

## Powerful Answers to Important Educational Questions

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### INADEQUATE ANSWERS TO TOUGH QUESTIONS

How do we really know if motivation enhances achievement? How do we really know if good teacher-student relationships improve motivation? How can we be sure that improved teaching leads to improved student engagement?

Much educational research is not properly designed to answer these fundamental questions. Much educational research collects data at one point in time and so researchers and educators can never be sure if A affects B or if B affects A – or if both affect each other. For example, in the classroom context, we can never be sure if good teacher-student relationships enhance student engagement or if student engagement improves teacher-student relationships – or if both mutually enhance each other.

Why is it important to know whether A affects B or vice versa? Because our educational practice profoundly relies on us knowing what precedes what – then we know where to better direct our efforts and our resources. How do we really know if teaching is

improving achievement beyond students' prior achievement? How do we know that improving students' motivation improves performance beyond students' prior performance? How do we know that a self-esteem program improves self-esteem beyond students' prior self-esteem? How can we be sure that a social skills program has actually enhanced social skills beyond social skill development that would have happened anyway?

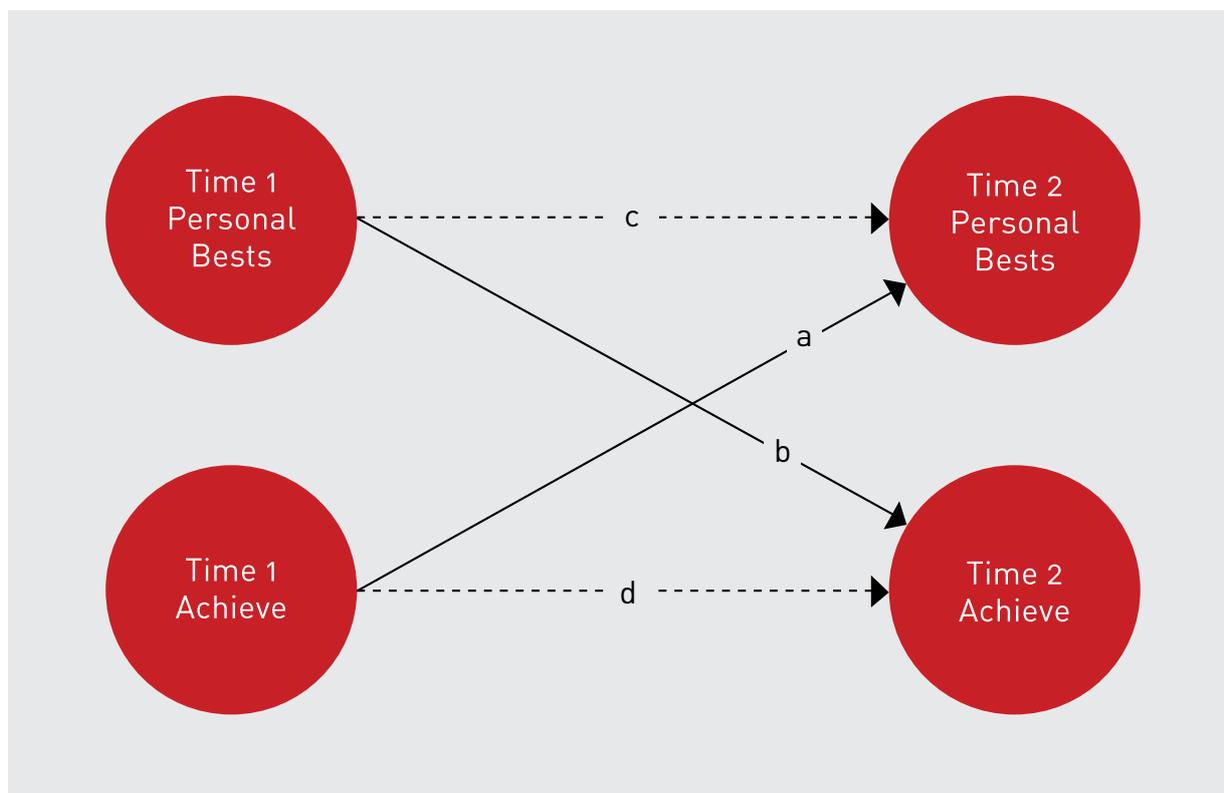
Much educational research is not properly constructed to adequately answer these questions. Much educational research does not look at the effects of A on B after accounting for previous levels of B. For example, much educational research does not look at the impact of self-concept on achievement after accounting for prior achievement; if we do not account for prior achievement we do not really know if self-concept makes a difference.

Why is it important to know whether A affects B after accounting for prior levels of B? Because our educational practice profoundly relies on us knowing what really makes a difference – again, then we know where better to direct our efforts and our resources.

### ONE OF THE GREATEST CHALLENGES FOR EDUCATORS

On a daily, weekly and yearly basis, educators are asked to bring about positive change in students' lives – that is, positively develop students' achievement, motivation, engagement, resilience, self-esteem, social skills, etc. However, one of the greatest challenges in this is the fact that the strongest predictor of a factor is often that same factor at a prior time. For example, all things being equal, the strongest predictor of achievement is usually prior achievement. That is, if the ordinary course of business plays out, how a student does on next week's test is likely to be most strongly affected by how he or she did on last week's test.

The task for educators is to have an effect on outcomes beyond prior outcomes – to bring about greater achievement than would be explained simply by a student's prior achievement. To truly add value, if you like. An important way to explore this is to conduct longitudinal research. In longitudinal research, for example, we can account for prior achievement to know how much educational practice is contributing to subsequent achievement.



### THE IMPACT OF PERSONAL BESTS (PBS) ON ACHIEVEMENT

A useful way of considering this is shown in the diagram below. This was a study by the first author looking at the effects of a Personal Best (PB) focus on achievement across a period of one year. Path 'a' tests the effect of Time 1 achievement on Time 2 PBs. Path 'b' tests the effect of Time 1 PBs on Time 2 achievement. Because prior PBs and achievement are accounted for, these tests allow us to see the effects of PBs on subsequent achievement, beyond prior achievement – and the effects of achievement on subsequent PBs, beyond prior PBs.

The results showed, unsurprisingly, that the best predictor of subsequent achievement was prior achievement (path 'd') and the best predictor of subsequent PBs was prior PBs (path 'c'). Most importantly, however, Time 1 PBs also significantly predicted subsequent achievement (path 'b') – and because this was after accounting for prior achievement ('d') we can say that PBs add to achievement, beyond prior achievement. Interestingly also, path 'a' was not significant – leading to the conclusion that PBs affect achievement more

than achievement affects PBs. This has big implications for educational practice because it shows that there is real value in educators promoting a PB focus.

### LONGITUDINAL BOARDING SCHOOL RESEARCH

Thus, longitudinal educational research dramatically elevates and amplifies the quality of answers educational researchers can provide to educational practitioners. Longitudinal educational research provides much clearer direction on what factors are really worth attending to and which will provide greatest 'bang for buck' at school. Participating in educational research that is longitudinal can give educators, students, and parents confidence that important and substantial insights will be gained from their involvement.

In a previous column in Lights Out, we introduced a collaborative research project between ABSA and the University of Sydney. This project seeks to understand the effects of boarding school on academic and non-academic outcomes. A vital feature of that study is its longitudinal design. Because it is

longitudinal we can address very important educational questions around what adds value to students' lives. The boarding school study, then, has vital scope for providing powerful answers to important educational questions.

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For further information about this study, contact Brad Papworth: [b.papworth@edfac.usyd.edu.au](mailto:b.papworth@edfac.usyd.edu.au) or (02) 9683 8490.