



Briefing note School absences and pupil achievement

Prepared by Sam Sims



Key points

Pupils who do not attend school when school is open see a small decline in their academic achievement:

- Each day of individual pupil absence results in around 0.3-0.4% of a standard deviation reduction in achievement.
- Equivalently, eight days of absence (the annual average in England) would move a pupil one place down a ranking of 100 pupils (e.g. from 50th to 51st).
- Pupils from low-income households see a larger negative effect from each day of absence.

Pupil achievement can also be harmed by term-time coordinated school closures:

- It is not clear whether coordinated closures are more or less damaging than uncoordinated closures. In any case, the magnitude of this effect will likely depend on what kind of educational activities pupils engage in during the closure.
- Again, pupils from low-income households experience a larger negative effect from coordinated absences.
- Coordinated absences lasting for several weeks can have small long-run negative effects on pupil achievement.

Recommendations

- Improving communication with parents via text or email has been shown to be an effective way of reducing such absences.
- If feasible, and where pupils will be studying related material in the subsequent terms, delaying tests gives pupils a chance to catch up.

The Issue

School absence occurs when a pupil does not attend school when it would usually be open. In England, the average pupil missed 8.4 of the 195 scheduled days in the 2018/19 academic year. However, this masks wide variation in the number of days missed, with 10.9% of pupils absent for more than 10 days (DfE, 2020).

Absences happen for two broad reasons. First, pupils can fail to turn up to school on a day that the school is open. They may be ill, truanting or natural obstacles such as flooding may prevent them from attending. Second, the school may be experiencing an unscheduled closure due to a teaching strike, extreme weather or a disease epidemic (such as COVID-19).

Pupils absent from school tend to miss out on new learning and may also forget previously learned material. This briefing note summarises the empirical evidence on the strength of the relationship between school absence and pupil achievement.

Understanding School Absence

Simply comparing the achievement of pupils with differing levels of absence will likely provide a misleading account of the relationship with achievement. This is because pupils who are absent may be less motivated, in worse health, struggling with sleep or have an inferior relationship with their school and/or teachers. We might therefore expect absent pupils to have lower achievement regardless of the effect of absences. Understanding the true relationship therefore requires researchers to compare pupils with differing levels of absence who are otherwise similar.

It is also necessary to consider different types of absence. For example, if one pupil in a class fails to attend for three days because they are ill (uncoordinated absence) this has very different implications to a situation in which a whole school is closed for three days (coordinated absence). For similar reasons, the timing of the absence is likely to matter. Pupils

who are absent early in the school year, or earlier in their school career, have more opportunities to revisit the missed material prior to important examinations. Finally, the impact of absences may depend on what pupils do instead of attending school. If their parents are able to home school them or pay for private tuition, for example, then the impact will likely be reduced.

Uncoordinated Absences (Individual Pupil Absences)

Three studies have investigated the effect of uncoordinated absence on achievement by comparing absences and test scores within sibling groups. Since siblings generally share the same home environment and attend the same schools, this helps reduce concerns that differences in achievement are due to something other than the absence. Gottfried (2011) studies elementary school (age 6-13) pupils in Philadelphia and finds that an additional day of absence results in a reduction in achievement of 10%-14% of a standard deviation. By contrast, the other two studies find much smaller effects. Aucejo & Romano (2016) analyse data on elementary school pupils in North Carolina and Cattan et al. (2017) utilise data on Swedish pupils age 7-11. Both find that an additional day of absence results in a reduction in achievement in the region of 0.3-0.7% of a standard deviation. Liu, Lee and Gershenson (2019) rely on a similar logic but, instead of comparing individuals to their siblings, they compare absences and achievement in e.g. maths to absences and achievement in e.g. English for the same pupil. They find an additional class absence results in a decline of 0.3% of a standard deviation.

Two studies have used snowfall to investigate the effect of uncoordinated absences on achievement. Snowfall varies across regions and across years, creating variations in absences. Crucially however, snowfall does not discriminate in terms of whether it lands on e.g. more or less motivated pupils, thus providing a cleaner estimate of the relationship between absences and achievement. Goodman (2014) analyses data on pupils from Massachusetts and finds that an additional day of

snowfall-induced absence leads to a reduction in achievement of 5% of a standard deviation. Cattan et al. (2017) come to a comparable finding (2% of a standard deviation) using extreme weather in Sweden. Aucejo & Romano (2016) employ a similar logic but using flu outbreaks rather than snow, finding a decline of 1-1.8% of a standard deviation.

Gaete (2018) studies the effects of widespread pupil strikes in public secondary schools in Brazil, looking at the change in pupil attainment compared to prior cohorts of public school pupils, over and above the change experienced by pupils in the same cohort in types of schools not affected by the strikes. He finds a negative effect on achievement equivalent to 0.2-0.4% of a standard deviation in maths for each day of school absence.

Several studies have also looked at whether uncoordinated absences affect certain pupils differently. The impact of absences appears to be larger for economically disadvantaged pupils (Aucejo & Romano, 2016; Gershenson, Jackowitz, & Brannegan, 2017). In addition, the impact of absences appears to differ based on proximity of the absence to the examinations in which achievement is measured. The effect of absences in the autumn term tends to be no longer detectable by the subsequent spring term (Liu et al., 2019) whereas absences occurring in the month before an exam have a particularly damaging effect (Gottfried & Kirksey, 2017). This is consistent with the idea that pupils are able to catch up on material missed during an absence if they have sufficient time to do so. The negative affect of absences on achievement appears to be approximately linear, such that three days of absence has three times the detrimental effect of one day of absence (Cattan et al., 2017; Gershenson, Jackowitz, & Brannegan, 2017). An important caveat here is that there is little research on pupils with very high levels of absence, so we do not know whether this is disproportionately damaging.

Coordinated Absences (Whole School Closures)

Coordinated absences, in which an entire

school is closed, are rarer and consequently less well studied. Marcotte & Hemelt (2007) use data on school closures due to severe snow in Maryland and finds that each day of school closure leads to a 0.4-1.1 percentage point reduction in the proportion of pupils achieving a pass mark in their exams. However, Goodman (2014) points out that this approach potentially conflates the effect of individual student absences due to snow and coordinated school absences due to school closures. He provides evidence suggesting that coordinated absences result in 0.03-0.05% of a standard deviation reduction in achievement, with slightly larger effects for schools serving disadvantaged intakes.

A third study on coordinated absences comes from Jaume and Willen (2019) who investigate the effects of teacher strikes in Argentina, using a more elaborate version of the method employed by Gaete (2018). They find that each additional ten days that primary school pupils are exposed to school closures due to teacher strikes results in a 0.3% reduction in the proportion receiving their high school diploma. Pupils from low income households experience a larger detrimental effect. In the period covered by the study, the average school experiences around 40 days (eight weeks) of unscheduled closures due to strikes each year, which suggests that prolonged coordinated absences can have a (small) negative long-run effect on achievement.

A final source of evidence on the effects of absence on achievement comes from studies on how much pupils forget over the summer holidays. Research using carefully equated test results indicates that pupils do experience loss of learning over the summer holiday, though the exact quantum is hard to pin down (von Hippel, Workman, & Downey, 2018; Kuhfeld, 2019; Workman & Merry, 2019). In any case, these findings suggest that longer periods of coordinated school absence may have a detrimental effect via pupils forgetting previously learned content, as well as through lost instructional time.

Summary and Implications

In summary, uncoordinated pupil absences have a negative effect on achievement. The majority of studies find each day of such absence results in 0.3-0.4% of a standard deviation decline in achievement, though some studies find larger negative effects. Equivalently, eight days of absence (the annual average in England) would move a pupil one place down a ranking of 100 pupils (e.g. from 50th to 51st). Sixteen days of absence would have approximately twice the effect.

It is not clear whether coordinated closures are more or less damaging than uncoordinated closures, not least because studies on the two types of absences tend to use different research designs, which limits comparability. Coordinated absences lasting for several weeks can, however, have small persistent implications for pupils' achievement later in life.

Perhaps the clearest implication of this evidence is that uncoordinated pupil absences should be avoided wherever possible. Several experiments have shown that improving communication with parents can improve attendance (Groot et al., 2017; Rogers & Feller, 2018; Rogers et al., 2017). Long run coordinated absences due to e.g. COVID-19 will likely have negative effect on achievement, though the magnitude of this effect will depend on the alternative forms of education accessed during the closures. Research suggests that achievement is most negatively affected if pupils are tested soon after their return to school. If feasible, and where pupils will be studying related material in the subsequent terms, delaying tests gives pupils a chance to catch up, mitigating the impact on test scores.

References

- Aucejo, E. M., and Romano, T. F. (2016). Assessing the effect of school days and absences on test score performance. *Economics of Education Review*, 55, 70-87.
- Cattan, S., Kamhöfer, D., Karlsson, M., and Nilsson, T. (2017). *The Short- and Long-term Effects of Student Absence: Evidence from Sweden*. IZA Discussion Paper 10995
- Department for Education [DfE] (2020). *Pupil absence in schools in England: 2018 to 2019*. Retrieved from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/875275/Absence_3term.pdf

- Gaete, G. (2018). *Follow the Leader: Student Strikes, School Absenteeism and Persistent Consequences on Educational Outcomes*. Retrieved from <https://ssrn.com/abstract=2988825>
- Gershenson, S., Jackowitz, A., and Brannegan, A. (2017). Are student absences worth the worry in US primary schools?. *Education Finance and Policy*, 12(2), 137-165.
- Goodman, J. (2014). *Flaking out: Student absences and snow days as disruptions of instructional time* (No. w20221). National Bureau of Economic Research.
- Gottfried, M. A. (2011). The detrimental effects of missing school: Evidence from urban siblings. *American Journal of Education*, 117(2), 147-182.
- Gottfried, M. A., and Kirksey, J. J. (2017). "When" students miss school: The role of timing of absenteeism on students' test performance. *Educational Researcher*, 46(3), 119-130.
- Groot, B., Sanders, M., Rogers, T., and Bloomenthal, E. (2017). *I get by with a little help from my friends: Two field experiments on social support and attendance in further education colleges in the UK*. Retrieved from: <http://38r8om2xjhhl25mw24492dir.wpengine.netdna-cdn.com/wp-content/uploads/2017/04/Study-Supporter-WP-April-2017.pdf>
- Jaume, D., and Willén, A. (2019). The long-run effects of teacher strikes: evidence from Argentina. *Journal of Labor Economics*, 37(4), 1097-1139.
- Kuhfeld, M. (2019). Surprising new evidence on summer learning loss. *Phi Delta Kappan*, 101(1), 25-29.
- Liu, J., Lee, M., and Gershenson, S. (2019). *The short-and long-run impacts of secondary school absences*. IZA Discussion Paper 12613.
- Marcotte, D. E., and Hemelt, S. W. (2008). Unscheduled school closings and student performance. *Education Finance and Policy*, 3(3), 316-338.
- von Hippel, P.T., and Hamrock, C. (2019). Do test score gaps grow before, during, or between the school years? Measurement artefacts and what we can know in spite of them. *Sociological Science*, 6, 43-80.
- von Hippel, P. T., Workman, J., and Downey, D. B. (2018). Inequality in reading and math skills forms mainly before kindergarten: A replication, and partial correction, of "Are Schools the Great Equalizer?". *Sociology of Education*, 91(4), 323-357.
- Rogers, T., Duncan, T., Wolford, T., Ternovski, J., Subramanyam, S., and Reitano, A. (2017). *A Randomized Experiment Using Absenteeism Information to "Nudge" Attendance*. REL 2017-252. Regional Educational Laboratory Mid-Atlantic.
- Rogers, T., and Feller, A. (2018). Reducing student absences at scale by targeting parents' misbeliefs. *Nature Human Behaviour*, 2(5), 335-342.
- Workman, J. and Merry, J. (2019). *Pervasiveness and Magnitude of Summer Learning Loss*. Retrieved from <http://dx.doi.org/10.2139/ssrn.3325590>

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Prepared by: Sam Sims

Contact for further information:
Centre for Education Policy &
Equalising Opportunities (CEPEO)

www.ucl.ac.uk/ioe/cepeo
email: cepeo@ucl.ac.uk
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