The summer-born effect

Does being born in the summer months make you more likely to struggle at school? **Chris Smith** looks at the increasingly powerful evidence for greater help to stop the youngest children in their year from falling behind at school.

The statistical relationship between educational performance and factors such as gender, race, economic background, and learning difficulties is firmly established. Indeed, many schools provide targeted support to prevent such 'at risk' groups from falling behind. Yet, there is still little being done in schools to prevent what has become known as the 'birthdate' or 'summer-born' effect. That is, that the youngest students in school year groups will, on average, have lower educational attainment than their older counterparts.

There has been a great deal of research into the correlation between educational attainment and age across the world. In the UK, interest initially spiked in the 1960s with the existence of the eleven-plus examinations, but the issue has continued to rise to the surface of educational debate ever since. Over recent months, sparked by the publication of the Institute for Fiscal Studies' report **When you are born matters: evidence for England** in May, there has been a resurgence of interest in the issue which resulted in a debate in Westminster on the topic this September.

Yet all of this research and political interest has only gone so far. Much of the discussion is restricted to forums away from schools and remains restricted to high-level matters of government policy – very little is actually done to inform schools or offer them guidelines on how to tackle the problem. While in time, government policies may be put in place to tackle the issue and clear guidelines set out, it is of crucial importance that awareness is raised in the school system and that school staff begin to understand how to tackle it.

What is the birthdate effect?

The birthdate effect in education is the term given to the phenomenon whereby students who are the youngest in a school year-group perform less well academically than their older peers. In the UK, it has become known as the 'summer-born' effect because, with a school year starting in September, it is students born in the summer that are the youngest for the academic cohort and therefore most affected. This term is a little misleading – research from around the world (where term dates differ) confirms that it is students' ages relative to their year-group, not the month they were born, that is the key determinant of their performance.

The birthdate effect is not limited to education. Perhaps surprisingly its presence is most clearly seen on the sporting field. **A study of Premiership footballers** in 2005 by the Association of Football Statisticians discovered that of the near 2,000 Englishmen to have played at the top level, more than 40% were born in September, October or November. The suggestion being that because they were the oldest in their age groups, they were the ones that stood out.[1] Similarly, **Malcom Gladwell** in his famous book *Outliers* showed that most professional Canadian hockey players were born in the first months of the year. The reason being, he argues, was that the Canadian youth leagues recruit by calendar year and so those born at the start of the year were the oldest in their teams and were able to reap the rewards.[2]

That your month of birth can determine your future is an uncomfortable thought but of course a summer birthday does not consign you to doom. The effect is a statistical trend and many people do not conform to it. Notably a *Guardian* article, published on the back of the IFS report, pointed out that Mother Teresa, Stephen Fry, Barack Obama and Napoleon Bonaparte were all born in August. That said, the trend is a significant one and, in the world of education, one that needs addressing.

The birthdate effect and attainment

Whilst the exact statistics quoted from study to study vary, the trend is clear – the younger you are in your school year, the less likely you are to succeed academically compared to your older peers. This discrepancy is at its most significant when children join school and as they go through the primary system. As children get older, the achievement gap between the oldest and the youngest closes, but still remains by the time they finish their GCSEs. This is generally attributed to the fact that as the gap in their relative ages falls so does the gap in their academic attainment.

This statistical relationship is clearly demonstrated by figures obtained by the IFS below:

- At age seven, August-born pupils are 26 percentage points less likely to achieve the government's expected level than September-born pupils.

- At age 11, August-born pupils are 13 percentage points less likely to achieve the government's expected level than September-born pupils.
- At age 16, August-born pupils are 6.4 percentage points less likely to achieve the government's expected level than September-born pupils.[3]

The figures clearly demonstrate the overall trend and also point to the huge gulfs in attainment present at the primary level. Such large differences early on in children's educations would be expected because, as highlighted above, this is when the relative age difference is at its highest.

To quantify the GCSE statistics, **the DfE have estimated** that around 10,000 summer-born children each year do not achieve five A*-C grades at GCSE purely because they are the youngest in their year.[4] This is a scary statistic. Approximately 10,000 lives each year are being adversely affected by their birth month and the timing of the school year. As would be expected, research has also shown that summer-born students are less likely to go to university or obtain a degree (although the discrepancies between their older classmates are much smaller in these instances).

There is a lack of agreement as to whether the birthdate effect persists into adulthood – the IFS found no supporting evidence but other studies have. Regardless, the evidence above points to the fact that schools must begin to at least acknowledge the disadvantage summer-born students are at, if not begin to tackle it.

The birthdate effect and development

Interestingly, more modern studies have begun to recognise that it is not just grades and attainment that can be hit by the birthdate effect. In fact, there is a clear link between the diagnosis of pupils with special educational needs and their birth month. **A DfE study** has highlighted that:

- By the end of Key Stage 1, August-born pupils are 90 per cent more likely to have been identified with SEN than September-born pupils.

- By the end of Key Stage 2, August-born pupils are 60 per cent more likely to have been identified with SEN than September-born pupils.
- By the end of Key Stage 4, August-born pupils are 25 per cent more likely to have been identified with SEN than September-born pupils.[5]

Again, the figures are remarkable and a similar trend to attainment emerges. As the children get older, the disparity diminishes. However, the figures clearly present a worrying possibility – that students are being incorrectly identified with SEN when in fact, they might be at a perfectly normal stage of development for their age. Indeed, **research carried out by the Institute of Education** supports such a conclusion.[6] Clearly, schools need to take greater account of students' developmental age when assessing their abilities.

On top of the potentially false identification of summer-born students with SEN, there is growing evidence that they suffer a real impact to their socio-emotional development and well-being. Summer-born students are generally less confident in their own ability, feel they have little control of their own future, enjoy school less and are even more likely to take greater risks, such as partaking in underage smoking.[7] Such statistics are less easily evidenced and substantiated than those that deal in the hard figures of academic attainment but are just as (if not more) troubling.

"Summer-born students are generally less confident in their own ability, feel they have little control of their own future, enjoy school less and are even more likely to take greater risks, such as partaking in underage smoking."

The idea that summer-born students are not only academically disadvantaged but also likely to be less happy in themselves is a very uncomfortable possibility, especially for parents, but most certainly for schools too. This is an area that has had less attention than that of academic attainment but is one that deserves more.

Why does the birthdate effect exist?

Whilst the facts presented above make plainly clear that the date of birth of a student can have a significant bearing on their educational performance, it is less clear why this is the case. In order to be able to begin tackling some of the issues raised by the birthdate effect, it is essential that a firm understanding of its causes are understood. A variety of arguments have been put forward to explain the birthdate effect that can be summarised as follows:

1. **The relative age effect** – if students are placed in groups where they are amongst the youngest, then it is likely that their performance will be hindered.
2. **The age at which the test is taken** – if students sit exams on the same day, they will not be the same age and thus younger students are at a disadvantage. Under this hypothesis, if everyone sat the test when they were a set age, the birthdate effect would not exist.
3. **The age of starting school** – summer-born pupils start school when they are younger than their older peers. This theory suggests that they may not be ready for the structures of school at this young age and consequently don't make as much progress.
4. **The length of schooling** – depending on the local authority, it is possible that children born later in the academic year will start school later than their older peers. If this is the case then they may receive up to two terms less tuition and consequently perform worse.

None of these theories has received complete approval from the academic community as yet. In reality, it is unlikely that it would be just one of these factors that caused the birthdate effect in education and is far more likely to be a complex combination of a group of them. It will be crucial for any educational policies that these factors are understood.

The birthdate effect and government policy

It is worthy of note that a majority of the political debate has focused around 'the age of starting school,' with this theory also being promoted in a recent letter to the Telegraph signed by numerous educationalists asking for the school entry age to be raised. However, the other factors highlighted above appear to have received less attention in the corridors of power. This is made more surprising by the fact that the IFS study discredited 'the age of starting school' as a driver of the birthdate effect and suggested instead that it was the age at which the test was taken that was the key determinant. Their policy recommendation in light of these findings was the relatively simple process of age adjusting tests.[8]

Indeed, there are a range of potential policy options, some even in operation already overseas, which could help to mitigate the birthdate effect. Researchers point to countries such as Finland where children start compulsory education at the age of seven and the birthdate effect is negligible.[9] Similarly, New Zealand operate an innovative system where students all begin schooling at the age of five (and therefore have a staggered entry to school) and sit tests after a set period of time, meaning they are all assessed at the same age and after the same amount of schooling. While such innovative policies do highlight the potential for policy to help reduce the summer-born effect, any suggestions need to be properly researched and their consequences fully understood. Perhaps the best thing that government could do would simply be to raise awareness in schools of the issue. In the meantime, it is down to schools and individual teachers to attempt to aid summer-born students as best they can.

Strategies for schools

Schools can play a large part in improving outcomes for summer-born students. The DfE made clear that 'higher performing schools' were able to reduce the gap between the youngest and oldest in each year group far more effectively than 'lower performing schools'.[10] Rising school standards in general, then, should help summer-born students.

But there are some more specific strategies that may prove beneficial. The success of early intervention programmes provide one possible avenue of interest. An example of this is the Every Child Counts programme. It offers intense intervention to primary pupils who are over a year behind in their mathematics (predictably, summer-born students made up nearly half of those who qualified for support). The results were impressive with **ECC reporting in their 2012 annual report** that students on the scheme made 'an average Number Age test gain of 15.7 months after only 3.7 months of support' and crucially 73 per cent of participants went on to achieve the government expectations at Key Stage 1.[11]

There is a clear benefit to such schemes, and not only for summer-born students, as the figures above prove. There are issues too, though. External schemes normally come at a cost and when budgets are tight they are often not invested in – of course, intervention can come from within too, but still at a cost. Furthermore, if summer-born students are not actually behind but on course for their actual age, then it raises the question of whether they should receive extra support to bring them in line with older peers they should probably be behind anyway.

Another possible strategy would be to delay the setting or streaming of students by ability. **A working paper by Tammy Campbell** at the Institute of Education has demonstrated that summer-born students are significantly over-represented in bottom sets whilst the reverse is true for September-born students. Her research has also shown that the vast majority of students are set or streamed in some way at primary school. This can alter teachers' perceptions of students and the student's perceptions of themselves as well as limiting the educational opportunities that they are offered.[12] The impact of this, as highlighted earlier, may be more fundamental than simply affecting

children's grades. If setting from an early age is likely to exacerbate the summer-born issue then schools may wish to think again about setting their students too early. With the government offering no discreet guidance on setting or streaming, schools are free to choose as they wish.

Strategies for teachers

Of course teachers too can have a significant impact on their summer-born students. Just like schools, the better they are, the better their summer-born students will perform. Other than ensuring teachers are aware of the issues, as important as that is, some more research does need to be conducted into specific strategies to be used in the classroom.

Importantly, teachers need to be aware of the ages and expected levels pupils should be at. Research conducted over two decades ago pointed to the fact that teachers tended to under-assess their summer-born students.[13] This was confirmed by the IFS' recent study that found that at Key Stage 2, August-born pupils were nearly one-third more likely to have been under-assessed by their teacher compared to September-born pupils when compared with external assessments.[14] This is a worrying revelation and is indicative of the fact that, currently, there is a lack of awareness about summer-born students throughout the education system. As a result, teachers are judging, probably subconsciously, their summer-born students unfairly.

To help teachers remain aware of the likely differences in their students, one relatively simple suggestion could be placing registers in order of date of birth, instead of the usual alphabetical list. This alone, of course, would not be enough but would have to be accompanied with genuine differentiation. If summer-born students are recognised as likely to be behind their peers and are subsequently appropriately catered for then that will surely allow them to make better progress. Teachers are regularly faced with classrooms filled with a variety of abilities and needs and have to cater for them. Summer-born students are another portion of this spectrum of abilities and needs. It is essential that they are recognised as such and not passed over or subconsciously under-valued.

Ultimately, although more research does need to be done on the best pedagogical approaches for summer-born students, it is most likely that teaching that leads to personalised learning will be of most benefit to summer-born students. Teachers need to be aware of the issues presented by the fact some of their students are significantly younger than their peers. Once they are aware, they can assess how best to promote progress for each student, and teachers should be trusted to do that. However, it would be ridiculously simplistic to suggest that all summer-born students should be treated in the same manner or taught in the same way. Only when teachers are able to truly personalise the learning of each individual student, summer-born or not, will they make the progress they are capable of.

Conclusions

It is clear that although the summer-born issue has received a high-degree of scholarly attention, it is time that more attention is paid to it in schools. The fact that in the UK, summer-born students are more likely to miss the government's academic targets, be placed in lower sets, be diagnosed with SEN, be under assessed by their teacher and even be less confident all point to the fact that there is simply a lack of awareness in education about the issues surrounding the birthdate effect. As a consequence, there is a lack of action. First and foremost, information needs to be disseminated to teachers so that instead of unfairly judging summer-born students against their older peers, they can acknowledge that these students are likely to, and in fact should, be behind them. Once this is the case, it would seem many of the issues summer-born students encounter at school would cease to be a problem.

With this in mind, some of the current political discussion around summer-born students may be unhelpful. One change to policy is unlikely to have the desired effect

of removing the issue entirely. Of course, government policies may help to mitigate the birthdate effect but these will take time to implement and are unlikely to change classroom attitudes and practices. Consequently, schools and teachers should begin playing their part now by acknowledging that younger students should not be expected to be at the same stage of development as their older peers. Once this is the case, and children are catered for as individuals, then we might begin to reduce the disparities in our education system caused by the birthdate effect.

Chris Smith is research coordinator at SSAT, the national hub of active network of heads and teachers in the UK.

References

1. From BBC, How to build a champion: Be born at the right time (2012).
2. M. Gladwell, Outliers: The story of success (2008), Little, Brown and Company.
3. C Crawford et al., When you are born matters (2013), Institute for Fiscal Studies. Pp. 20-21.
4. Department for Education, Month of birth and education (2010), DfE. P. 2.
5. Department for Education, Month of birth and education (2010), DfE. P. 3.
6. Institute of Education, Special Educational Needs in the early primary years (2004), IOE.
7. C Crawford et al., When you are born matters (2013), Institute for Fiscal Studies. P. 65. & Department for Education, Month of birth and education (2010), DfE.
8. C Crawford et al., When you are born matters (2013), Institute for Fiscal Studies. P. 65. & Department for Education, Month of birth and education (2010), DfE.
9. K. Bedard & E Dhuey, The persistence of early childhood maturity: International evidence of long-run age effects (2006), University of California. P. 19.
10. Department for Education, Month of birth and education (2010), DfE. P. 3.
11. Edge Hill University, Every Child Counts Annual Report (2012), Edge Hill University. P. 4.
12. Tammy Campbell, In-school ability grouping and the month of birth effect: preliminary evidence from the millennium cohort study (working paper) (2013), Institute of Education.
13. J F Bell & S Daniels, 'Are summer-born children disadvantaged? The birthdate effect in education' Oxford review of education, vol 16, no. 1, (1990).
14. C Crawford et al., When you are born matters (2013), Institute for Fiscal Studies. p. 23.