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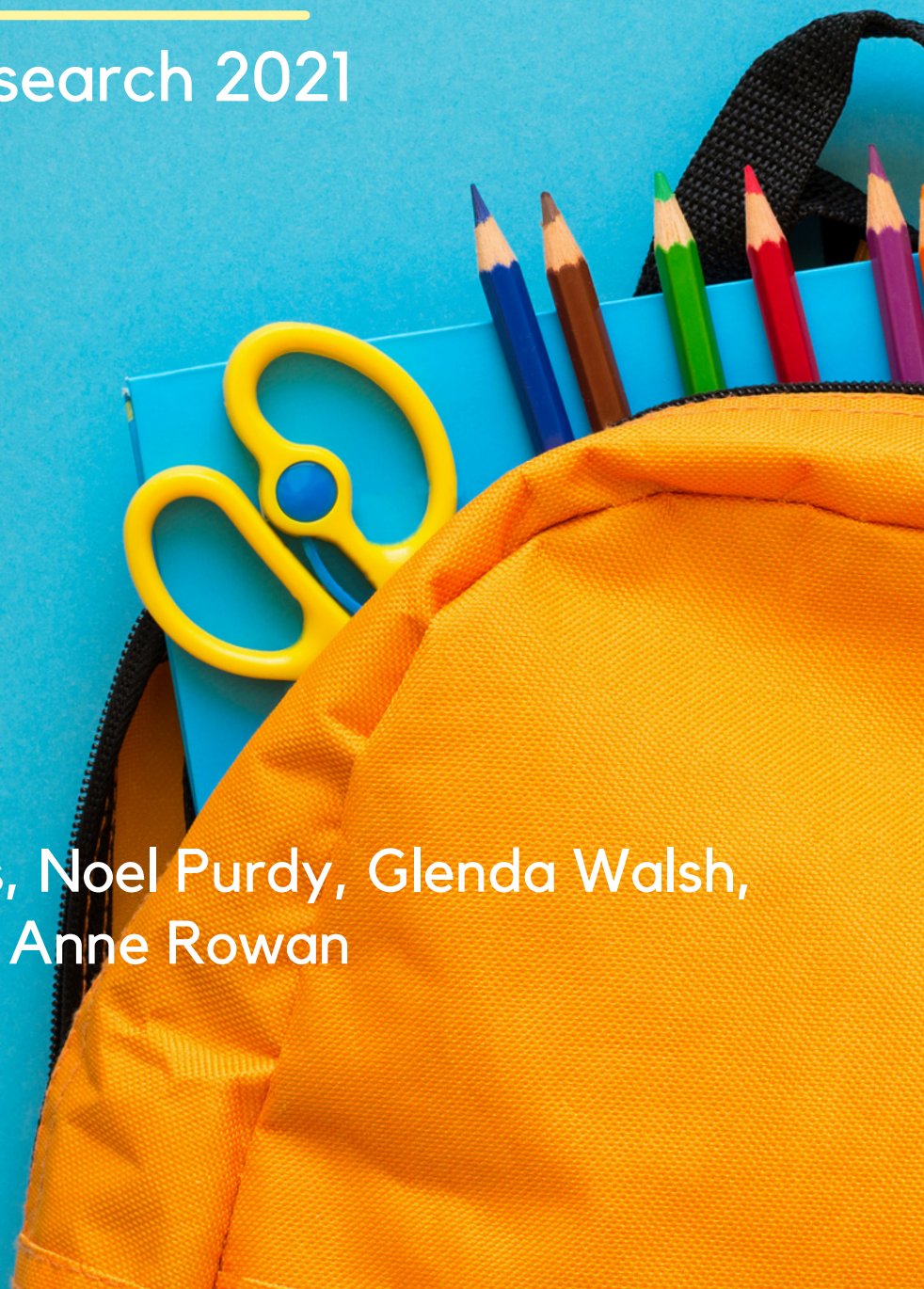
Educational Underachievement in Northern Ireland

Review of Research 2021



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1. Executive Summary

This updated review seeks to build on the Evidence Summary published by the Centre for Research in Educational Underachievement (CREU) in January 2020. In the year since the publication of the first Evidence Summary, the significant and complex challenge of educational underachievement has been thrown into fresh relief by the coronavirus pandemic. This updated review adds more recently published research in the field of Educational Underachievement in Northern Ireland, to provide an up-to-date account of the research literature. It also considers this evidence in the light of the upheaval caused by the pandemic in our education system through school closures, home learning, and exam cancellations.

The review includes 62 original research articles and reports in its qualitative synthesis, highlights core themes and gaps in the existing research evidence, and recommends several priorities for future research and policy in this area:

1. The overall assessment that in Northern Ireland, socio-economic inequalities in education lead to wider disparities in educational achievement based on wealth and class remains unchanged since Gallagher and Smith's report in 2000. Since then, and despite policymakers' repeated calls for progress in this area, only one substantial academic research project (Leitch *et al.*, 2017) has fully focused on educational underachievement.
2. It appears to be widely accepted that boys underachieve in relation to girls, but little research has attempted to explain why this might be the case in Northern Ireland. More research in this area is needed to identify ways in which boys can be more equally served by the curriculum in place here.
3. Several statistical analyses point to inequalities between and within religiously defined groups in Northern Ireland. However, no recent research has evaluated the impacts of faith-based education on educational attainment and inequality or the role of the churches in addressing educational underachievement.
4. Further research on the fairness of assessments, whether related to academic selection or public examinations, must be prioritised post-pandemic. Two key foci should be a) how curricular choices can be widened and access/inclusion improved through the use of educational technologies, and b) what adaptations are needed following a year with no transfer test, and what changes to the transfer process could enable greater social mobility.
5. The impacts of Covid-19 have been wide-ranging and will continue to affect children and young people well into the future. Research is urgently required both to help understand the pandemic's effects, and to rapidly identify and evaluate any new interventions introduced to mitigate these effects or to retain valuable elements of pandemic school practice, for instance around blended learning.
6. Existing research and government monitoring of educational underachievement using GCSE and A-level attainment data skews our attention to post-primary education. However, there is a need for long-term evaluation of key policy interventions in Early Years introduced with the stated aim of raising attainment for disadvantaged children.

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2. Introduction

This updated review seeks to build on the Evidence Summary published by the Centre for Research in Educational Underachievement (CREU) in January 2020 (Henderson *et al.*, 2020). It adds more recently published research in the field of Educational Underachievement in Northern Ireland, to provide an up-to-date account of the research literature.

In the year since the publication of the first Evidence Summary, the significant and complex challenge of educational underachievement has become ever more significant and ever more complex in two important ways. Economically and socially, the ongoing COVID-19 pandemic has led to massive disruption to education, through long periods of home-schooling and cancelled examinations which have unevenly affected pupils across Northern Ireland and are likely to have widened educational disparities. Politically, the New Decade New Approach deal (Smith and Coveney, 2020) that restored the Northern Ireland Assembly specified the need for a review of educational underachievement, and subsequently an Expert Panel was appointed to report to the Education Minister with a costed action plan to 'tackle persistent educational underachievement'. This panel is due to submit its final report by the end of May 2021. It is our hope that the findings of this updated review can help to inform the work of the Expert Panel and other ongoing work in research and policy focused on this issue. In particular, the imminent appointment of a further Independent Review of Education to examine broader systemic issues in education, from pre-school to further education, might provide the opportunity for further focused enquiry and research in this important area.

2.1. Defining educational underachievement

The term 'educational underachievement' is common in policy and academic discourse relating to education in Northern Ireland and beyond, despite the ambiguity created by its wide variety of potential meanings. One key distinction outlined by Ian Plewis (1991) is between a psychological and sociological approach. Whilst a psychological approach might understand underachievement to be the differences between actual and predicted attainment (examination grades, typically) for individuals or groups, a sociological approach is 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. Plewis argued that conceptual confusion between these two general understandings could "only be a hindrance to good educational research" (Plewis, 1991:384) and recommended its replacement with more specific descriptors. Gorard and Smith (2004) also later called educational underachievement "an imperfect descriptor", arguing that in the majority of cases it merely means 'low attainment', but implies that under different circumstances those pupils could achieve better outcomes in the assessment in question. Rather than do away with the term, as these educationalists suggest, this review seeks to contextualise it within the context of Northern Ireland, where it remains an explicit policy focus. Whilst it may be an 'imperfect descriptor', its very ambiguity serves to open a window on the full range of issues within and beyond education that influence pupils' educational outcomes.

Numerous conceptualisations of the factors which influence student achievement can be found in the literature and these invariably consider factors beyond individual student characteristics. Factors which are associated with differences in individual achievement include pupil, family and school factors (Perry, 2016), as well as system-level and community factors (Leitch *et al.*, 2017). The most recent report of the Chief Inspector of Schools for Northern Ireland (ETI, 2018) provided numerous insights into factors associated with pupil achievement across the various sectors and phases. A key theme was the need for education provision to address the educational needs of every child across all phases and sectors. Educational underachievement remains a significant policy challenge, and persistent inequalities in educational outcomes are evidenced in relation to socio-economic status, religion, gender and geography (Perry, 2012, 2016). Whilst this review does not restrict itself to a single definition of underachievement, the research reports included all relate to the study of unequal attainment or inequality within education more broadly.

2.2. Policy context: Education in Northern Ireland

It is worth briefly outlining the educational context of Northern Ireland for those not already familiar with it. Northern Ireland is a "society in which national, political and religious identity coalesce" (Gallagher, 2016:362) and in which the legacy of a quarter century of violence is still keenly felt. The school system remains largely denominational with most children attending either Catholic maintained or (predominantly Protestant) Controlled schools and a small minority (~7% of total) attending formally integrated schools which bring together children from Protestant and Catholic religious and/or cultural backgrounds. An Irish medium sector has grown rapidly too over recent years and now has over 7000 pupils (~2% of total) (Toogood and Robinson, 2020). Aside from the multiplicity of school management types in evidence, the Northern Ireland education system has two further notable features: first, Northern Ireland has one of the earliest school starting ages in the world, with children obliged to start formal education in the September following their fourth birthday (Walsh, 2007); and, second, Northern Ireland has retained a grammar school system supported by academic selection at the end of primary school which, despite years of political disagreement and most recently the cancellation of tests in 2020-21 as a result of the covid-19 pandemic, remains "firmly in place" (Jerrim and Sims, 2019:425) in most areas, with over 64,000 pupils currently attending 66 grammar schools compared to over 84,000 pupils attending 127 non-selective secondary schools (DE, 2021).

Issues of educational inequality are therefore often framed through the lens of community differences, parental choice and equality of opportunity in accessing the desired post-primary educational setting, while the final years of primary school education are often dominated by preparation for transfer tests.

Over the past twenty years, numerous policies have been developed relating to the broad theme of educational underachievement. At the highest level, the draft *Programme for Government* (Northern Ireland Executive, 2016) prioritises a number of measured and tracked outcomes (e.g. 'We give our children and young people the best start in life') through the Outcomes Delivery Plan, which monitors the Executive's progress in achieving its stated goals. The following indicators relate directly to the issue of educational underachievement:

- *Indicator 10: % of care leavers who, aged 19, were in education, training or employment*
- *Indicator 11: % of school leavers achieving Level 2 or above inc. English and Maths*[1]
- *Indicator 12: Gap between the % of non-FSME school leavers and the % of FSME school leavers achieving at Level 2 or above inc. English and Maths*
- *Indicator 13: % of schools found to be good or better*
- *Indicator 15: % of children at appropriate stage of development in their immediate pre-school year*

Such indicators provide a sharp focus for the education sector, with the Executive's commitment to evidence-based policy requiring providers to demonstrate their contribution to progress on these indicators.

Though the joint policy and implementation role of the Department of Education (DE) and Education Authority is salient in this area, educational underachievement has long been recognised as an issue with relevance to a wide range of government departments including the Department of Health, Department for Communities, Department for the Economy, and Department of Justice. The *Children's Services Co-operation Act (Northern Ireland) 2015* requires government departments to work together to improve the well-being of children and young people, including in the area of "learning and achievement".

Furthermore, the *Children and Young People's Strategy 2020-2030* was formally adopted by the restored Northern Ireland Executive on 10th December 2020. Led by DE, but requiring input from all 9 departments, and based around a set of 8 shared outcomes for the wellbeing of children and young people, this Executive Strategy will be accompanied by a Delivery Plan supported by a new cross-departmental Monitoring and Reporting Group. The Children and Young People's Strategy identifies learning and achievement as a priority in improving children and young people's well-being, arguing that "children and young people who enjoy education will perform better" (DE, 2020:53).

Most recently the Department for Communities (DfC) established an expert panel to prepare *Recommendations for an Anti-Poverty Strategy* (Horgan *et al.*, 2021). The report highlighted that around 121,000 children (27% of all children) are living in poverty in Northern Ireland, and reported findings from many studies which indicate the positive effects of income on children's outcomes, including cognitive development and school achievement. Consequently, among its recommendations, the panel proposed the introduction of a new non-taxable weekly Child Payment for all 0-4 year olds and for 5-15 year olds in receipt of free school meals, using free school meals as the 'passport' for the payment to encourage higher take-up of free school meals. Improving the educational experiences of every child and young person in Northern Ireland is also a policy priority for every one of the political parties represented in the Northern Ireland Executive. Whilst the means by which they hope to achieve this aim do show some variation, the broadly common policy areas include: giving priority to improving literacy and numeracy; support for more effective early years provision; early intervention and adequate support for children with special/additional educational needs; addressing the legacy of conflict through

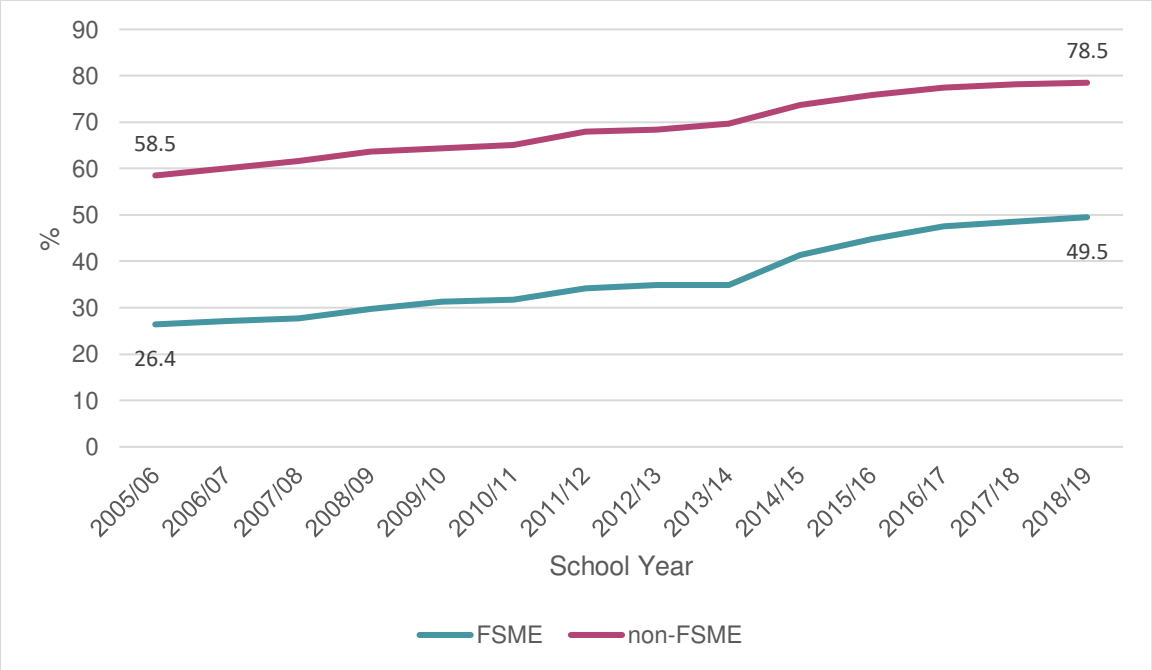
[1] Achieving Level 2 means obtaining 5 A*-C grades at GCSE, or passing equivalent qualifications such as Level 2 diplomas, intermediate apprenticeships, NVQs or other.

funding for shared and/or integrated education; and assuring access to a broad and balanced curriculum suited to the needs of every child. Most recently in February 2021 the DUP launched a public policy consultation on Improving boys' educational achievement in Northern Ireland (DUP, 2021)

2.3. Measuring educational underachievement

It is arguably indicator 12, listed above, on which the most attention is currently focused, and which provides the most readily available and most commonly cited proxy measure for educational underachievement in Northern Ireland. Figure 1 below shows how the percentage of pupils with FSME achieving at least five GCSEs at grades A* to C or equivalent has risen since 2005, very slightly faster than the percentage of pupils without FSME. This means that the 'attainment gap' in Northern Ireland could be argued to have decreased from 32.1 percentage points in 2005/06 to 29 percentage points in 2018/19, or from a more sceptical viewpoint, to have remained more or less the same over the past 15 years, despite a raft of interventions.

Figure 1: % FSME and non-FSME school leavers achieving at Level 2 or above including English and Maths



Notes: 1. Data excludes special and independent schools. 2. There was an increase in the number of FSME pupils from 2014/15 due to changes in the Working Tax Credit
Source: Northern Ireland Executive Office https://www.executiveoffice-ni.gov.uk/indicators/gap-between-percentage-non-fsme-school-leavers-and-percentage-fsme-school-leavers-achieving-level-2

However, such a measure, and indeed the other measures included in the Outcomes Delivery Plan can only get us so far in measuring educational underachievement. This is because the measures we use also to an extent reproduce the thing that we are measuring; in the case of the 'attainment gap' visualised in Figure 1, examinations are designed to produce a broad spread of marks (i.e. not everyone can get a pass mark) and so there must always be low achievers and high achievers. Quite why it is that socio-economic disadvantage should so stubbornly

predict educational outcomes is another question, but one that points to a need to acknowledge the interplay of contributory factors both within and beyond the school. Caroline Perry's (2012, 2016) recommendations to the Executive moving forward suggested the need to widen the scope of indicators of educational inequality to accommodate multiple sub-groups not previously included in the outcome measures. 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. Additional issues such as the known impact of school socio-economic composition on student achievement would be equally valid areas of investigation.

Furthermore, the attainment data itself contains several limitations that are not always clear when data is summarised as above. For example, such a measure might only take account of those pupils who actually sit the relevant examinations (Connolly, 2008). Furthermore, accountability pressures are associated with the exclusion of low attaining pupils from school performance data. For example, a recent ETI Chief Inspector's report (2016) estimated that data was excluded for 7% of the year 12 cohort. The possibility that these young people are excluded in the interests of school headline attainment data, alongside or rather than for other reasons, must be considered. The report underlines 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.

Finally, by focusing solely on level 2/GCSE assessment data rather than earlier indicators, we risk overlooking the ways in which underachievement or the attainment gap develops throughout the education system. This focus is largely due the unavailability of comparable Key Stage 1, 2 and 3 assessment data in recent years in Northern Ireland for a range of reasons. Indicator 15 (see above) will aim to track pre-school development and there is the possibility that this kind of data might be available before long across the general pre-school population. However similarly standardised data related to achievement below level 2/GCSE remains out of reach.

2.4. Research aims and questions

This research seeks to build on the previous Evidence Summary (Henderson *et al.*, 2020) to identify and discuss research relating to educational underachievement in the context of Northern Ireland. The main aim is to establish an evidence base relating to educational underachievement and its implications for children and young people.

What is the existing evidence of 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

3.1. Aims

This research seeks to identify and summarise current research relating to educational underachievement in the context of Northern Ireland. Its main aim is to establish what is currently known about underachievement and its implications for children and young people. The intention is to better understand both how educational underachievement arises in Northern Ireland, and to identify areas where further research could lead to improved policy and practice.

What is the existing evidence of 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?

3.2. Methodology

This paper adopts a narrative systematic 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). In taking this approach, this review builds on the previous Evidence Summary (Henderson *et al.*, 2020), which provided a broad scoping of existing evidence to inform future research priorities within the 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). Therefore, a second review, adopting a more rigorous systematic methodology including a team of reviewers and a longer time frame, has been undertaken.

3.3. Inclusion criteria

Studies selected for inclusion in this review were screened according to the following selection criteria:

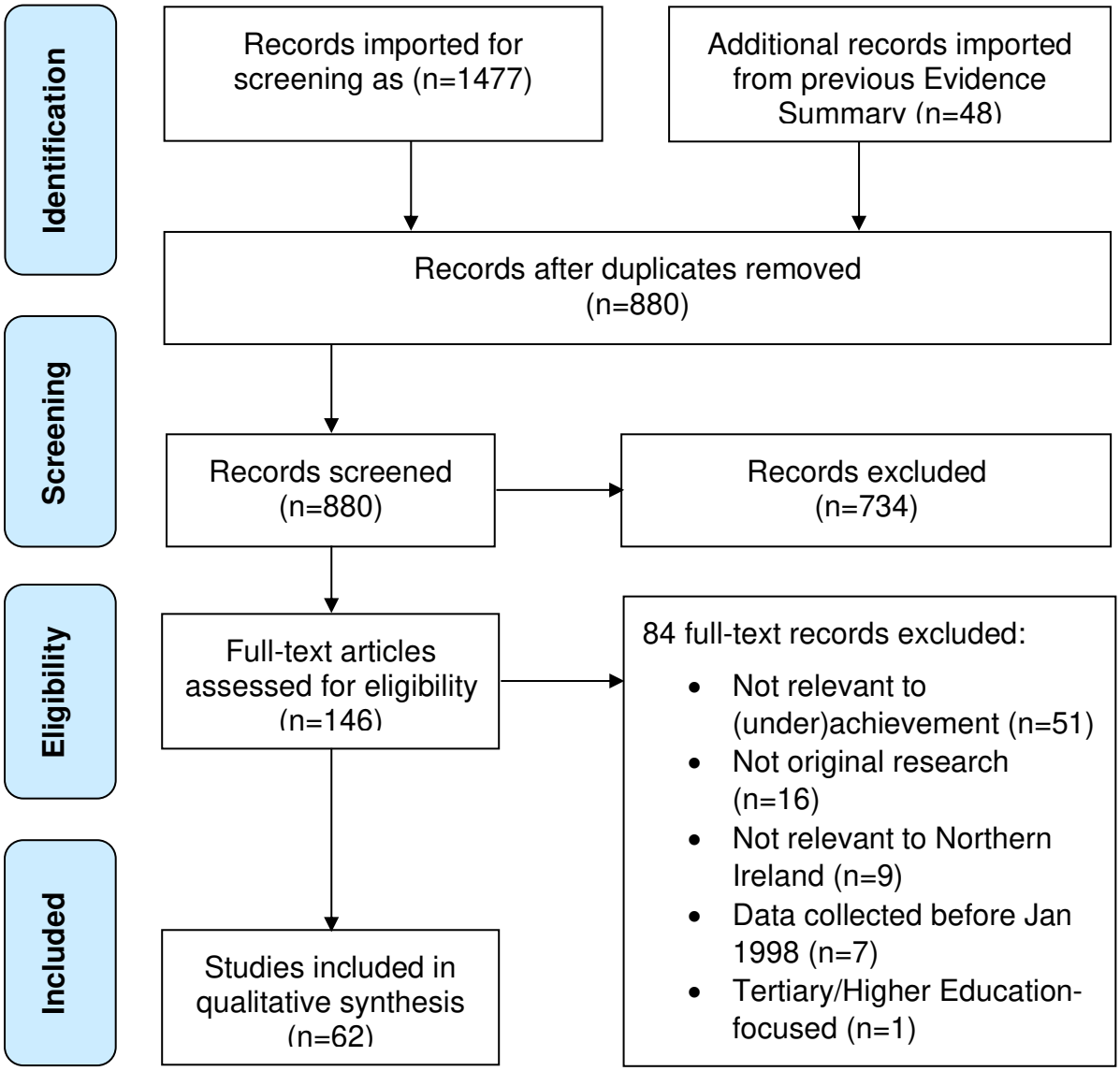
1. Were published between January 2000 and July 2020 in peer-reviewed journals or as research reports.
2. Related to Northern Ireland
3. Related to educational (under)achievement
4. Focused on pre-school, primary or secondary education
5. Were categorised as primary research: both empirical and theoretical
6. Describe research conducted no earlier than January 1998

Searches were limited to research published between January 2000 and March 2020, although this means that studies relating to earlier time periods will not always be excluded, for example, studies relating to historical records. Within this review the broad areas of educational achievement and underachievement are 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 are excluded under criterion 4 as not relevant for this review which considers student achievement in pre-school, 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 underpins the decision to exclude theoretical articles without any new data analysis. The references included in the previous rapid review (n=48) were automatically included in the review.

Figure 2: PRISMA flow diagram



3.4. Searching and screening

The EBSCO Education Source, ProQuest Education Journals and DERA databases were searched using the search strings below:

EBSCO:

AB ((("Northern Ireland") OR ("Northern Irish")) AND (("Compulsory Education") OR (School*) OR ("early years") OR ("special education"))) AND (attain* OR achiev* OR perform* OR quality OR progress* OR disparit* OR examin* OR qualif* OR standard* OR "learning outcome" OR "learning outcomes" OR EOTAS OR KS2 OR KS3 OR KS4 OR GCSE* OR "A Level*" OR "AS Level*") OR SU ((("Northern Ireland") OR ("Northern Irish")) AND (("Compulsory Education") OR (School*) OR ("early years") OR ("special education"))) AND (attain* OR achiev* OR perform* OR quality OR progress* OR disparit* OR examin* OR qualif* OR standard* OR "learning outcome" OR "learning outcomes" OR EOTAS OR KS2 OR KS3 OR KS4 OR GCSE* OR "A Level*" OR "AS Level*") OR TI ((("Northern Ireland") OR ("Northern Irish")) AND (("Compulsory Education") OR (School*) OR ("early years") OR ("special education"))) AND (attain* OR achiev* OR perform* OR quality OR progress* OR disparit* OR examin* OR qualif* OR standard* OR "learning outcome" OR "learning outcomes" OR EOTAS OR KS2 OR KS3 OR KS4 OR GCSE* OR "A Level*" OR "AS Level*") OR KW ((("Northern Ireland") OR ("Northern Irish")) AND (("Compulsory Education") OR (School*) OR ("early years") OR ("special education"))) AND (attain* OR achiev* OR perform* OR quality OR progress* OR disparit* OR examin* OR qualif* OR standard* OR "learning outcome" OR "learning outcomes" OR EOTAS OR KS2 OR KS3 OR KS4 OR GCSE* OR "A Level*" OR "AS Level*")

Limited to peer-reviewed, 2000-2020

PROQUEST:

((su.x("Northern Ireland") OR su.x("Northern Irish")) AND (su.x("Compulsory Education") OR School* OR su.x("early years") OR su.x("special education"))) AND ((attain* OR achiev* OR disparit*) OR (examin* OR qualif* OR standard* OR su.x(("learning outcome" OR "learning outcomes"))) OR (EOTAS OR KS2 OR KS3 OR KS4 OR GCSE* OR "A Level*" OR "AS Level*"))

Limited to peer-reviewed, 2000-2020

DERA:

attain* OR achiev* OR disparit* OR examin* OR qualif* OR standard* OR "learning outcome" OR "learning outcomes"

Limited to Northern Irish agencies and government institutions, 2000-2020

The search strings were developed from those used in the previous rapid review, which were adapted to the search engines of the various repositories. The DERA repository has a particularly unsophisticated search engine, hence the short string. Developments from the string used for the previous rapid review include: exam* replaced with examin* in order to exclude "example"; the addition of "early years", "special education" and "EOTAS", and the strengthening of the focus on "Northern Ireland" or "Northern Irish" to exclude the many geographically irrelevant examples included in more general searches.

Prior to screening, duplicates were automatically identified and removed from the database. Screening was then conducted in two stages using a dedicated software to systematise and anonymise the screening process. In the first stage, two team members individually screened records by title and abstract only, evaluating their content against the inclusion criteria defined above. Any conflicting decisions by these two team members were reviewed by a team of three senior team members who made the final decision to include or exclude a given record. Of 880 records screened, 734 were excluded leaving 146 records to be screened at the full-text level. Again, two team members individually screened full-text articles and reports, evaluating their content against the exclusion criteria, with a third senior team member making a final decision in the case of conflicts. At this stage, a further 84 records were excluded, leaving 62 studies to be included in the narrative analysis.

3.5. Narrative Analysis

Due to the wide range of methodological approaches and types of data included within the studies reviewed in this research, the research team undertook qualitative synthesis through narrative analysis rather than quantitative meta-analysis. The team summarised each study in a mini-abstract, and noted its methodology, the data collected, the theory used, and the findings reported. This summarised data was then coded using qualitative data analysis software to identify relationships within the body of research evidence.

4. Narrative Review

The narrative analysis summarises the studies identified through the systematic review process described in the previous section. It is organised thematically, grouping together comparable work. Each section identifies and explains the research evidence in relation to educational underachievement, and suggests areas for further relevant research. The first section is focused on research that analyses the Northern Ireland data collected as part of large-scale international studies. The second groups together research publications that have focused on systematic factors relating to the issue of educational underachievement. The third takes research focused on various population subgroups and uses their findings to outline the intersectional axes of educational inequality. Finally, the fourth section summarises research relating directly to evaluating policy and practice, including several trials of relevant interventions.

4.1. Northern Ireland in large-scale international studies

Large-scale international assessment studies such as the Progress in International Reading Literacy Study (PIRLS), the Trends in International Mathematics and Science Study (TIMSS), the Programme for International Student Assessment (PISA), and the 2012 Programme for the International Assessment of Adult Competencies (PIAAC) form the empirical basis of a number of studies. Each of these large-scale assessment studies involve surveys and standardised tests of a sample of the school cohort, and are repeated every few years. This has allowed educationalists to analyse the differences between countries, within countries, and the change over time in response to policy initiatives and socio-economic change. However, given their large-scale, these studies are often unable to offer a detailed account of why these differences may occur.

A detailed report on student achievement in Northern Ireland as measured by the PISA 2012 study was carried out by the National Foundation for Educational Research for the Department of Education (Wheater and Sizmur, 2013). It found that Northern Ireland's performance in reading and science was not significantly different to the OECD average, but its performance in maths was significantly lower. Amongst Northern Irish pupils, there was a smaller gender difference in scores than the OECD average. Differences in attainment between socio-economic groups were however wider than the OECD average, significantly so in Science.

In their study, Shiel and Gilleece (2015) give an overview of Northern Ireland and Republic of Ireland results from all four international scholastic studies between 2000 and 2012, and discuss them in the context of both governments' policy initiatives to improve literacy and numeracy. Key amongst such initiatives are primary curriculum reforms and greater investment in early years quality educational provision. In terms of literacy, the authors highlight that Northern Ireland performed very well in PIRLS (10-year-old pupils), better than the Republic of Ireland, but that reading scores in PISA (15-year-old pupils) have been declining since 2000, with a growth in pupils falling into the lowest achieving group. Furthermore, reading scores for the PIAAC placed adult literacy in both jurisdictions below the international average, including for the 16-24 age group. Whereas girls greatly outperformed boys in school-age tests, men outperformed women in the PIAAC, pointing to an ongoing generational shift in gender inequality. The authors give a similar account of trends in numeracy,

showing that although Northern Ireland outperformed the Republic of Ireland in TIMSS (10-year-old pupils), it still falls a long way short of the world leaders in the Far East. In PISA (15-year-old pupils) mathematics, Northern Ireland has seen a decline since 2000, with a significant and increasing percentage (25%) of pupils achieving below level 1, meaning they "have insufficient levels of mathematical proficiency to deal with future education needs and the demands of everyday life" (Shiel and Gilleece, 2015:18), and a declining percentage were achieving top levels (5 and up). Within Northern Ireland, the authors highlighted above-average educational inequality by socioeconomic status, giving the example of reading scores in PISA 2009; "a 48-point increase in performance was associated with a one standard deviation increase in socioeconomic status […] compared with 39 points in the Republic and 38 on average across OECD countries" (2015:22).

Using similar data, but including GCSE data and age 7 reading and mathematics scores from the Millennium Cohort Study to compare educational attainment across the four countries of the United Kingdom, Machin et al. emphasise that the "similarities are more striking than the differences" (2013:17). However, their study does point out three vectors of educational inequality which appear to be stronger in Northern Ireland than the rest of the UK. Firstly, whilst in 2010/11 the percentage of 18-year-olds with two or more A-levels was comparable to England and higher than Scotland or Wales, Northern Ireland nonetheless had 12.7% of 17-24-year-olds with no qualifications in 2009, five percentage points more than England, Scotland and Wales (see table 1). Secondly, Machin et al. point to greater gender inequality in favour of girls in Northern Ireland than the rest of the countries of the UK. Difference in performance between boys and girls at GCSE "is lowest in Scotland (5.4%) and highest in Northern Ireland (12.9%) […] The differences [in performance] are also evident when it comes to the A-level indicator. This varies from 7.4% in Wales to 15% in Northern Ireland, again in favour of girls" (Machin *et al.*, 2013:149). Finally, PISA 2009 scores are presented by quartile of socio-economic status in each country of the UK, with the difference between the highest and lowest quartile being greatest in Northern Ireland for both Reading and Maths (though not higher than the OECD average).

Table 1: Education performance across the UK nations: national data sets

Measure	Source	England	Wales	Scotland	Northern Ireland
% of 17-24-year-olds with no qualifications	Labour Force Survey, 2009	7.0	7.8	7.4	12.7
% of 18-year-olds with 2 or more A-levels	A-Level results, 2010/11	51.8	27.1	33.2	50.2

Reproduced sub-set of data from Machin et al. (2013) table 2

Finally, in a wide-ranging paper that only reports findings relating the Northern Ireland very briefly, Wendt and Kasper (2016) use combined PIRLS and TIMSS data from 2011 to profile subject-specific strengths and weaknesses in 17 European countries. The findings presented in this paper regarding Northern Ireland are tentative and should be interpreted with caution, but the authors do single out Northern Ireland along with Malta as an example of a country with particular subject-

specific weaknesses, namely lower achievement in Science relative to Reading and Maths.

The articles summarised in this section are helpful for identifying patterns of low attainment and educational inequality at a country level as they develop and change over time. More recent international assessments have been conducted since these articles were published, and these patterns have changed. However, what these studies demonstrate is that any attempt to explain these patterns requires a Northern Ireland-specific focus. Equally, policy to address underachievement more broadly should take account of the international evidence which demonstrates the importance of educational opportunities beyond formal education, raising comparative achievement in STEM subjects, and providing adequate access to appropriate academic and vocational pathways.

4.2. Systemic factors, structural problems

A wide range of recent research has sought to analyse large-scale datasets to identify systemic factors relating to educational underachievement, and the structural problems that may consequentially need to be addressed in order to improve pupils' outcomes. Their specific foci and methodologies range enormously, and so this group of research papers is further broken down into four sections: school improvement and evaluation; segregation and the legacy of the conflict; selective education; and uses of assessment.

4.2.1. School improvement and evaluation

Byrne and Gallagher's (2004) discussion about school effectiveness research and school improvement highlighted the tendency in this literature to treat schools as individual, non-interacting entities. Drawing on extensive interview and focus groups with principals, senior management, parents and pupils from 11 selective and 21 non-selective post-primary schools, they underlined the ways that following the introduction of open enrolment, system-level factors including inter-school competition combine with socio-economic factors affecting intake to disadvantage non-selective schools and their pupils. Their key argument is that open enrolment has meant non-selective schools have lost an increasingly large number of their academic 'top band' of pupils to selective schools, which have been able to keep their rolls topped up by accepting pupils achieving lower grades on the transfer tests. According to the non-selective school leaders, this affects school ethos, reduces the ability of the 'top band' to 'uplift' their lower achieving peers, and constrains the curricular offer due to the loss of 'top band' pupils and the associated reduction in funding. The evidence presented in this paper suggests that the diversity in mission between schools created by the selective system was not reflected in the ways that schools' performance was evaluated, with competition through open enrolment leading to "a narrowed sense of value in educational outcomes", and non-selective schools "obliged to orient themselves towards [attainment indicators] even though they were very much worse positioned to do so, vis-à-vis the grammar schools." (Byrne and Gallagher, 2004:180). As a consequence, non-selective schools reported putting in place innovative, qualitative, pastoral approaches to monitoring and assessment to identify and support pupils who were under-performing.

Ehren et al. 2017 explored how in an experimental area-based school inspection system, West Belfast local government and district inspectors were active partners in a network of pre-primary, primary and secondary schools to improve learning outcomes of children in a historically disadvantaged area. Within such a "polycentric model", which conceives of inspectorates as part of multi-nodal networks including government, schools, and civil society, they argue that "the power and control over who defines and monitors school quality is more fragmented" (Ehren *et al.*, 2017:369). In brief, three key themes emerged in their interviews with a range of adult stakeholders. The first was that this type of networking enables and improves collaboration and reduces competition between organisations, facilitating initiatives such as better transition between primary and secondary schools, shared curricula in key areas of literacy and numeracy and joint staff training initiatives. The second theme was the extent to which this type of evaluation has shifted the emphasis in inspection from accountability to encouraging improvement and in particular to the use of self-evaluation based on first-hand evidence to inform both school and network activities. The third theme is the way in which a network can facilitate strategic planning or 'joined-up thinking' in a new way.

Eaton et al. (2006) reported on a survey of teacher qualifications in Northern Ireland which indicates that a significant percentage of teachers were unqualified in the areas of mathematics, physics, ICT, history and Irish, and that Key Stage 3 teachers tended to be less well-qualified than those at Key Stage 4 or post-16. Unqualified teachers were less likely to be found in the selective sector than the non-selective sector. Whilst there is little evidence included in this report about the implications of this lack of qualification for pupil achievement, it is suggested that higher standards for teacher education and recruitment would lead to a better quality of teaching and learning.

4.2.2. The legacy of the conflict

More than two decades on from the Good Friday Agreement, Northern Ireland's post-conflict society remains to an extent divided along community lines. The legacy of the conflict is visible in the murals and peace walls that continue to separate Protestant and Catholic estates in some of Northern Ireland's most deprived neighbourhoods, and the continued intermittent violence and paramilitary activity (IRC, 2019, 2020). Despite the slow growth of integrated education, social change and demographic change through immigration, the majority of pupils still attend a school that is nominally aligned to the major churches through its board of governors and school culture. Several pieces of research published in the past two decades have drawn connections between community segregation, conflict, and educational underachievement in Northern Ireland.

One study (Ferguson and Michaelsen, 2015) compared spatial data on multiple deprivation and the incidence of deaths, bombings and shootings during the Troubles, with primary school attainment data. Using a statistical model to explore the possible interactions of these data, Ferguson and Michaelsen found that the rates of children meeting or exceeding the minimum expected Level 4 pass at the end of primary education was "significantly higher in low-violence than high-violence areas" (2015:134). This effect was argued to be largely independent of family financial deprivation, indicating that "regional deprivation plays a significant and causal role in lowering school performance" (2015:138) beyond financial deprivation

as measured, for example, by rates of FSME. Another key study which has considered regional deprivation using multiple indicators is the Investigating Links in Attainment and Deprivation (ILiAD) project (Leitch *et al.*, 2017). Taking seven of the most deprived ward areas in Northern Ireland (all urban areas in Belfast, Ballymena and Derry/Londonderry), three predominantly Catholic, three predominantly Protestant and one mixed, the study aimed to explore anomalies in educational performances through in-depth multi-level case studies which produced summaries of the key drivers and inhibitors to educational achievement in each ward. The unique interplay of immediate, school and structural/policy level factors identified across the seven case-study wards was argued to influence young people's educational outcomes, resulting in differential achievement patterns. Within this project's sample, Catholic-majority wards were found to outperform Protestant-majority wards, largely due to more effective school-community linkages and a higher community value placed on education.

Borooah and Knox (2015) took an economics of education approach, arguing that mean educational outcomes (e.g. the percentage of pupils attaining 5+ A*-C grades at GCSE) should be balanced against equality of educational outcomes (e.g. the distribution of GCSE grades between schools) in the assessment of any value arising from society's investment in education. Analysing enrolment and attainment data collected by the five Education and Library Boards for financial viability audits in 2012-2013, they highlighted three key areas of inequality: performance inequality (variability of educational outcomes between selective and non-selective schools; access inequality (FSME pupils are under-represented in selective schools); and continued faith-based segregation. They argued that the Northern Ireland school system has continued to produce a *de facto* segregation between Catholic and Protestant pupils: whereas only 2.7% of Catholic schools in 1997/1998 had more than 5% of pupils who were non-Catholic, this figure had only risen to 7.9% by 2012/2013. Whilst non-Catholic schools were found to be comparatively heterogenous in terms of faith background, Borooah and Knox found that there were considerably more children from deprived backgrounds gaining access to Catholic selective schools than to non-Catholic ones. As their analysis also found "large performance inequalities between grammar schools and secondary schools […] even when adjusted to take account of inter-group or inter-personal differences" (Borooah and Knox, 2015:200), this comparative difficulty for deprived children in accessing non-Catholic selective schools translates to greater educational inequality within the Protestant community. This appears to corroborate the findings of the ILiAD study, carried out at a similar time, whilst contrasting with an earlier study of 2001 UK census data which found that within the adult population, "compared with Protestants, Catholics were more likely to be without qualifications but also more likely to have the highest level of qualifications" (Borooah and Mangan, 2008:357).

The same authors conducted a further study (Borooah and Knox, 2017) which matched educational attainment and demographic data for 22,763 pupils with the multiple deprivation values for each pupil's local area of residence. Using a bivariate probit model, they calculated separate probabilities of achieving 5 A*-Cs at GCSE including English and Maths and achieving 3 A*-C at A-level based on different demographic and societal factors, such as gender, FSME, religion, SEN, school type, and area deprivation. They found that girls significantly out-performed boys, no matter what secondary factor was added to the analysis (e.g. FSME), and Catholics significantly out-performed Protestants (whether by school or student). In terms of

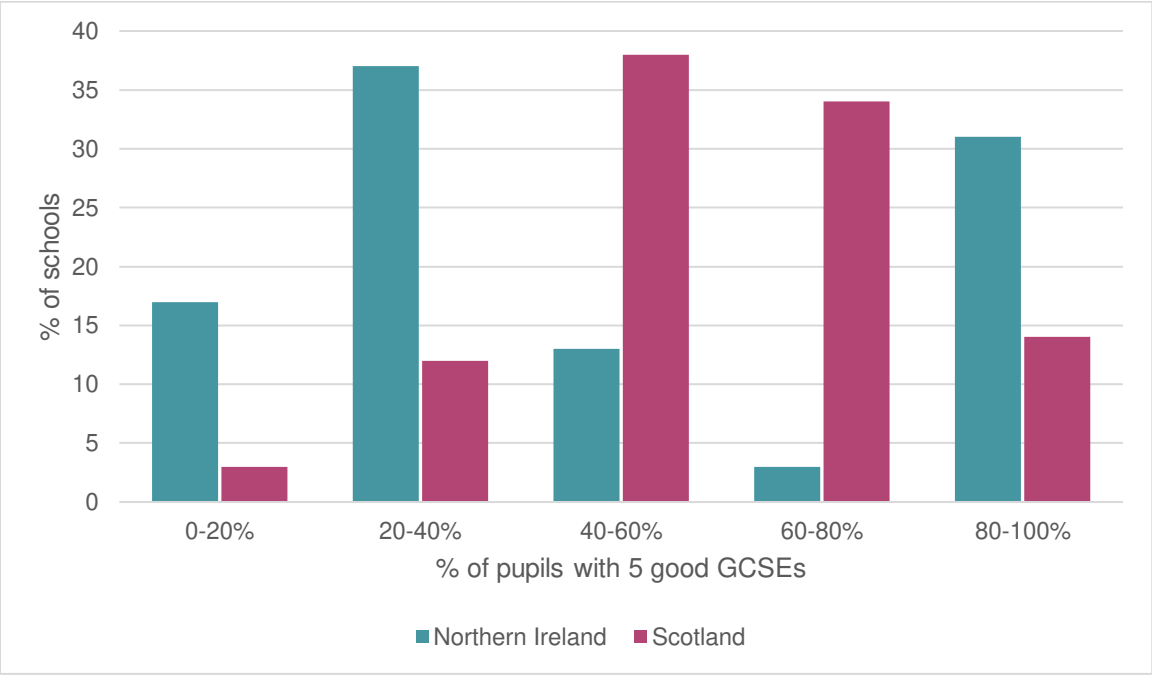
the ‘ideal type’, the school leaver least likely to obtain good GCSEs is a Protestant male from an area with high levels of deprivation who has FSME and SEN.

Whilst such analyses of what the authors identify as “*de facto* segregation” point effectively to the various inequalities between and within faith groups in Northern Ireland, what doesn’t appear to exist is any recent research evaluating the impacts of faith-based education on educational attainment and inequality or the role of the churches (Protestant or Catholic) in addressing educational underachievement in schools and the wider community.

4.2.3. Selective education

As already alluded to, the system of academic selection in post-primary education is identified by numerous studies as a significant systemic factor in determining academic achievement. The last major study to consider the issue (now over 20 years ago) analysed: hundreds of interviews with teachers and pupils in post-primary education across Northern Ireland; the inter-relationships between non-selective and grammar schools in one area of Northern Ireland compared with a similar area in Scotland; interviews, observations and pupil data from primary schools; postal questionnaires on transfer test preparation sent to all primary schools, postal questionnaires sent to a large representative sample of parents across Northern Ireland; focus groups with parents, young people, employers and third-level education and training providers; DE statistical data; and reviews of research and policy on the organisation of schools elsewhere in Europe and OECD (Gallagher and Smith, 2000). This research highlighted that “the most important factor in achieving high GCSE results lies in gaining a grammar school place” (Gallagher and Smith, 2001:77), and demonstrated that this was strongly mediated by social background. The transfer tests were found to have a strong impact on the curriculum in the upper years of many primary schools to the particular detriment of those children not entered for the test. Furthermore, the research found that as a result of the selection process, non-selective post-primary schools needed to prioritise responding to poor pupil self-esteem following test ‘failure’, all amidst higher levels of deprivation and SEN. The negative effects on non-selective post-primary schools were reported to have increased with the institution of open enrolment, as discussed subsequently in more detail (Byrne and Gallagher, 2004). Finally, the comparison of GCSE performance patterns of schools with a broadly similar region of Scotland operating a comprehensive school system revealed starkly different patterns of pupil achievement: whilst the Scottish schools followed a normal distribution with most schools achieving pass rates of 41-80%, most of Northern Ireland’s schools achieved pass rates of either under 40% or over 81% (figure 3).

Figure 3: GCSE performance pattern comparison between Northern Ireland and Scotland 1998/99



Reproduced from Gallagher and Smith (2001) Graph 1

At a similar time to this major study, another small scale qualitative study (Carlin, 2003) analysed written accounts of 60 primary pupils and interviews with 50 parents and 45 teachers from a range of primary and post-primary schools. The pupil perspective was found to be that the tests are stressful and involve a large amount of preparation, and the views of parents and teachers were found to favour change: the tests "exerted an unreasonable impact on the primary curriculum" (Carlin, 2003:20); "the transfer procedure was biased in favour of middle-class pupils" (2003:21); and parents felt responsible for perpetuating the tests by entering their children but felt powerless to affect change.

More recently, large-scale survey methods have been used to investigate the strength of, and reasons for, the socio-economic gradient in selective post-primary school entrance rates. Jerrim and Sims (2019) used data for 1,039 Northern Ireland pupils from the Millennium Cohort Study to identify and quantify a series of explanatory variables that break from the relationship between family income and grammar school attendance. These included prior attainment, parental school preferences, location/distance, parents' and teachers' recognition of academic potential, aspirations and expectations, and coaching/tutoring. Their analysis found that pupils from the top quartile of household income were 33% more likely to attend a selective post-primary than pupils from the bottom quartile, that per £100 increase in weekly family income pupils were 7% more likely to receive private tutoring in English and Maths, and that coached pupils were twice as likely as un-coached pupils to gain entrance to a selective post-primary. According to the paper's authors, "this reflects the strong underlying relationship between household income and preferences for schools with good exam results in Northern Ireland" (Jerrim and Sims, 2019:445). Distance and community factors were also identified with this socio-economic gap in access to selective post-primaries, suggesting that geography is also a determining factor. However, the scope of the study and its methodology

only reveals conditional associations, and cannot demonstrate relationships of cause and effect.

These geographical patterns also emerged in another study examining similar questions but using a different survey design. Kelleher et al. (2016) conducted a survey based on discrete choice models for parental school choice with parents of year 8 pupils in ten Belfast post-primary schools, including selective and non-selective as well as Catholic maintained, Controlled and Integrated schools. They found that parents' socio-economic background played a key role in their choice of school type, with families of pupils attending selective schools reporting a much higher level of car ownership. Notwithstanding this trend, the survey reported a clear disparity between non-selective (~10% on average) and selective (~40% on average) school pupils' access to free school transport, in inverse proportion to the percentages of school pupils with FSME. Kelleher et al. conclude that the main beneficiaries of free transport provision in Northern Ireland are pupils from wealthier backgrounds attending selective schools, and suggest "that choice of school is enhanced among wealthier families by subsidies for school travel, but constrained for less well-off families" (2016:213). Their findings indicated that the majority of non-selective school parents were more concerned with convenience (school proximity) than whether their child qualified for free school transport, whereas for the majority of selective school parents the "provision of free school transport is not regarded as important when traded off, albeit hypothetically, against the academic quality of a school" (2016:216). In sum, this research suggests that free school transport, on which the Education Authority spends over £100 million per year, subsidises school choice for wealthy families and helps entrench a geography of socio-economic and educational inequality in the Belfast area.

The system of selective education has come under increased stress in the past year owing to the forced cancellations of the annual transfer test during the COVID-19 pandemic. Even if only for a single cohort, the need to implement alternative non-academic criteria for transfer will sharpen the policy focus on the effects of transfer for Northern Ireland's pupils, and potentially create a discernible difference in the trends identified above. Future research should aim to identify these differences as we adjust to post-pandemic realities. and would help inform the work of the forthcoming Independent Review of Education, whose terms of reference explicitly refer to transfer arrangements. Further focused research would be useful into the extent of private tuition, its affordability and availability to disadvantaged pupils, and its impact on performance in the transfer tests. Also largely missing from the research are the voices of children themselves, both during and after the transfer test process, on the effects of testing on their sense of (under)achievement and attendant motivation to learn.

4.2.4. The uses of assessment

Assessment and grading is inextricably implicated in the measurement and consequently the production of underachievement, and are the focus of several research papers included in this review.

A comparative qualitative study with GCSE pupils in Wales and Northern Ireland aimed to capture pupils' own perceptions of fairness within a changing landscape of examination specifications (Barrance and Elwood, 2018a, 2018b; Barrance, 2019). Divergent national assessment policy reforms around the phasing out of modular

courses and controlled assessment at GCSE at the time of the research raised issues of fairness and choice in assessment and curriculum. As part of the study, 699 pupils were surveyed and 65 pupils interviewed in Northern Ireland, from selective, non-selective and integrated schools.

The first paper explored student's perceptions of GCSE reform (Barrance and Elwood, 2018a), and found that pupils in Northern Ireland were worried that divergent reform could put them at a disadvantage when applying for university places in Great Britain. They were, however, supportive of retaining modular courses at GCSE. Beyond these headline findings, Barrance and Elwood highlight pupils' sense of destabilisation by frequent changes, and being treated like "guinea pigs", and argue that pupils' voices should be more seriously taken into account in the formulation of assessment policy. They argue that "many of the problems experienced within assessment policy reform can be attributed to the increased politicised nature of reform programmes, and the expectation on examination results to fulfil multiple purposes (e.g. individual grades for pupils, performance measures for teachers and schools)" (Barrance and Elwood, 2018a:255), and contest that pupils' voices are excluded precisely because of this politicisation.

In their second paper, Barrance and Elwood (2018b) focus on the pupils' perceptions of choice and fairness in relation to the subjects they are able to study at GCSE, and found that tiering and compulsory subjects restricted choice in a way that pupils perceived to be unfair. In contrast with the Entitlement Framework developed in 2011 to ensure "all students" have a "full range" of both academic and vocational courses to choose from at KS4 through partnerships between selective and non-selective schools, many pupils reported that as a result of timetabling, compulsory subjects, and school pressure to take certain subjects to maximise pass rates they had in effect little choice in their courses of study. They suggest that "students have sophisticated perspectives on curriculum inequalities, subject choice, and assessment" (Barrance and Elwood, 2018b:33).

Barrance (2019) focused on internal assessments at GCSE from the point of view of the pupils, and the contribution these views can make to evaluating the fairness, and therefore the validity, of internal assessments. Pupils' perceptions were varied and nuanced. Some perceived internal assessments to test a deeper and wider range of knowledge and skills than exams, whilst others said it often tested memorisation and rote learning, particularly in languages. Some preferred the classroom environment to the test hall, finding it less stressful and more focused, whilst others found it more distracting there. As "gaming strategies" are quickly developed for internal assessments, they are unlikely to reduce inequalities, with pupils whose parents are more able to help them doing better in these kinds of assessment than their more disadvantaged peers.

In a now dated but still relevant study, Gardner and Cowan (2005) replicated the official processes of testing, marking, age adjustments, standardization and weightings of the transfer test for 3100 practice scripts in 52 Northern Ireland primary schools. They found that the candidate ranking system in place at the time had the potential to misclassify up to two-thirds of the test-taking cohort by as many as three grades. This was because the highest and lowest grades (A and D) were separated by as few as 18 of the total of 150 available marks and the standard error of measurement was of the order of 4.75. Furthermore, their study refuted the implied claim that the transfer tests measured a pupil's overall 'ability', using confirmatory

factor analysis to establish that the English, Maths and Science sections of the test appeared to measure different skills and competencies. These inherent factors in the tests' design and implementation, for the authors, point to the fact that "performance in an achievement test, particularly a poor performance, may therefore have little to do with a child's inherent ability" (Gardner and Cowan, 2005:150). The high probability of misclassification in these tests identified by this research is argued to lead to "traumatic uncertainty" for the thousands of pupils who take them each year, and whose post-primary school careers will be to a large degree determined by them.

In the same year, a small study designed to assess the effects of exam pressure on pupils' motivation for learning was published (Remedios *et al.*, 2005), drawing on a sample of 66 pupils sitting and 55 not sitting the transfer test. Questionnaires were administered two weeks before the test and then again two weeks after the results were announced, alongside thirty short interviews. The study found that prior to sitting the test, there was no significant difference in motivation between the test and no-test pupils. However, after sitting the test, the motivation of the test pupils decreased significantly relative to their no-test counterparts, despite the fact that most achieved the grades they needed for admission to a selective school. The reasons for this change were not identified in this research, but as almost all the pupils entered for the test were successful, one cannot analyse the potential demotivating impacts of failure. Another research project found that 80% of girls in two single-sex selective school 6th forms reported physical effects of 'academic stress', which increased throughout the year as examinations approached (Finch *et al.*, 2010).

The use of assessment across education has been undergoing intense scrutiny and change in the past year owing to the forced cancellation of GCSE and A-Level examinations across the UK during the COVID-19 pandemic. Perceptions of fairness, particularly in the eyes of teachers and pupils, have been influential in shaping government policy on the awarding of grades. Algorithms designed to produce a representative spread of results were ultimately rejected, leaving alternative teacher and school-based assessment criteria to stand in for the familiar external public examinations. Future research could build on Barrance and Elwood's work on pupils' perceptions of fairness as external assessment is re-assembled after the pandemic. It could also consider how the development of educational technologies and blended learning practices might improve access and equality issues relating to pupil assessment in the future.

4.3. Intersectional axes of educational inequality

Across Northern Ireland, individual factors in educational achievement interact with one another in complex ways. Various research projects have focused on specific social categorisations such as social class, gender, age group, and other cultural background. The following section summarises the findings of this research and, to a degree, synthesises them within an intersectional framework. It is important to understand these individual factors and the ways that they interact with one another, as the interconnected nature of these categorisations means that they might amplify one another within interdependent systems of disadvantage.

4.3.1. Month of Birth

The studies included in this section are all new additions since the last evidence summary. Each uses different data to answer different research questions, but all relate to the effects of birth month on educational achievement. In the first, Menet et al. (2000) analysed school based assessments (n=334) and psychological referrals (n=695) for primary school pupils in the South Eastern Education and Library Board. Mirroring similar work elsewhere in the UK, their analysis suggested that children born at the end of the school year (May/June in Northern Ireland), the youngest in their class, were disadvantaged in the education system leading to significantly higher levels of referral to psychological services due to literacy and behaviour difficulties. This perceived underachievement in primary school, they argued, should not lead to the "implementation of misguided interventions […] which target changes that the child may not be developmentally capable of achieving" (Menet *et al*., 2000:232) on the part of educational psychologists. A larger study by McPhillips and Jordan-Black (2009) sought to establish whether this perceived disadvantage in primary education continued into the later stages of pupils' school careers. Using a cross-sectional research design, they collected standardised literacy test scores along with a motor skills test for 1,124 primary school pupils, 3,497 KS3 pupils and 3,687 GCSE pupils. For the primary school pupils there was evidence of both a season of birth and an age-position effect on all of the cognitive measures, particularly in the early years of schooling. There was also evidence of a small but statistically significant age-position effect at both KS3 and GCSE in favour of the older pupils in English, with pupils born in July/August scoring on average 0.25 of a grade higher than those born in May/June. A causal mechanism for this persistent literacy inequality is not suggested, but primary school pupils with May/June birthdays were also found to be disadvantaged in terms of motor skills.

However, a more recent study (Doebler *et al*., 2017) analysing the Northern Ireland Longitudinal Study and 2011 Census for links between birth-month and educational success (defined as obtaining a degree or equivalent) in Northern Ireland, found no significant link in a sample of over 36,000 people born between 1983 and 1989. If anything individuals born in April, May and June had higher rates of educational success, as defined by the study, than those born in other months of the year. Factors identified as have a significant negative effect on educational success were to do with the household: "Living in a household with employment and education deprivation, and with divorced/separated parents decreased the chances of having a degree by 2011" (Doebler *et al*., 2017:295). The fact that this study did not identify a birth-month effect on the educational success of adults does not necessarily disprove its existence. The authors suggest that "socio-economic effects in the Northern Ireland school system" may be "so large that they outweigh the effects of birth month" (2017:296).

In summary, research over the past twenty years in Northern Ireland has identified birth-month effects on educational outcomes, particularly in early literacy, but suggests that these effects appear to decrease with age so as to have no discernible impact on degree-level outcomes.

4.3.2. Gender

Despite a clear and persistent gender difference in educational underachievement, surprisingly little research has recently sought to isolate the effects of gender in relation to it. Two studies focused on gender differences in relation to particular subjects. Hanratty's (2011) qualitative study with fifth-form pupils in five Greater Belfast schools took a feminist approach to gender as constructed, multifaceted and contextual, but nonetheless argued that poetry in the curriculum was gendered female, leading to less enthusiastic responses to poetry by male pupils. By contrast Cantley et al. (2017) focused on mathematics, piloting a 'collaborative learning resource' called Izak9 in Northern Ireland and the Republic of Ireland, and measuring its impact on male and female pupils' enjoyment of the subject using Aiken's subject-specific enjoyment scale. They found that female pupils' enjoyment of mathematics increased through use of the 'cognitive-activation pedagogical approach' associated with Izak9, whilst male pupils' enjoyment stayed the same, suggesting that use of this 'feminist mathematical pedagogy' could lead to gender-specific gains in academic achievement and contribute to efforts to redress the gender imbalance in STEM.

'Taking Boys Seriously', a five-year longitudinal study led by Harland and McCready (2012), followed a cohort of 378 male pupils in nine Northern Ireland post-primary schools throughout KS3 and KS4 with annual questionnaires and focus groups, and conducted an in-depth case study of an additional single-sex non-selective post-primary school with high rates of FSME. This broad investigation into boys' school experiences found that the nature of teacher/pupil relationships was a primary factor in boys' motivation and attitudes towards learning. While this relationship is important for all young people, it was the primary factor in determining the extent to which these boys engaged with lessons and it influenced their expectations as to how well they would do in any given subject. Apart from suggesting that youth work methodologies were effective in engaging boys in the classroom, this research highlighted the absence of gender specific approaches in pedagogy and pastoral care in the study schools, possibly due to the lack of evidence of their effectiveness.

In summary, the little research in the past twenty years that has explicitly focused on the effects of gender on educational attainment has focused on pupil motivation and attitudes to learning in relation to curricular and pedagogical approaches. Many of the other studies in this review highlight boys' underachievement, but more research is needed to identify the reasons for gendered educational inequality in Northern Ireland and to suggest ways in which it can minimised.

4.3.3. Social Class

In an example of how intersectionality can be integrated within a single research project, Connolly and Neill (2001) investigated how gender differences in educational achievement can be class-contextualised through a case study of 11-year-old children from a majority Catholic working-class area in Belfast. Their paper demonstrated how the children's general educational aspirations were significantly mediated by their experiences of the local area in which they live. Through unstructured small-group interviews in the context of lengthy participant observation as a classroom assistant, the researchers were able to identify the ways in which the children's sense of locality and educational aspirations differed between the boys

and girls. They found that whilst general family and school influences did not encourage pupils to take the transfer tests, girls were slightly more likely than boys to express aspirations to go to the selective school and have professional careers. On the other hand, boys were more likely to be more territorial, less likely to feel safe venturing out, and more likely to be involved in fighting with kids from the neighbouring Protestant estates. The nearest boys' selective school was outside the area and so out of mind. Though almost two decades have passed since this article was published, the basic point that locality is key to understanding pupils' aspirations is amply demonstrated. As argued by the Kelleher et al. (2016) study discussed above, children from working-class communities are less likely to take advantage of free school transport to attend grammar schools beyond their local area.

A later article which also draws together the strands of educational success, working-class culture and locality, and examines the ways in which male pupils' identity is constructed in relation to schooling (Ingram, 2009). Taking a Bourdieusian approach, Ingram undertook a series of interviews with boys in Year 8 and Year 12 at two neighbouring Catholic schools: one selective and one non-selective. They found that boys aspiring to academic success, whether in the selective or non-selective school, most often also spurned their working class culture and identity, taking on instead a middle-class culture and social connections outside their locality. This "social division" means that class inequalities are maintained as "one group rejects its class of origin in favour of upward mobility and the other secures its working-class position" (2009:422). This suggests that academic success for an individual does not necessarily translate to wider benefits for their community, and furthermore that class-based cultural norms might actively dissuade working-class boys from aspiring to educational success.

Horgan (2009) undertook a relatively large qualitative survey consisting of 56 group interviews with 220 children aged 5-11 in primary schools from the most and least deprived wards in Northern Ireland: in Belfast, Derry/Londonderry and two rural areas. This research identified a range of differing attitudes to learning between more or less deprived school intakes, such as greater school enjoyment and more positive outlooks on future learning amongst less deprived pupils. It also highlighted a clear understanding on the part of the pupils that wealth is linked to intelligence: "the idea that 'that child is smart because he's rich' is one that was echoed in all the schools but almost all the older children's groups in the most disadvantaged schools referred to it" (2009:370). Horgan (2011) undertook similar focus group interviews, this time with 94 adolescents accessed through youth clubs and community organisations in the most disadvantaged wards in NI. She draws on this qualitative data to illustrate the extent to which young people growing up in communities marked by poverty and conflict end up excluded from the norms of society. The adolescents interviewed, particularly boys, described poor relationships with their teachers, characterised by a mutual lack of respect.

Another study (Goeke-Morey *et al.*, 2013) focusing on working class areas in Belfast examined qualitative survey data for 770 adolescents relating to community, family environment, parenting, academic achievement (transfer test score), expected length of educational career, and school behaviour problems. Controlling for religious community, age, and gender, this psychology-focused study found that young people's lower academic achievement was associated with family environments characterized by high conflict and low cohesion. In contrast with most other studies included in this review, it also found that achievement was also "lower for youth in

the Catholic community", but that "Protestant youth were more likely to expect to leave school sooner than Catholic youth" (2013:249). The authors argue that "improving family knowledge and interactions around school-related issues may enhance students' academic achievement and aspirations educational attainment" (2013:252) and recommend that educational psychologists be trained to screen the family, and not only the child, as a means to better support pupils' learning within their social context.

Growing up within a disadvantaged community was also linked to early psychological and physical development in young children in research by McPhillips and Jordan-Black (2007a, 2007b). In the first study, results of a clinical diagnostic test often indicative of dyslexia (asymmetrical tonic neck reflex) were compared with standardised reading and spelling scores for all primary school pupils in P3 and P5 at 8 schools. This cross-sectional study found that in comparison with their more socially advantaged peers, children with FSME had significantly higher levels of reflex associated with difficulties attaining core educational skills. In the second study two contrasting wards were identified in terms of multiple deprivation in Belfast and Lisburn, and 239 children aged 4–5 years, and 276 children aged 7–8 years from four primary schools were tested using a standardised motor assessment battery, a motor neurodevelopmental measure, and standardised receptive language and reading assessments to evaluate possible associations between motor and language/reading attainments. The study found a significant negative effect of social disadvantage on both motor skills and literacy in both age groups, which was particularly strong in young boys: "more than 50% of [socially disadvantaged] male children in Year 1 show[ed] motor skill levels greater than one standard deviation below the expected mean" (2007b:1220).

Finally, a large cross-sectional survey conducted in 2008 examined the relationship between student wellbeing and educational achievement in a sample of 1081 primary school pupils (Miller *et al.*, 2013). This study found that there was a statistically significant relationship between wellbeing and academic achievement scores and that this relationship applied equally across categories of gender and social deprivation. Its authors therefore proposed the existence of an underlying 'wellbeing factor', unmoderated by gender or deprivation, which positively affects academic achievement. They argued that their findings indicated "that there is no evidence to warrant a targeted approach to promoting wellbeing, either in terms of deprivation or gender and that, rather, a more universal approach to promoting wellbeing across the population would be appropriate in order to improve educational achievement" (Miller *et al.*, 2013:247).

The research summarised in this section underlines how deeply ingrained inequality based on socio-economic status leads to educational disadvantage for working class children due to a complex range of material, geographical, social and cultural reasons. The barriers to pupils' progression include motor skills deficiency in the early years, lower educational aspirations in primary school, and limited school choice at post-primary. The COVID-19 pandemic has re-doubled social and policy focus on the effects of socio-economic inequality in education as the differential effects of home-learning highlight a significant 'digital divide' and create a 'lockdown learning gap'. Future research should seek to better understand how schools and families in deprived communities have coped during the pandemic, in terms of the impacts on emotional health and wellbeing as well as academic attainment, and identify effective innovative practices which mediated the negative impact of the

pandemic on disadvantaged children and, post-pandemic, can help close the attainment gap.

4.3.4. Marginalised Groups (Travellers, Newcomers, Looked After Children)

Beyond the broad disadvantage associated with social class, numerous specific marginalised sub-groups have been identified as facing unique challenges relating to educational underachievement: notably Looked After Children, Travellers and Newcomers.

A report commissioned by DE into how the education system could improve the attendance of Looked After Children concluded that the underlying causes of non-attendance included peer pressure, behavioural issues leading to exclusion, personal factors, contact with birth parents (no contact mostly means better attendance), and the age at which a child enters the care system (younger means better educational outcomes (PwC, 2011).

Three of the reviewed studies focused on the particular challenge of improving educational outcomes for Irish Traveller children. A small-scale qualitative study focused on two mainstream schools in West Belfast attended by significant numbers of Irish Traveller children highlighted the problem of low attendance/absence and consequential underachievement specific to this community (Reynolds *et al*., 2003). A larger qualitative study commissioned by DE soon afterwards (Knipe *et al*., 2005) elaborated further issues, such as a lack of contact between parents of Traveller pupils and schools on matters associated with their children's education, and a perception amongst Traveller pupils that beyond the basic skills of reading, writing and arithmetic the school curriculum was of little relevance to their lives. This partly explained comparatively high rates of Traveller children leaving education early, to begin work. The report offered a range of recommendations, mostly aimed at better accommodating the needs of the Traveller community to encourage greater engagement with education, for example making allowances for absences due to family events, or incorporating learning about Traveller culture in the curriculum. More recently, Bloomer et al. (2014) conducted a short qualitative project focused on the views of Traveller children and parents with respect to primary education in Northern Ireland, finding some further reports of bullying and low expectations in schools, erratic attendance, and a cultural norm of leaving education at the end of primary school.

In the past decade, numbers of newcomers (a term used by the Department of Education to describe a pupil who has enrolled in a school but who does not have the satisfactory language skills to participate fully in the school curriculum, typically the children of international immigrants and refugees) in Northern Ireland schools have more than doubled, and now newcomers represent 5% of the school population (Toogood and Robinson, 2020). A mixed-method study focused on issues related to mental health of newcomer pupils in 8 primary and post-primary schools (McMullen *et al*., 2020) found that most pupils were positive about the opportunities they were afforded by the education system, and that many were intentional in their studies and motivated to succeed. Having identified this theme in the questionnaire and interview data, the report qualifies that "stress in relation to their academic attainment and fears about falling behind in their school work" (McMullen *et al*., 2020:132) as well as the high expectations of teachers and family negatively affected some pupils' mental health.

4.3.5. Children in Alternative Educational Provision

School exclusions in Northern Ireland are rare in comparison with England and Wales (Cole *et al.*, 2019), however a small but growing number of pupils (n=666) are registered in Education Other Than At School (EOTAS) (Toogood and Robinson, 2020), meaning their social, emotional, behavioural, medical and other issues have been deemed to make mainstream schooling unsuitable at a late stage in their statutory education. Educational underachievement in this group is consequently comparatively high. One EOTAS centre was the topic of a piece of case study research which included a focus on academic achievement as well as pupil wellbeing (Gallagher, 2011). The study argued that the EOTAS centre's individualised focus on improving self-confidence and self-esteem in pupils was a key foundation that permitted them to go on to take exams and gain academic qualifications. Gallagher's postulation is that this alternative education provision keeps these pupils from leaving education without any qualifications at all. A similar argument is put forward by Goodall (2019), whose work with autistic teenagers found that many of them were happier and more able to learn in EOTAS centres, outside of mainstream education.

These qualitative studies underline the importance of inclusion in mainstream education and appropriate alternative education provision for educational achievement, particularly as rates of special educational needs continue to increase. Furthermore, given the relatively high cost of EOTAS provision, there is a need for further research to identify best practice in mainstream schools for accommodating pupils with challenging behaviour at risk of exclusion, and best practice in EOTAS settings in terms of re-integrating excluded pupils into mainstream settings.

4.4. Continuity and Change in Policy and Practice

4.4.1. Special Educational Needs

Almost one-fifth of all school pupils in Northern Ireland are identified as having a Special Educational Need, a quarter of whom are statemented, and of whom the vast majority attend mainstream schools. However, Chaney's analysis of SEN policy in Northern Ireland compared with the rest of the UK (2012) highlighted the disconnect between discourse of equality and attendant support for SEN and the systemic delays in getting children assessed and provided with appropriate help. In an evaluation of progress since the 2002 Task Group on Dyslexia report, Beck et al. (2017) interviewed key stakeholders who highlighted successes in instilling good practice and increasing funding for dyslexia support but warned of a lack of parental engagement and worries over the sustainability of funding.

A qualitative study including 28 schools sought to evaluate head teachers' and SENCOs' perceptions of barriers to inclusion in Northern Ireland, and highlighted the importance of leadership and appropriate funding to 'drive inclusion' (Abbott, 2006, 2007).

4.4.2. Evaluated Interventions

Several programs and interventions intended to raise academic achievement or address educational inequality have been implemented in the past twenty years, and some have been evaluated in order to demonstrate their effectiveness.

The issue of quality provision in the early years of primary schooling was a significant policy focus in education after 2000. In an effort to improve young children's sense of self-competence and self-esteem, the Early Years Enriched Curriculum - a play-based curriculum designed to be developmentally appropriate (Walsh *et al.*, 2006) - was evaluated using a large-scale, multi-method and multi-perspective research design from 2000-2008 (McGuinness *et al.*, 2014). The findings from this research intervention pointed to children's enhanced learning dispositions, social development and emotional well-being. Despite their somewhat depressed scores in formal reading and mathematics tests (Performance Indicators in Primary Schools – PIPS) at the end of Year 2, the Enriched Curriculum children's reading and maths scores tended to match those of the control classes in later years, with a small gap re-emerging at the end of Year 7 for those children from the most socio-economically deprived cohort. Whilst the findings from the pilot study were principally positive in terms of ensuring a higher quality learning experience for all young learners, there were lessons to be learned. These included resolving the tensions of teaching reading within a play-based curriculum, enhancing teachers' confidence and competence translating a more playful pedagogy into practice, and ensuring greater synchronicity between playing, learning and teaching to enable all learners' interests (Walsh *et al.*, 2010).

These findings informed the roll out of a statutory play-based curriculum to all NI primary schools in the form of the Foundation Stage for all Year 1 classes from 2007 and all Year 2 classes from 2008. The evaluation authors argued that with 'bedding down' time for teachers to get used to the new curriculum, the overall outcomes for all pupils, irrespective of socio-economic background, would improve. Follow-up work to verify whether this is the case, or the extent to which the play-based element of the FS curriculum, more than 10 year on from its introduction, is practised by Year 1 and 2 teachers has not yet been undertaken.

Several interventions aimed to improve literacy outcomes. One early-intervention computer-based literacy program, Lexia Reading, was evaluated in two separate studies. In the first, McMurray (2013) used a quasi-experimental research design to compare an intervention and control group of 6-7 year olds alongside qualitative interviews and questionnaires. In her paper, McMurray sets out a strong rationale for phonics interventions to be targeted at individual needs, something the Lexia software offers automatically. Though the study did not demonstrate that the software automatically raised children's literacy standards, the delivery of an individualised, structured and systematic phonics intervention was argued to provide useful data for teachers, freeing up their time to plan appropriate support. In a later study, O'Callaghan et al. (2016) conducted a randomized controlled trial with 126 4-6 year olds in schools with high FSME percentages (~45%), focused on the effectiveness of Lexia Reading. Its findings corroborated McMurray's earlier work and other studies demonstrating the effectiveness of early-intervention and computer-based literacy programs, by finding that Lexia Reading was effective in boosting pupils' phonological skills.

A book gifting program for foster children, which involved children receiving six parcels of books sent through the post over a six-month period, was also evaluated using a randomised controlled trial (Mooney *et al.*, 2016). Outcome measures focused on reading skills (reading accuracy, comprehension and rate) and attitudes to reading and school, however the trial found no evidence that the book-gifting programme had any effect on any of the outcomes measured. Findings from the

qualitative data "suggest that children in foster care placements are often (although not always) living in homes where books are actually readily available and to which they have access. Ironically, according to this research, they are often not 'book deprived' but rather 'book burdened'" (Mooney *et al.*, 2016:6).

In the past two decades, Nurture Units have begun to be implemented in many primary schools with particularly socially disadvantaged intakes. In 2020, DE announced significant additional financial support to establish 15 new nurture groups in addition to the 31 already funded, and to establish a Nurture Advisory Service within the Educational Authority. Nurture practices rely on attachment theory, which posits that making 'secure' attachments to significant adults is required for the development of social, emotional and behavioural skills that allow children to access learning opportunities. A large-scale evaluation of Nurture Group provision in Northern Ireland (Sloan *et al.*, 2020) found that it had several positive effects on a range of social, emotional and behavioural outcomes, including school attendance, within a single school year (P2). No evidence of effects on academic attainment was found, however this is not particularly surprising at this young age. More longitudinal research examining the long-term impacts of this early intervention will be able to provide clearer evidence of effects on academic attainment at the end of primary school and into post-primary education.

An earlier social-emotional learning programme, *Promoting Alternative Thinking Stategies* (PATHS(NI)) was trialled in 2008-2010 with 3,500 primary pupils in the Lurgan area. The report found that teachers and parents reported increased positive behaviour, self-esteem, and awareness of feelings, which it argued "to be critically important for pupils' readiness and preparedness for learning, for responding positively to the learning environment, and for maximising learning outcomes" (Sheard *et al.*, 2012:279). However, no direct evidence of improved learning outcomes was reported.

Robust and rigorous independent evaluations such as those summarised here are key research and policy tools in seeking to implement effective interventions and change. Some smaller scale evaluated interventions in the past twenty years have had demonstrable benefits to educational attainment, such as using Lexia Reading. However, the larger scale evaluated interventions, such as the Early Years Enriched Curriculum and Nurture Groups, appear to have found little or no effect in the years following implementation. In both of these cases, detection of long-term impacts would require long term longitudinal studies.

4.4.3. Future Challenges

The Effective Pre-school Provision in Northern Ireland (EPPNI) project studied child development from 3 to 11 years through a large-scale longitudinal design from 1999-2010 (Melhuish *et al.*, 2013). The quality of preschool experience of 834 primary pupils was related to their performance in English and Mathematics aged 11. The study found that children who attended high-quality preschools were 2.4 times more likely in English, and 3.4 times more likely in mathematics, to attain Level 5 than children without preschool experience. Assessment data and parental interviews at the start of the project gathered detailed information about the family, pre-school setting, and the child's development. Pre-school provision, whatever its form, was scored using an Early Childhood Rating Scale. The report's authors reported that "Having allowed for background variables, there was a significant beneficial effect of

attending a high-quality preschool" (Melhuish *et al.*, 2013:244), and that high-quality preschool experience was more likely in playgroups and nursery schools (where higher levels of staff training were observed) than private day nurseries and reception classes. The authors underlined that improving access to quality pre-school provision for socio-economically disadvantaged children could be a key vector of improving educational outcomes and reducing educational inequality.

Other future challenges for addressing educational underachievement were identified in a qualitative study focused on the place of knowledge and skills in the post-primary curriculum. Nehring and Szczesiul (2015) surveyed four post-primary schools with more than 25% FSME pupils, and used qualitative methods within the context of extended school visits to identify how they fostered 'twenty-first century' learning – defined as higher level cognitive skills, inter- and intra-personal skills. They argue that these skills, whilst important for future socio-economic prosperity, are not typically incentivised, rather the opposite, by regimes of standardized testing: "In general, we observed that as reliance on performances and projects collected into a portfolio increased, so too did the instructional demand for twenty-first century skills. Inversely, as reliance on an externally administered traditional exam increased, instructional demand for twenty-first century skills decreased" (Nehring and Szczesiul, 2015:338). Following on from this observation, the authors call for a re-think of how disciplines are assessed at key stage 4 and 5, to favour assessment methods other than high-stakes externally administered examinations. Since their work, reforms to post-primary assessment have been considerable, and have moved in the direction of greater reliance on such examinations.

A third area of rapid and continuous change has been the use of digital technology in the classroom. Following the COVID-19 pandemic, this field of research will undoubtedly receive much greater focus, but two prior studies had already begun to consider the implications of digital technology for educational underachievement in Northern Ireland. The first study (Clarke and Abbott, 2016) used teacher interviews and pupil group interviews with children aged 4-5 at a primary school in a deprived area. They found that using one iPad per pupil with a pre-loaded bank of core educational apps, these pupils' readiness in acquiring initial key concepts in literacy and numeracy improved, including struggling learners who made unexpectedly good progress, and particularly benefitted boys in terms of focus and motivation. These positive outcomes were attributed to strategies that incorporated constant reinforcement from the apps with traditional classroom activities, such as whiteboard use (Clarke and Abbott, 2016). In a second study more specifically focused on literacy, Dunn and Sweeney (2018) found that classroom iPad use with 6-7 year olds improved pupil engagement and cooperation, fostered home links, and made reluctant writers more forthcoming.

Following the restoration of the Northern Ireland Assembly and the joint upheavals of Covid-19 and Brexit in 2020, future challenges appear to have moved rapidly into the present, bringing society-wide changes that will require innovative practice and flexible policy-making in education. Future research will likewise need to be flexible and innovative, partnering across sectors and achieving impact whilst retaining rigour.

5. Conclusions

The wide-ranging discussion above is testament to the complexity of the issue of educational underachievement in Northern Ireland, with associated research over the past twenty conceiving of and measuring it in different ways. Quantitative analysis of available datasets, large and small, are considered alongside qualitative studies focused on empirical examples. Though research methodologies and conceptual frameworks have changed over the past twenty years, the overall assessment that in Northern Ireland, socio-economic inequalities in education lead to wider disparities in educational achievement based on wealth and class remains unchanged since Gallagher and Smith's foundational report. Moreover, we find that 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. An agreed definition of education underachievement from DE would help in this regard, as would targeted research funding.

It appears to be widely accepted that boys underachieve in relation to girls, but little research has attempted to explain why this might be the case in Northern Ireland. The existing research summarised here appears to indicate that the reasons for this gender achievement gap likely lie in the area of curriculum, for which policies are decided at the level of the devolved administration. In light of this, a Northern Ireland research focus will be required, to identify ways in which boys can be more equally served by the curriculum.

Similarly, whilst several statistical analyses pointed to various inequalities between and within faith groups in Northern Ireland, often highlighting the comparative underachievement of working-class Protestant boys, what doesn't appear to exist is any recent research evaluating the impacts of faith-based education on educational attainment and inequality or the role of the churches (Protestant or Catholic) in addressing educational underachievement in schools and the wider community. Such research is imperative to underpinning a rationale for retaining faith-based education in a global context where many education systems are increasingly secular, and a local context where the education system remains largely divided along religious community lines.

The impacts of Covid-19 have been wide-ranging and will continue to affect children and young people well into the future. It has ushered in rapid transformational change, the effects of which will continue to play out in the years to come. Research is urgently required to help understand its effect on both the youngest children (e.g. impacts on socialization and language development through lost quality play-based pedagogy) and older children (e.g. changed expectations and norms relating to assessment, digital poverty, mental health effects). Research will also be required to rapidly identify and evaluate any new interventions introduced by government to mitigate these effects or to retain valuable elements of pandemic school practice, for instance around blended learning.

Related to the effects of the pandemic and building on the existing research discussed above, further research on the fairness of assessments, whether related to academic selection or public examinations, must be prioritised post-pandemic. We would ask: How can curricular choices be widened, and access/inclusion improved, through the use of educational technologies, blended learning, and centre-based

assessment?; In what ways will selective and non-selective post-primary schools need to adapt following a year with no transfer test, and how will pupils in this cohort fare?; and what changes to the transfer process could enable greater social mobility?

The focus on GCSE and A-level achievement of the existing research and in DE's monitoring of educational underachievement skews our attention in research, policy and practice to post-primary education. However, as argued above, primary and early years education is at least as important. These foundational years are crucial to provide more equal educational opportunities through early intervention, and investment in Early Years provision has risen proportionally in the past twenty years as result of this realisation. However, there is a need for long-term evaluation of key policy interventions in Early Years introduced with the stated aim of raising attainment for disadvantaged children. The two examples discussed above, the KS1 Foundation Stage Curriculum and Nurture Groups, should be prioritised for further research funding.

Whilst the above priorities are highlighted by this review, further areas doubtless exist where research-informed policy will have a positive impact in addressing educational underachievement. As is made clear throughout the review, educational underachievement is a multi-faceted and complex issue, from its definition and measurement through to its close relationship with social issues beyond as well as within the school system. What is clear, however, is that educational underachievement continues to have significant consequences for young people in Northern Ireland and for our society and economy as a whole. Whilst there remain significant gaps in the current body of knowledge, and further research will be needed to address these, it is our hope that this review serves to inform the ongoing work to develop policy and practice in this area, in particular the work of the two expert panels proposed in the *New Decade, New Approach* political settlement and recently commissioned by the Education Minister.

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