PISA 2018: What differentiates disadvantaged pupils who do well in PISA from those who do not?

Introduction and background

Differences in achievement between disadvantaged pupils and their more advantaged peers are a focus for policy in all parts of the UK. The gap is evident by the time they start school and widens as they move through the school years. The support of disadvantaged pupils has become even more important at a time when COVID-19 appears to have increased the negative impact of disadvantage on educational success. In 2018, nearly 80 countries participated in the Programme for International Student Assessment (PISA). PISA assesses 15 year olds' proficiency in reading, maths, and science and collects data on several background factors via questionnaires completed by pupils, teachers, and school leaders. This provides a unique opportunity to explore the impact of disadvantage on pupils from an international perspective, as well as a comparison across England, Northern Ireland, and Wales. This report uses the PISA analysis to explore 3 questions: How well are England, Wales, and Northern Ireland supporting the performance of disadvantaged pupils compared to other countries? How do the attitudes of high achieving disadvantaged students compare with the attitudes of those who perform less well? In what circumstances do disadvantaged students overcome barriers in order to perform well? For the purposes of international comparison, the Economic, Social and Cultural Status (ESCS) index is used as a measure of pupils' socio-economic status. A score on the ESCS index is based on pupils' responses to questions about their parents' background and education, and possessions in their homes. Pupils who are in the bottom 33 per cent on the ESCS index in their country are considered disadvantaged.

Key findings

Policies aiming to support disadvantaged pupils

- Before the 16-9 attainment gap can be measured analysts first had to develop a means of measuring attainment.
- In each UK jurisdiction, the Government has introduced measures to support disadvantaged pupils. In England, the Pupil Premium was introduced in 2011, allocating additional funding for each disadvantaged pupil. In the same year, the Education Endowment Foundation was established to identify, fund, and evaluate educational innovations which meet disadvantaged pupils' needs.
- In 2017, the DfE published a social mobility plan, *Unlocking Talent, Fulfilling Potential*; the publication of this document provided a meaningful and tangible commitment to social mobility. This plan builds on the Opportunity Areas programme, in which extra funding was made available to 12 local authority district areas (LADs), targeted because of the challenges they faced in improving people's life chances. The aim of this programme is to build young people's knowledge and skills and provide them with the best advice and opportunities. The PISA 2018 cohort

would have had a maximum of one year exposure to schemes supported under this programme.

- In Northern Ireland, the Common Funding Scheme (CFS), established in 2005 when the PISA 2018 cohort were aged 2, is distributed to schools based on the proportion of children entitled to free school meals. The Targeting Social Need (TSN) component in the CFS provides an extra payment to schools to recognise the additional costs in educating children from socially deprived backgrounds. In 2012, the Delivering Social Change Literacy and Numeracy Programme was launched as part of a wider initiative tackling poverty and social exclusion. The PISA 2018 cohort would have experienced the full extent of this programme.
- In Wales, The Pupil Deprivation Grant, launched in 2012, is a flagship policy which aims to tackle the impact of deprivation and disadvantage on educational outcomes.

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Extra funds are available to schools based on the number of pupils eligible for FSM on their roll from Years 1-11. The National Literacy and Numeracy Framework, introduced in 2013 aims to reduce the gaps between pupils with special educational needs or from disadvantaged backgrounds, and their peers.

International comparisons of disadvantage

- To gain an accurate picture of interactions between attainment scores and the ESCS index, one can look at the amount of variance in scores which can be explained by socio-economic background. This shows the extent to which the scores of pupils in each country are predicted by socio-economic background, rather than by other variables.
- In PISA 2018, countries varied in the impact of socio-economic status on educational success. ESCS has less of an impact on reading performance in Macao (China), Estonia, and Canada than it does in other high-achieving countries such as Singapore.
- Despite similar reading scores for the most disadvantaged pupils in all three countries of the UK, the gap between the most and least disadvantaged pupils was largest in England. There was a 100 score point difference in achievement of the most and least disadvantaged pupils in England, significantly larger than in Wales (71 score points). Similarly, the differences in scores between the most and least disadvantaged pupils in England (103 score points for maths, 105 score points for science) were significantly higher than in Wales (76 score points for maths, 77 score points for science).
- In common with other PISA countries, socio-economic status is associated with attainment in all 3 subjects and across England, Northern Ireland, and Wales. Across the OECD, on average, 12 per cent of the variance in reading scores can be explained by socio-economic background. This is more than in Northern Ireland (7%) and Wales (4%) but similar to England (10%).
- Pupils who participated in PISA 2018 had experienced some of the above-mentioned country-led initiatives to improve literacy and numeracy. In England, Northern Ireland, and Wales, average scores in reading and mathematics for disadvantaged pupils (bottom 33%) were significantly higher in 2018 than in at least one previous cycle.

Resilience

- For the purposes of this report, resilient pupils are defined as those who are among the 33 per cent most socially disadvantaged pupils in their school, but who achieve at or above level 3 in all 3 domains.
- According to this definition, around a third of disadvantaged pupils in England, Wales, and Northern Ireland could be described as resilient. The proportions of resilient pupils in the Republic of Ireland (33%) and Canada (36%) were similar to England, Northern Ireland, and Wales. There were greater proportions of resilient pupils in Estonia (44%).

Resilient pupils; attitudes and barriers

- Profiling analyses revealed that, compared to their disadvantaged low-achieving peers, resilient pupils in England, Northern Ireland, and Wales were more likely to: like reading, use metacognitive strategies, have self-confidence, have high aspirations, have a growth mindset (i.e., not seeing their intelligence as fixed), and report that they would invest a lot of time in something if it was important to them.
- Resilient pupils in England were less likely to: have found the PISA test difficult, report that their life has meaning and that they have found a meaning in life, have a high perception of receiving emotional support from parents, attend a school where the admission policy is residence in a particular area, and have skipped a whole day of school in the last 2 weeks. There may be a variety of reasons why pupils skip school including caring responsibilities, lack of engagement, sickness, or a fear of being bullied and so identifying these reasons is an important first step in supporting socio-economically disadvantaged pupils.
- The counterintuitive finding about the relationship between finding a meaning in life (eudemonia) and resilience appears puzzling. It echoes research by Kuhn et al (2021) who also found that aspects of wellbeing (life satisfaction, positive emotions, and eudemonia) were negatively related to achievement. In a similar vein, resilient pupils in Wales and Northern Ireland were less likely to respond positively to questions related to positive wellbeing compared with disadvantaged pupils who were not resilient. There are possible links to other associations such as aspirations, in that pupils who have not yet achieved all they want to achieve may not feel they have yet found a meaning in their life. More research is needed to investigate further this counterintuitive negative relationship.
- Gender was not found to be a significant predictor of resilience, despite there being some gender differences in performance (particularly in reading) across England, Northern Ireland, and Wales in PISA 2018.

Country-specific associations

- The findings from the multi-level regression model suggest resilient pupils were less likely to have taken the PISA assessment in Welsh and less likely to attend a Welsh-medium school.
- In Northern Ireland, regression analysis showed that protestant disadvantaged pupils were more likely to be resilient than non-protestants.
- In England, analysis suggested that resilient pupils were less likely to report receiving emotional support from their parents, and, therefore, conversely disadvantaged but non-resilient pupils were more likely to report emotional support from their parents. It is possible that parents of resilient pupils do not feel they need to provide as much emotional support because their child is achieving well at school in comparison to a parent of a low-achieving pupil.