National Foundation for Educational Research

International thematic probe:

The influence of relative age on learner attainment and development

Executive Summary

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QSB

INCA International Review of Curriculum and Assessment Frameworks Internet Archive

Executive Summary

This rapid review of research evidence was commissioned by the Qualifications and Curriculum Authority (QCA) to investigate the issue of relative age in the international context. The review set out to examine three questions:

1. To what extent does the age of learners relative to other pupils in their year group affect their attainment and development?
2. Does this relative age affect the attainment and development of some groups or types of learners more than others?
3. Do certain educational policies and practices, particularly those relating to curriculum and assessment, mediate the effect of relative age on attainment and development?

Main findings

The review findings are drawn from 18 research studies published from 2000 to 2008 and carried out in Australia, Chile, the United Kingdom and the USA together with further information supplied by international contacts in 13 countries and states. All of the studies found evidence of statistically significant effects for relative age (comparing the youngest to the oldest in the year group). Key findings on the extent of the relative age effect are:

- Pupils who are younger in the year group do less well in attainment tests (commonly measured subjects are maths, reading, writing and average attainment across subjects).
- Studies conducted in the USA and Chile found that children who are younger in the year group are more frequently retained (meaning that they have to repeat a year of schooling).
- Evidence from the United Kingdom and the USA shows that relatively younger children are more frequently identified as having special educational needs.
- Evidence from two British studies found a statistically significantly higher incidence of psychopathology and referral to psychiatric support services among relatively younger children.
- Relative age effects for attainment are quite large (effect sizes of up to 0.8) for young children, measured soon after they start school. There is a smaller relative age difference among older primary children but the difference remains ‘educationally significant’ throughout primary school. At secondary stage, the difference is still apparent but is usually not educationally significant (i.e. effect sizes are typically below 0.25).
- There was limited evidence to establish whether relative age particularly affects the attainment and development of certain groups of learners. The available evidence suggests that the effects of gender, economic deprivation, ethnicity and relative age operate independently of one another.

- There was limited direct evidence to support particular educational policies and practices in reducing relative age effects, apart from the adoption of age standardised tests.

Conclusions and Implications

The most obvious explanation for relative age effects is that assessment results are not adjusted to take account of the fact that children are younger or older when taking the test. Other explanations that could contribute to this effect are: age in relation to peers (age position effect) and age on starting school. A child's age position could contribute to poor performance and even psychological problems if younger children cannot access a curriculum aimed at older children, if they experience failure or stress, or compare themselves unfavourably to their older classmates. Age on starting school could contribute to relative age effects if younger children find it harder to adjust to the transition or to meet the requirements of a formal curriculum.

Another possible explanation for relative age effects is length of schooling (in a system where children enter school at different points during the year, according to their date of birth). The review found that evidence for different lengths of schooling contributing to the magnitude of relative age effects was inconclusive. Even though length of schooling could possibly contribute to the differences in outcomes, it could not be the main reason for relative age effects because these are found in groups of children who all entered school at the same time.

The review rejected the hypothesis that children who are younger in the year group suffer from developmental delay or brain injury due to pre-natal exposure to seasonal illness or environmental deficit. This explanation was undermined by clear evidence that children who are born at the same time of the year in countries with similar seasonal conditions, have better or worse outcomes according to whether they are younger or older in relation to the school year. This means that relative age effects are most likely to be caused by the educational system, rather than by any inherent characteristics for children who are born at certain times of the year.

The strategies identified as most likely to help reduce relative age effects are:

- **Assessment:** use age standardised tests; enter children for assessment when ready. It is likely that the use of age standardised tests would remove the relative age effect in academic achievement entirely (as has been demonstrated in Northern Ireland) and could reduce effects for other outcomes (such as SEN identification and psychiatric problems).
- **Curriculum:** ensure that the curriculum is appropriate for relatively younger children, especially in the early years of schooling when relative age differences are greatest.
- **Pedagogy:** use developmentally appropriate pedagogy, especially in the early years of schooling. Ensure teachers are aware of relative age effects and that they know which children are the youngest in the class; enable younger children to

have leadership opportunities and encourage them to value their own achievements rather than to compare their progress with that of older classmates.

- **Referral for special needs and psychiatric support:** monitor referral rates for the relative age effects; review the identification process to avoid relative age being mistaken for developmental delay; raise awareness of this issue among those responsible for decision-making.

The practices of deferring entry for children not considered to be 'ready' for school or requiring children to repeat a year are not recommended for addressing relative age effects.

The evidence suggests that the Government's attention should be focused on ensuring developmentally appropriate and positive experiences for relatively younger children in the primary school and also on ensuring that the process for identifying children with special educational needs takes account of relative age. This, together with taking account of relative age effects in assessment results, would help to ensure that differences in children's birth dates do not become a continuing source of disadvantage for children and young people.

About the review

This rapid review sought national and international research evidence on relative age effects, published in English between 2000 – 2008. Searches of social science and education databases yielded 92 items which appeared to fit the parameters. The team attempted to obtain the full text of 29 most relevant items, 18 of which were included in the review.

An email enquiry was sent to contacts in all of the countries covered by the INCA Archive[1], 13 of whom replied. The email outlined the findings of the literature review and asked contacts about any research in their country/state which either supported or refuted the findings. Contacts were also asked for information on any strategies or policies which may have been implemented to counteract the relative age effect and of any evidence of their impact.

Because this review was carried out in a period of four months, there are inevitable limitations on the completeness of the evidence base and the depth of analysis carried out.

A full report is available from: http://www.inca.org.uk/thematic_probes.html

[1] In addition to the INCA Archive, a contact in Chile was provided by the Qualifications and Curriculum Authority.