

Policy Insights

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shapes educational success**

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More school resources and higher educational attainment, income and occupational status of parents are associated with children's better educational outcomes. But our research shows that family structure also plays a role. Policy interventions are needed to account for such forms of diversity in the classroom.

Background

We are still learning about the forms of diversity that children bring to classrooms and that shape their educational success. Besides schools' resources and parents' income, cultural capital and own education level, our research shows that family structure also plays a role. Genetic research illustrates this.

This does not mean that there is a "gene for education". Rather, research shows that educational outcomes are linked to the combined effect of many small genetic variants and can account for 10 to 20 per cent of a person's variation in educational attainment.

It is important to note that this proportion is not fixed - the extent to which genetic influences are linked to educational outcomes depends on the conditions in which children grow up. Research suggests that in environments that "support" developmental processes and learning, genetic differences between children are more strongly reflected in their educational outcomes. Where the environment is "less supportive", these differences tend to matter less.

One factor in how "supportive" environments are, is parents' socio-economic situation, but we wanted to understand to what extent family structure also has a say. Our research found that parental separation, specifically, shapes the extent to which genetic factors affect children's educational outcomes.

What we found

We conducted our research using two studies: 1) the German TwinLife study, a population-representative twin study conducted annually since 2014, and 2) the US Health and Retirement

Study, in which we used a “polygenic score” for educational attainment, i.e., a measure that summarises the combined effects of many small genetic variants associated with educational attainment.

The two studies differ not only in terms of methodology but also in context: Germany has a comparatively strong welfare state and lower divorce rates compared with the United States. However, both reveal a consistent pattern; among children and adults who have experienced parental separation, the link between genetic influences and educational outcomes is weaker. In the German study, the influence of genetic influences on cognitive abilities and self-assessment of one's own academic abilities is substantially smaller among children in single-parent families than children in two-parent families. In the US, the study shows that the link between genetic influences and educational success is almost twice as strong among adults from two-parent families than among adults whose parents had separated.

Significantly, we found that these differences in the strength of genetic influence exist between people whose parents have similar socio-economic resources. This means that the explanation that children with separated parents have lower educational attainment because their parents have fewer resources, is insufficient. For instance, in the US study, we were able to compare adults who had separated parents with those who had lost a parent to death as a child. We found that the relationship between genetic influences and education for adults who lost a parent to death during childhood is more similar to that found in two-parent families.

This suggests that factors specifically associated with parental separation, such as increased stress within the family, changes in parenting practices, reduced opportunities for daily interaction with children, fewer routines and, above all, discontinuities, appear to create an environment in which genetic differences between children translate lower into educational outcomes.

This does not mean that parental separation is universally detrimental to children or that parents should stay together “for the sake of the children”. In highly conflictual family constellations, a separation can be a relief for children and even create more stable conditions. What we describe are average patterns, not statements about individual families.

Furthermore, it is important to note that our study is not a causal analysis - our findings show associations, not cause-and-effect relationships. Furthermore, our research does not infer that genetic influences determine educational success. On the contrary, the core insight is that the effects of genetic influences depend on social conditions, rather than being isolated from them. This also points to the fact that there are evolving forms of diversity that must be accounted for in education systems.

Insights for Policy

In public debate and policy aimed at creating equal educational opportunities for children, material resources (parental income, access to private tuition and proximity to educational facilities) are the main topics of intervention. Our findings, however, show that this is too narrow a view.

What we suggest is that support for children should not focus solely on socio-economic background, and that family structure is an equally important, but often overlooked, dimension that schools and policymakers should take into account.

Our findings specifically point to the fact that schools, teachers and communities could provide more support for parents and children who are going through separation. This could include:

- Support for separating families that goes beyond financial assistance. Interventions that address stress, conflict, instability and other circumstances, are needed alongside income support.
- There should be better access to counseling for all children and parents going through separation, ideally before, during, and after the process. This means equipping schools to identify and support children experiencing family transitions.
- Schools should provide opportunities for stable and enriching environments outside the home, such as in after-school programs and extracurricular activities, so that children have continuity and support during periods of family instability.

References

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