

# SCHOOL ATTENDANCE: EQUITIES AND INEQUITIES IN GROWTH TRAJECTORIES OF ACADEMIC PERFORMANCE

## Abstract

Much of the pedagogical as well as political tension in the discussion about the effects of education on the development of children has been focused on the importance of the quality of education as distinct from the quantity of it. It is reasonable to expect that some attendance at school is necessary to achieve its desired effects, or to posit that there might be a point at which the quantity dimension becomes so eroded that the quality characteristics cannot be expressed in the achievement outcomes. We used Australian data on school enrolment, school attendance, and standardised literacy and numeracy achievement tests from 2008 to 2012 to longitudinally assess the attendance patterns of over 415 000 primary and secondary students across the five-year period. We also examined how these patterns vary for students with different characteristics. We examined the extent to which authorised and unauthorised absences from school related to achievement after controlling for a range of factors. We also investigated how absence rates in previous years relate to current achievement levels and whether there is a 'safe' threshold of absence at which students could catch up on missed schooling without affecting their overall achievement. Equities and inequities in trajectories and outcomes are apparent – particularly at the outset of schooling – with clear implications for educational policies.

## Stephen R. Zubrick

*The University of Western Australia and Telethon Kids Institute*

*Dr Stephen Zubrick currently holds a Winthrop Professorial appointment in the Centre for Child Health Research at the University of Western Australia and is a Senior Principal Research Fellow at the Telethon Kids Institute in Perth. He is also Chairman of the Consortium Advisory Group for the National Longitudinal Study of Australian Children, a member of the Steering Committee for the Longitudinal Study of Indigenous Children, and sits on the Longitudinal Studies Advisory Group of the Australian Government Department of Families, Housing, Community Services and Indigenous Affairs. He is the Deputy Director of the Australian Research Council Centre of Excellence for Children and Families over the Life Course. In 2010 he received the Citizen of the Year Award for lifetime contributions to the children and young people of Western Australia.*



Apart from the effects of parenting on the development of children, there is probably no other greater force applied to alter the course of their development than that of education. Like parenting, education, and more particularly the experiences packaged in it, contains proximal developmental exposures (Bronfenbrenner & Evans, 2000): education occurs close to the developing child, fairly regularly and over an extended period of time. Importantly, it is also reciprocal in the sense that some educational exposures are changed in response to changes in the development of children.

In most cultures, education is a developmentally 'prompted' expectation. Through legislation, it is variously mandated, and because of this it becomes one of the few societal expectations that is explicitly organised to change the course of human development. The significance of this is apparent in all cultures. Typically, education is broadly revered and considered to be an important human right, and controversy often arises when changes to curricula, methods of delivery and access to schooling are proposed.

The broad acceptance of these features of education is accompanied by a surprisingly barren scientific landscape in respect of estimates of the developmental effect of actual school attendance upon intended educational outcomes such as academic achievement. Much of the pedagogical as well as political tension over the effects of education on the development of children has been focused on the importance of the quality of education as distinct from the quantity of it. The research literature is replete with studies that provide a compelling consensus on the pre-eminent importance of the quality of teacher contributions and their actual teaching behaviours to the academic achievement outcomes of students (Hattie, 2009). Understandably, an interest in how education develops children should focus on the quality dimensions of the developmental experience rather than reducing the effect of education to merely a matter of 'showing up' at school. And yet, it is reasonable to expect that some attendance at school is necessary for education to achieve its desired effects, although one might posit that there is a point at which the quantity dimension becomes so minimal that the quality characteristics cannot be expressed in the achievement outcomes (National Audit Office, 2005).

## Approaches to the study of school attendance

The literature about the effects of school attendance on academic achievement is narrated around four

broad foci: 1) truancy, 2) school 'drop-out' (or 'engagement'), 3) mobility and 4) absence (or attendance). There are other more narrowly focused problem areas (e.g. school refusal), but these four broad foci characterise the predominant literature. While overlapping in some regards, each of them has served slightly different aims.

Truancy is predicated upon education having a legislative remit that makes it compulsory across certain age ranges and in so doing defines truancy as any intentional, unauthorised absence from school. Part of the history of such legislation traces back to the introduction of laws to prohibit child labour, thereby strengthening, among other things, the mandate for compulsory education as a right or entitlement of all children (Ramirez & Boli, 1987; Richardson, 1994; Weiner, 1991). With the community expectation about the importance of compulsory education being emphasised in legislation, it is the parents' responsibility to ensure that their children attend school. There is a large scientific literature underpinning current knowledge about the characteristics of students who truant (Reid, 2012), as well as about interventions that may reduce truancy (Maynard, McCrea, Pigott & Kelly, 2013). This work accepts, *prima facie*, that students not only are compelled to attend, but also benefit from attending school. So it is particularly critical to understand and address the characteristics and modifiable risks for truant behavior. These risks include those associated with the student, the family, the local community and the school.

In contrast to truancy, the notion of school 'drop-out' is more firmly linked to disengagement from the later years of compulsory schooling (or in some developed countries, the non-compulsory years of upper high school), typically occurring in students aged 16 years and over. In this regard, school drop-out might be thought of as a more distal outcome on a pathway characterised by earlier truancy. However, drop-out overlaps with broader concepts of school retention and participation (Council of Australian Governments, 2010; Gray & Partington, 2012) and often takes into consideration patterns of segregation (and discrimination) of students into academic and vocational 'streams', whereby the academic students are traditionally retained in the upper or final years of high school, with vocational students leaving high school for trades and vocational training or other work. This diversity is more clearly seen in the underpinning scientific literature on school drop-out. It variously encompasses school (dis)engagement, preparation for

tertiary studies or non-tertiary vocations, psychosocial circumstances such as early-onset mental illness, drug and alcohol use, early pregnancy, and social gradients in onward life preparation. The scope of empirical findings encompasses the risks of dropping out associated with social disadvantage, the responsiveness of school drop-out to community and family supports that encourage onward engagement in school, and broader policy concerns with inequality and social inclusion. School programs and interventions to promote retention into the later years of schooling also predominate.

Mobility, or multiple enrolments over time in different schools, is also studied with respect to continuity of education and the impact that either spatial moves or multiple school enrolments within the same geographic area have on both rates of attendance and onward engagement. High levels of family mobility may be used as a proxy indicator for developmental chaos or other processes that disrupt key developmental acquisitions (Evans, 2006). Specific empirical studies of the effects of mobility on academic achievement, as distinct from the effects of being absent, are rare. Early studies returned mixed and confounded findings. They observed that the relationship between mobility and academic test scores was not significant when models were controlled for prior academic performance and student background characteristics (Alexander, Entwisle & Dauber, 1996; Wright, 1999). At the same time, the work of Dunn, Kadane and Garrow (2003), which is notable for its quantitative focus on the independent effects of mobility and class absence on academic achievement, revealed that mobility and academic achievement were negatively correlated. In broad terms, changing schools at least once in the three-year period prior to achievement being assessed resulted in an impact on standardised tests equivalent to being absent about 14 days in the immediate one-year period prior to the assessment.

## The problem focus

Each of these preceding areas examines school attendance, or non-attendance, as a risk factor or consequence, rather than as a direct developmental effect. The interests of researchers are understandably on the causes and dynamics that produce non-attendance or attendance rather than on the actual effects of attendance or absence on academic and other achievements. Of course, it's assumed that attendance affects learning – but how much, and for whom?

The more molar study of school absence (or attendance) as an indicator in its own right of developmental

'dose', or of developmental effect, is less evident in the empirical literature, with a rare study by Gottfried (2010) distinguishing an otherwise slender empirical field. Employing a fixed-effects framework and an instrumental variable strategy, he demonstrated that more attendance is predictive of higher grade-point averages in a longitudinal design encompassing 223 elementary and middle schools with approximately 86 000 students in kindergarten through to Grade 8. He estimated positive effect sizes of attendance on GPA of about 0.28 when adjusted both instrumentally and for prior (e.g. lagged) achievement.

The extent to which actual school attendance matters, then, is of substantive concern to schools, with many Australian school jurisdictions implementing programs to monitor, report and address non-attendance. It remains the case, though, that there are no comprehensive descriptions of the typical relationship between attendance or absence from school and actual academic performance.

This paper seeks to address some of these gaps in respect of descriptions of, and associations between, school attendance patterns and academic performances in Australian school children by posing and answering the following questions:

- What are the typical patterns of school attendance and absence among schools and students over time?
- How do these patterns vary across schools and students with different characteristics?
- How do these patterns of attendance and absence contribute to school and student outcomes over time?

## Data

Data were provided by the WA Department of Education for the population of primary and secondary students in Western Australia enrolled in a government school at any time between Semester 1, 2008 and Semester 2, 2012, inclusive. Students who were enrolled only in private-sector educational institutions during this period are therefore not included in the estimates presented in this report. The project is focused solely on students who were in Years 1–10 during the period of interest. After validation and cleaning, the final analysis file contained information on approximately 420 000 unique students enrolled during the 2008–2012 period. Details were available for these students in regard to their daily attendance during this period, and the data source included details of approximately 2.5 million attendance records on these students. In addition to these details, other data were also available, enabling a richer analysis

of effects. These data included National Assessment Program – Literacy and Numeracy (NAPLAN) results in each of Years 3, 5, 7 and 9 for each student in the sample over the five-year period. Some information was also available on caregivers of these children, as well as school-level descriptors that included geographic location and socioeconomic indices for schools. (For full details see Hancock, Shepherd, Lawrence & Zubrick, 2013.)

## Results

### Typical attendance patterns

The typical Australian primary-school student is absent for 16 days of school a year, and the typical secondary school student is absent for 24 days of school in a year (Figure 1). Children have highly stable attendance throughout the primary years. Attendance rates fall in secondary school. Attendance rates were consistently high in each year of primary school (about 92 per cent), and remained so over the study period (2008–2012). In addition to these aggregate attendance rates, we found that individual students have similar levels of attendance from year to year. School attendance patterns ('attendance careers') are established as early as Year 1, and onward prediction of school attendance is strongly associated with the pattern of attendance established in the first years of schooling.

Attendance rates declined markedly from the first year of secondary schooling (from Year 8). This pattern was evident among all student subgroups.

### Disparities in attendance

Disparities in attendance rates are evident from Year 1. They are carried into, and become wider, in secondary school. We found unequivocally that relative disadvantage was associated with poorer attendance, from the very beginning of formal schooling (Figure 2). Students in schools with a lower socioeconomic index (SEI), Aboriginal students, students who were highly mobile and those whose parents had lower levels of education and occupational status all had lower levels of attendance, on average. These attendance gaps were established early (by at least Year 1), and are influenced by factors and events prior to school entry. These gaps remain constant throughout primary school, but become wider when students enter high school. These patterns were observed repeatedly, across all indicators of disadvantage and using different types of analysis (e.g. both cross-sectional and longitudinal).

### Attendance and achievement

In all analyses, average academic achievement on NAPLAN tests declined with any absence from school and continued to decline as absence rates increased. The nature of the relationship between absence from school and achievement, across all subgroups of students, strongly suggests that every day of attendance in school contributes towards a child's learning, and that academic outcomes are enhanced by maximising attendance in school. There is no 'safe' threshold (Figure 3).

Most achievement disparities are already established at the outset of Year 3. Improving the attendance of

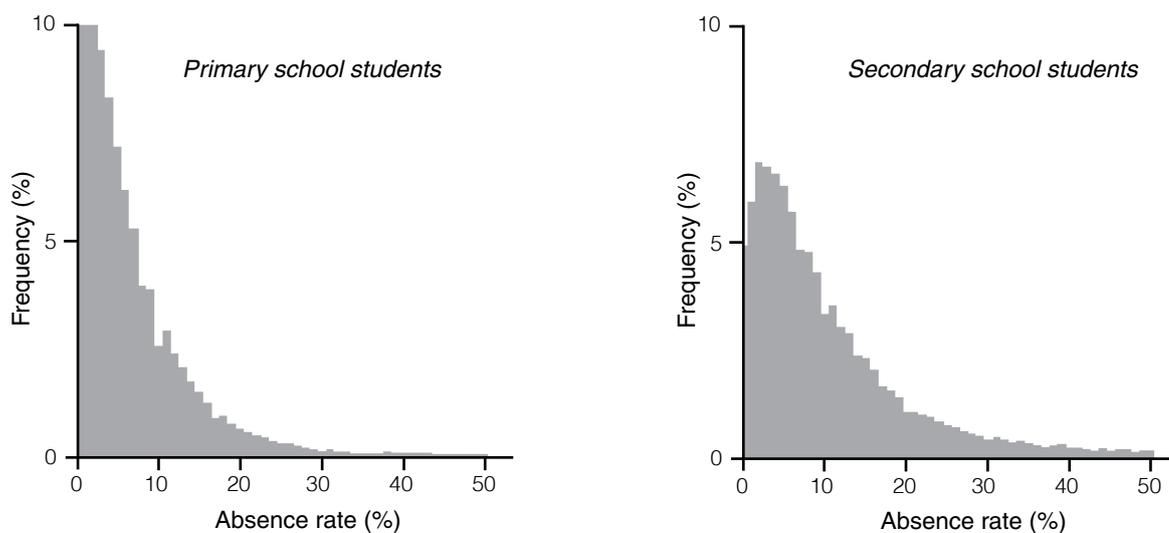
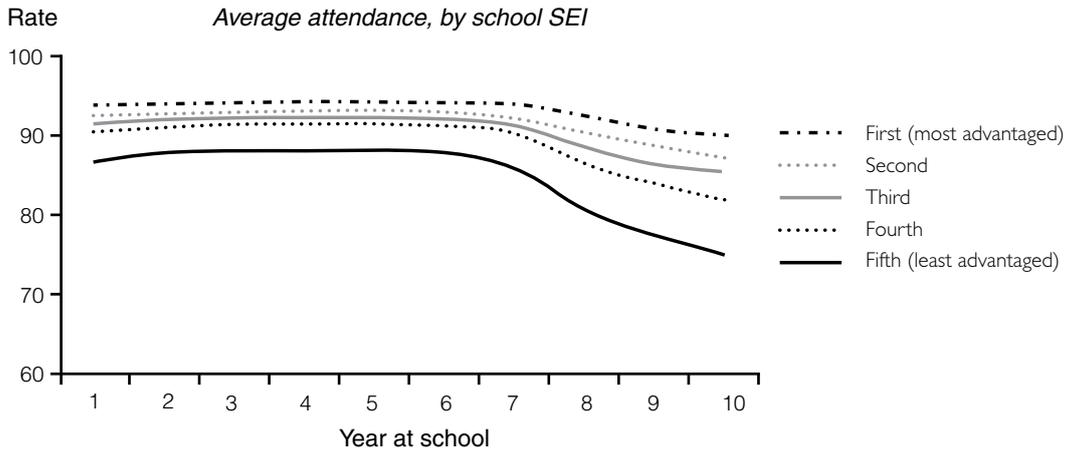


Figure 1 Distribution and mean absence rates per semester



**Figure 2** Students in lower socioeconomic strata have poorer attendance

disadvantaged students may help to reduce these, or prevent the gaps from becoming wider.

The effects of absence also accumulate over time. We found that absence from school was related to academic achievement in numeracy, reading and writing not only in the current year, but in future years as well. Parents need to be aware of these relationships, and understand that when their child misses school it can have an ongoing impact on their learning.

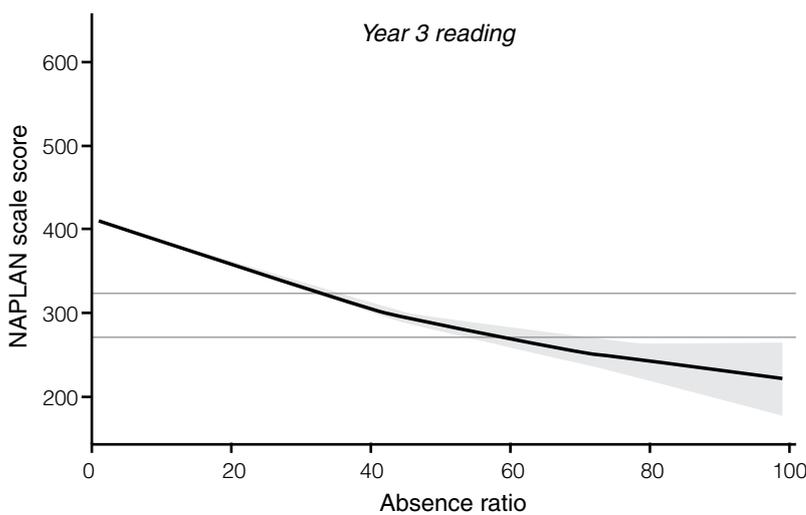
**Unauthorised absences produce stronger effects on academic achievement**

Unauthorised absences had a significantly stronger association with achievement than authorised absences,

and this was seen consistently in Years 3, 5, 7 and 9. Even small amounts of unauthorised absence from school were associated with substantial falls in average NAPLAN test scores. It is likely that unauthorised absences reflect more than just time away from school, but also possibly behavioural and school engagement issues. We noted that distinct gaps in unauthorised absences between more and less advantaged students emerged from Year 1, and this may reflect differences in parental attitudes towards education.

**Disadvantage, produces a greater, more persisting educational liability**

Among disadvantaged students, achievement declined rapidly with increasing levels of absence (Figure 4). More



**Figure 3** The relationship between being absent and academic performance using Year 3 NAPLAN results – every day counts

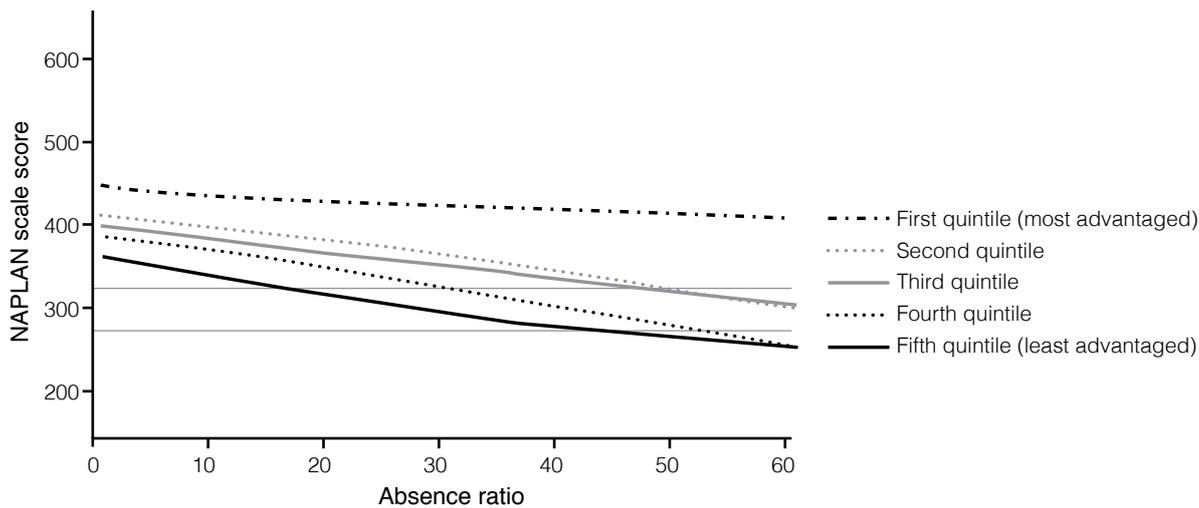


Figure 4 Students in lower SEI schools are more adversely affected by absence

advantaged children had relatively high achievement levels irrespective of their level of attendance at school. This pattern is particularly evident in the primary school years, and suggests that more advantaged children have alternative and effective resources that help them achieve learning objectives, both at school and in the home, during the early years of school.

Disadvantaged students achieved at significantly lower levels at Year 3, and these achievement gaps remained in place throughout the school years. While some of the differences could be attributable to differences in attendance patterns, the largest gaps in Year 3 achievement were observed for students from low SEI schools, Aboriginal students, and students who were highly mobile.

Improvements in absence rates over time, particularly for unauthorised absences, protected students from falling further behind and in some cases were related to improvements in NAPLAN scores. Likewise, declines in absence rates were related to declines in NAPLAN achievement, although more so for numeracy than reading achievement. We also found that low-achieving students had a propensity for poor attendance in later years even when their initial attendance was good.

## Conclusions

The broad message from these early analyses is that there is a dose-response relationship between school attendance and academic performance: every day counts. Moreover, the effects of non-attendance

accumulate over time. Days missed in Year 3, for example, are detectable in the years ahead. This is important and has not been, until now, documented in the literature.

The pattern of attendance in Year 1 is highly predictive of what the pattern of attendance will be in subsequent years. Children appear to arrive at school, in the earliest years, with their attendance careers already in their school bags. This is not a trivial issue. The data demonstrate very little change or variability in attendance careers over time. Moreover, the benefits of improving poor attendance, while evident, are not as prominent as might be hoped. This suggests that the major opportunity for preventing poor attendance is at the point of entry to preschool, pre-primary and Year 1. 'Lifting' attendance at this point, and setting the expectation and pattern about attendance early, may offer the best long-term, sustainable approach to addressing poor attendance at a universal level. Beyond this, individual treatment and targeting will need to be tailored to circumstances.

If early prevention of poor attendance is aimed for, then two school performance indicators are particularly important: the proportion of unexplained absences should fall – this is critically important and may be more important than the absolute absence rate for a student. A drop in unexplained absences may signal better engagement and expectation setting, with awareness and action on the part of the school and parents. The second indicator is the overall absence rate, which includes explained absences.

Finally, the effects of attendance on academic achievement are readily demonstrable for all students. However, these effects are modest when compared with the impact of socioeconomic status on current and onward academic achievement. The combination of low SEI with poor attendance rates, with higher proportions of unexplained absences, is particularly damaging to achievement attainment and onward success. There are substantial opportunities for targeted interventions for at risk students.

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