

# Children's genes uncover potential school league table bias

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A new examination of the role of children's genomes in their education

progress reveals their impact on both school league tables and how teacher performance is assessed.

A team led by University of Bristol researchers used data from 6,518 participants of the [Children of the 90s longitudinal study](#) alongside the UK National Pupil Database of exam results. As people's genes do not change over time, they wanted to know if value added progress measures only reflect [school](#) and [teacher](#) performance or also [genetic differences](#) between students.

Researchers found that some value-added measures of progress during [secondary school](#) which account for factors such as a student's gender, age and ethnicity were affected by differences in students' genetics. There was also evidence that differences in genetics could explain more of value-added measures built from teacher assessments of their students' ability.

This means that these measures partly reflect the students that schools and teacher's intake rather than only the schools and teachers' contribution to their students' education.

Since 2002 value-added measures of the progress students make in each period at school, such as between entering secondary school at age 11 and taking GCSE's at age 16, have been used to assess how well a school and its teachers are performing.

Value-added statistics consider pupil intake and prior ability in an attempt to provide unbiased indicators of school and [teacher performance](#). Because school league tables are built from these statistics, they are assumed to be accurate and provide a fair reflection of the performance of schools and teachers. This research highlights that value-added measures and the resulting school league tables are biased and may unfairly penalise some schools.

University of Bristol's MRC Integrative Epidemiology Unit Senior Research Associate Tim Morris commented: "Incorporating genetic information could profoundly affect our understanding of education and offer new ways to investigate the effectiveness of educational policy.

"These findings suggest that value-added progress measures should be used with caution as they may misattribute pre-existing differences in children's ability to schools and teachers. School league tables may over or understate the effectiveness of schools depending on their intake, and teachers may be unjustly penalised based on their luck of the draw regarding the class they are given.

"Thanks to the wealth of data available through the Children of the 90s study we were able to conduct this work. The next steps should be to look at how the genetic differences we observe may be expressed, for example through attitude to work or behaviour."

**More information:** Tim T. Morris et al. Testing the validity of value-added measures of educational progress with genetic data, *British Educational Research Journal* (2018). [DOI: 10.1002/berj.3466](https://doi.org/10.1002/berj.3466)

Provided by University of Bristol

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