan-Black, J., 2009. The effect of month of birth on the attainments of primary and secondary school pupils. British Journal of Educational Psychology, 79(3), pp. 419-439.

McPhillips, M. & Sheehy, N., 2004. Prevalence of persistent primary reflexes and motor problems in children with reading difficulties. Dyslexia, 10(4), pp. 316-339.

Melhuish, E., Quinn, L., Sylva, K., Sammons, P., Siraj-Blatchford, I. & Taggart, B., 2013. Preschool affects longer term literacy and numeracy: results from a general population longitudinal study in Northern Ireland. School Effectiveness & School Improvement, 24(2), pp. 234-251.

Moher, D., Liberati, A., Tetzlaff, J., Altman, D., & The PRISMA Group, 2009. Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med, 6(7), pp. 1-6.

Nehring, J. & Szczesiul, S., 2015. Redefining high performance in Northern Ireland: Deeper learning and twenty-first century skills meet high stakes accountability. Journal of Educational Change, 16(3), pp. 327-349.

NIE / DE, 2016. Children and Young People's Strategy 2017-2027 Consultation Document.
Belfast: Northern Ireland Executive | Department of Education.

Northern Ireland Executive, 2016. Draft Programme for Government Framework 2016-2021, Belfast: Programme for Government Unit: Northern Ireland Executive.

O'Callaghan, P., McIvor, A., McVeigh, C. & Rushe, T., 2016. A randomized controlled trial of an early-intervention, computer-based literacy program to boost phonological skills in 4- to 6-year-old children. British Journal of Educational Psychology, 86(4), pp. 546-559.

OECD, 2014. PISA 2012 results—What students know and can do: Student performance in Mathematics, reading and Science (volume I, revised edition, February, Paris: OECD.

OECD, 2016. Low-Performing Students: Why They Fall Behind and How to Help Them Succeed, Paris: PISA, OECD Publishing.

Pensiero, N. & Green, A., 2018. The effects of post- compulsory education and training systems on literacy and numeracy skills: A comparative analysis using PISA 2000 and the 2011 survey of adult skills. European Journal of Education, 53(2), pp. 238-254.

Perry, C., 2012. Research and Information Service Research Paper: Underachievement, Belfast: Northern Ireland Assembly.

Perry, C., 2016a. Research and Information Service Briefing Note - Underachievement: a brief overview (NIAR 299-16), Belfast: Northern Ireland Assembly.

Perry, C., 2016b. Programme for Government: Education (NIAR 209-16), Belfast: Northern Ireland Assembly: Research and Information Service research paper.

Plewis, I., 1991. Underachievement: a case of conceptual confusion. British Educational Research Journal, 17(4), pp. 377-385.

Shewbridge, C., Hulshof, M., Nusche, D. & Stenius Staehr, L., 2014. OECD Reviews of Evaluation and Assessment in Education: Northern Ireland, United Kingdom, OECD Reviews of Evaluation and Assessment in Education, Paris: OECD Publishing.

Shiel, G. & Gilleece, L., 2015. Literacy and numeracy in Northern Ireland and the Republic of Ireland in International Studies. Irish Journal of Education, Volume 40, pp. 3-29.

Sinn Féin, 2015. What Sinn Féin stands for: Education. [Online]
Available at: http://www.sinnfein.ie/what-sinn-fein-stands-for
[Accessed 1 September 2018].

Smith, R., 2014. Changing policy and legislation in special and inclusive education: a perspective from Northern Ireland. British Journal of Special Education, 41(4), pp. 382-403.

Social and Democratic Labour Party, 2017. Taking our seats, taking a stand (Westminster Election manifesto). [Online]
Available at: http://www.sdlp.ie/site/assets/files/43536/manifesto_2017_low_res.pdf
[Accessed 1 September 2018].

Ulster Unionist Party, 2017. A manifesto for real partnership (Assembly Manifesto). [Online]

Available at: https://uup.org/our-vision/policies
[Accessed 1 September 2018].

Weinert, F., 1999. Konzepte der Kompetenz, Paris: OECD.

Wendt, H. & Kasper, D., 2016. Subject specific strength and weaknesses of fourth grade students in Europe: a comparative latent profile analysis of multidimensional proficiency patterns based on PIRLS/TIMSS combined 2011. Large-scale Assessments in Education, 4(14), pp. 1-23.

Whitty, G., 2010. Revisiting School Knowledge: some sociological perspectives on new school curricula. European Journal of Education, 45(1), pp. 28-45.

Young, M., 2008. Bringing Knowledge Back In: from social constructivism to social realism in the sociology of education. London: Routledge.

www.stran.ac.uk/research/creu
@strancreu