

Attitudes, aspirations and behaviour in educational attainment: exploring causality

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Paper presented at the British Educational Research Association Annual Conference,  
Institute of Education, University of London, 6-8 September 2011

### **Complementary approaches to improving school outcomes**

This is a review of the evidence for any causal links leading from the attitudes, aspirations and behaviour of children and parents (AABs) to educational outcomes defined as attainment and participation. The review is firmly predicated on the desire of the funder, the Joseph Rowntree Foundation, to be surer about whether working to improve AABs for less advantaged families would have an effect on school outcomes. If so, and if lower SES families generally portray less aspiration, lower motivation, or poorer behaviour for example, then working with AABs might be part of the solution to reducing the poverty gap in attainment. On the other hand, if AABs are not stratified by SES or do not have an effect on educational outcomes then this approach is a much less promising way forward. In the struggle to reduce the stratification of school outcomes by poverty, a focus on AABs may be a red herring or worse. That is why this review is significant. However, clearly neither the funders nor the reviewers accept as a premise that poverty should continue to exist, or that more promising and direct attempts to overcome the transmission of disadvantage should be ignored.

Further, there are many ways to improve education that are not explicitly related to AABs. And improvements in some AABs may be desirable in their own right, even where they have no effect on school outcomes. Attainment and participation are important but they are only two possible educational outcomes. Others, such as well-being, preparation for citizenship, resilience, and happiness could be just as important. For example, interventions to make school more pleasant and enjoyable, so enhancing school engagement, may not cash out into improved grades (Gorard and See 2011). But this is still an intrinsically good thing to do (Hagenauer and Hascher 2010), and it may lead to other desirable outcomes in terms of the preparation of young people as concerned citizens (Gorard and Smith 2010). Similarly, the link between bullying and poorer attainment may be no more strongly established than for many of the AABs described in this review (Mooij 2011, Perse et al. 2011), but bullying is intrinsically wrong and must be reduced. If this then cashes out in terms of improved attainment as well, this is a bonus. And the same argument could be used for some of the AABs reviewed here. Studies of pre-natal drug or alcohol abuse, for example, may not produce evidence of making much difference to children's attainment, but that is far from the only reason for combating such abuses.

Perhaps the money and effort expended in handling AABs, such as raising parental expectations or enhancing self-efficacy artificially, could be used more simply. Using a regression discontinuity design, Robinson (2010) found that when English language learners (Hispanic) are given substantive tests in areas like maths in their own

language (Spanish), they perform better and that this might affect their track placement and so their long-term future. The nature of assessment is under the control of educators and is perhaps quite easily manipulated to reduce attainment gaps (Gorard 2004).

Even more directly, Duncan and Magnuson (2005) argued that simply increasing the family incomes of pre-school children would be a promising intervention to reduce attainment gaps in young children. Given that there are currently few successful large-scale interventions, policies that target poor children directly, using the funds spent otherwise spent on educational and psychological interventions of uncertain impact, may be the most efficient short-term way to narrow school readiness gaps. In which of the areas that are covered by this review would it be ethical to conclude that there is sufficient evidence to proceed with work on AABs, as a lever to improving school outcomes (presumably at the cost of funding other approaches)?

This review synthesises the available evidence on the causal impact on educational outcomes of aspirations, attitudes, and behaviours (AABs) of young people and their parents. The educational outcomes considered are attainment and post-compulsory participation. Attainment is an individual's level of success in educational assessments of any kind. A key indicator might be a young child's school readiness, such as the ability to read letters of the alphabet and count to ten. Another could be the level of qualifications gained by the end of compulsory schooling. Participation concerns an individual's educational and work trajectory after the end of compulsory schooling. A key indicator might be a young person's enrolment in further or higher education.

A search of eight electronic databases supplemented by other means yielded 1,827 potentially relevant reports of research. All the evidence found is used in the synthesis, as we reject evidence only on the basis of relevance or incomprehensibility of the report. This literature included 13 distinguishable kinds of aspiration, attitude or behaviour for parents or their children. Where a possible AAB is not listed here that is because it was not discovered in the literature (parental motivation is one example). For more detail of methods and findings see Gorard et al. (2011).

Four of these AABs focus on the parents – involvement, style, expectations and substance abuse. Parental behaviour relevant to the child ranges from conception (pre-natal health and risk), through pre-school (interaction with toddlers) to school (involvement in homework and choices) and beyond. Possible indicators include parents reading to children, their rules about the timing of meals and bedtimes, and parents' engagement in risky behaviour such as drug use. Parental expectation here refers to what an individual believes will happen in the future. A key indicator might be a parent's report of their child's likely success in a forthcoming test.

Five AABs concern the attitudes and aspiration of the individual child – self-concept (esteem), self-efficacy (locus of control), aspiration, motivation, attitude to education. Self-concept is an individual's perception of themselves. A key indicator might be a child's perception of the relative economic status of their family. Self-esteem is closely related to self-concept, and refers to an individual's evaluation of their own worth or goodness. A key indicator might be a child's perception of significant others' beliefs, expectations and attitudes about them. Self-efficacy is an individual's

belief in their own ability to achieve something. A key indicator might be a child's belief about their cognitive abilities in a particular subject area. Locus of control is very similar in definition to self-efficacy, and refers to an individual's belief that their own actions can make a difference. A key indicator might be a child's belief about the importance of making an effort to ensure success. Aspiration is what an individual hopes will happen in the future. A key indicator might be a child's reported desire to continue with education post-16. Motivation is both the reason why an individual makes a decision, and their strength of purpose in carrying these decisions out. A key indicator might be a child's reported belief that schooling is important for their future. Attitude (other than those 'attitudes' dealt with separately) is an individual's feelings about education. A key indicator might be a child's expression of like or dislike for school.

The final four AABs concern the behaviour of the individual child – participation on sport and extra-curricular activities, paid work while in education, substance abuse, and poor behaviour. Child behaviour includes risky behaviour such as smoking and potentially improving actions and habits such as physical exercise. Other possible indicators include school attendance and engagement, and anti-social behaviour at school, such as classroom disruption or bullying.

### **A simple model of causation**

Since the work of Bradford-Hill (1966), the scientific conditions for identification of a causal link have been widely agreed (Gorard 2002). The review argues that four types of evidence are necessary before a causal relationship can be considered as fully established between a particular type of AAB and attainment or participation.

Association: means that an aspiration, attitude or behaviour is clearly linked to an educational outcome, so that they vary in value together. For example, this might mean that children with higher expectations also have more success at school, and that children who do worse at school have lower expectations. Association is usually presented as a correlation between two or more variables.

Sequence: means that the AAB that is supposed to cause the improvement in attainment or participation can be shown to have existed before it, and that it can be used to predict later attainment or participation. For example, this might mean that a child's high expectations are shown to come before the onset of success at school. A sequence is usually portrayed by a longitudinal study.

Interventions: means there must be evidence that controlled interventions have altered the level of any AAB, and so produced changes in attainment or participation that cannot be explained in any other way. For example, this might mean that a programme of raising children's expectations also raises their attainment. Such an effect may be tested in a number of robust ways, most notably via a randomised controlled trial.

Explanation: there must be a plausible explanation for how an aspiration, attitude or behaviour could influence an educational outcome. For example, this might mean that there is a clear, simple and widely agreed mechanism that can explain how and why

differences in expectations between pupils are converted into differences in school outcomes. The explanation must be easy to test and make the fewest assumptions necessary to provide a mechanism linking cause and effect.

Evidence for all four of these elements must be present in order for the review to be reasonably confident that any relationship is causal, although no one study would be expected to contribute relevant evidence on all four. For some AABs and some educational outcomes, there is evidence in this review for only one or two of these elements. Here there may be case for further research of a particular kind, to determine whether there is truly a causal relationship that can be a sound basis for raising educational attainment or increasing participation. As is shown below, the lack of robust evidence of successful interventions is a particular gap for several types of attitudes, aspirations and behaviour.

It is important to note that the results presented are for this new review of evidence. It is by some way the largest ever conducted on this topic in the UK, with over 166,000 pieces of research considered. However, it is inevitably incomplete. It is not about educational improvements unrelated to AABs, nor is it about the AABs themselves. It only addresses the 13 AABs found in the search. The focus was on recent research reports written in English, not exclusively about special needs provision, using eight databases of educational, psychological, and economic research (but not health, for example).

### **The causal position for each AAB**

Tables 1 to 6 provide a summary synthesis of the review findings. Tables 1 (attainment outcomes) and 2 (participation outcomes) concern the effects of parental aspirations, attitudes and behaviours. Tables 3 and 4 concern children's aspirations and attitudes, for attainment and participation respectively. Tables 5 and 6 concern children's behaviours, for attainment and participation respectively.

In each table, the first column lists the AABs. The second column synthesises the review evidence on associations and longitudinal work, and the final column synthesises the evidence on intervention work. The findings are summarised first in terms of the scale and quality of the evidence: none, weak, or medium (no areas were deemed strong in evidence), and then in terms of whether the evidence suggests a causal link (positive), no link (negative) or a combination (mixed). To assist the reader, areas where evidence is sufficient for a causal model are coloured green, areas where evidence is merely indicative are coloured yellow, and all else is coloured red (see colour key).

#### **Colour Key**

Medium or strong evidence, all or mostly showing a positive link
Weak or very weak evidence, all or mostly showing a positive link
No good evidence at all, or evidence showing no link or no clear picture of a link

*Evidence of a causal link between parental AABs and child outcomes*

Parental involvement in their child’s learning was the only measure with sufficient evidence to meet the preset criteria for a robust causal model (Table 1). There is a reasonable case that parental involvement is a causal influence for their child’s school readiness and subsequent attainment. The next steps here are to identify the key levers, design suitable and cost-effective interventions for each age of child, and to monitor these in operation. A range of interventions would be needed for parents with children of different ages to enhance and incentivise their involvement in children’s learning. This would be what the US Institute of Education Science (IES) funds as Goal 3 (efficacy or replication studies) and Goal 4 (scaling up and implementation studies). See [ies.ed.gov/funding/webinars/previous\\_webinars.asp](http://ies.ed.gov/funding/webinars/previous_webinars.asp). This is a model that could be usefully adopted by UK funders serious about making progress in discovering how to reduce the poverty gap in education. Once promise has been shown in an area then no more preliminary work is funded until an intervention has been trialled, while on the other hand no intervention can be trialled until the preliminary work shows that it is feasible and ethical.

Table 1 – Summary of strength and direction of evidence for parental AABs and attainment

AAB	Association/sequence	Interventions
Parent expectations	Weak, mostly positive	None
Parent involvement	Medium, positive	Medium, mostly positive
Parent substance abuse	Weak, mixed	None
Parenting style	Weak, positive	None

Table 2 – Summary of strength and direction of evidence for parental AABs and participation

AAB	Association/sequence	Interventions
Parent expectations	None	None
Parent involvement	Weak, positive	Weak, positive
Parent substance abuse	None	None
Parenting style	Weak positive	None

Parental involvement is a behaviour that it is possible to change. Skaliotis (2010) found that half of the parents in their study became more involved with their children’s education over the two years of monitoring. This suggests that parental interest is not a fixed thing, and since it might lead to changes in behaviour and attitudes of pupils, this forms a good basis for building an intervention. The behaviour of parents and their involvement in children’s learning gives the clearest indication of a causal link to improved school outcomes (Desforges with Abouchaar 2003). At pre-school, a number of family literacy programmes are already running (see, for example, Hirst et al. 2006). A review of 18 home-school collaboration interventions published from January 1980 to January 2002 found that they can be effective in achieving improved school outcomes (Cox 2005). The most effective interventions appeared to be those where parents and school staff work together in collaboration, maintaining a two-way exchange of information such as daily report cards and school-to-home notes. Such interventions work where the parents are interested in their child’s academic performance and are willing to put in the necessary time and effort, and by giving parents the know-how to help their children. Kendall et al. (2008) reviewed the UK Narrowing the Gap Programme, and concluded that for interventions to remediate disadvantage and narrow the gap in outcomes for

vulnerable groups they need a long-term focus, a joined-up approach dealing with a range of negative influences holding children back, and involving the whole family. An important consideration, highlighted in several of the studies in this review is that interventions must consider the possible barriers to increasing parental involvement, and seek solutions like aligning goals and language, and allowing flexible participation to suit differing life contexts (Hornby and Lafaele 2011).

There is only a weak case that parental involvement is a causal influence on their child's participation in post-compulsory education (Table 2). The next step here could be a focussed call or search for more evidence on this, with a view to commissioning research where needed. Or this area could be included within the development of interventions for parental involvement.

The review confirmed the association both of parental expectations (Table 1) and of children's expectations/aspirations (Table 3) with their attainment. However, the evidence for both falls well short of that needed to assume that it is a causal influence, because no relevant successful interventions were found. This could be remedied, by moving straight to the design of controlled trials of the influence of parental expectations and children's expectations/aspirations. There is considerable in-depth and other evidence in Cummings et al. (2011) of previous experiences attempting to raise aspirations. Using such experience, the work could go straight to efficacy trials of favoured interventions (IES Goal 3 or 4 work, see above). However, such attempts may not work, because aspiration or motivation is not enough in itself. The child has to know how to improve. Interventions also need to test for unwanted damage, of the kind possible where aspirations and expectations are unrealistic and not met in reality.

The review also confirmed the association of parenting style with attainment. However, the evidence falls well short of that needed to assume that it is a causal influence, both because the evidence of association was so sparse, and there were no relevant interventions. This issue could be subsumed within the more promising line of work on parental involvement.

There is very little evidence from this review that combating parent substance abuse has a discernible benefit for either attainment or participation. Assuming that interventions to reduce parent substance abuse are developed or in use for different outcomes anyway, any improvements in education might be a bonus.

#### *Evidence for a link between child's aspirations or attitudes and outcomes*

The evidence on child's self-concept or self-esteem falls short of that needed to assume that it is a causal influence on attainment, largely because some studies found no association after controlling for prior measures (Table 3). It is unlikely that the ongoing debate in the literature about the sequence of events can be resolved without some closely controlled and independent trials. Instead of more longitudinal work with path analysis or similar, experts on the link between child's self-concept or self-esteem and attainment should assist in the design of testable propositions for independent evaluation. It is time for this area to move from what the IES would term Goal 1 (identification) and Goal 2 (development) or even Goal 5 (measurement) to Goals 2 and 3 work (see above). This area is more than ready; the move is overdue. However, there are some approaches in this area that are almost cost-free, very simple

and would appear to generate few contra-indications. One such might stem from the study of asking pupils to write a self-affirming essay (Cohen et al. 2009).

Table 3 – Summary of strength and direction of evidence for child aspirations/attitudes and attainment

AAB	Association/sequence	Interventions
Individual aspiration	Weak, mostly positive	None
Individual attitude	Weak, mixed	None
Individual motivation	Weak, mostly negative	Medium, positive
Individual self-concept	Medium, mixed	Weak, positive
Individual self-efficacy	Weak, mixed	Weak, mostly positive

Table 4 – Summary of strength and direction of evidence for child aspirations/attitudes and participation

AAB	Association/sequence	Interventions
Individual aspiration	Weak, mostly positive	None
Individual attitude	None	None
Individual motivation	None	None
Individual self-concept	Weak, mixed	None
Individual self-efficacy	None	None

The evidence on child’s self-efficacy or locus of control also falls short of that needed to assume that it is a causal influence on attainment, largely because of the shortage of intervention studies, but also because of limited evidence of association or sequence. Rigorous evaluation in this area would be beneficial. The field is in a similar stage of immaturity as self-concept.

Within the studies of individual motivation and attainment there were a few that showed some promise from offering pupils an extrinsic (usually financial) motivation for results. Although the area of motivation in general is undeveloped as a causal phenomenon, it may be worth looking at a robust trial of payment by results for pupils in key groups, where the definition of the groups would be ethically sustainable (perhaps eligibility for free school meals). This might be a very interesting use for the current pupil premium for schools. There was almost no evidence concerning motivation and participation.

*Evidence for a link between child’s behaviours and outcomes*

Table 5 – Summary of strength and direction of evidence for child behaviours and attainment

AAB	Association/sequence	Interventions
Extra-curricular	Weak, positive	None
Individual paid work	Weak, mostly positive	None
Individual poor behaviour	Weak, mostly positive	Medium, mostly positive
Individual substance abuse	Weak, mixed	Weak, positive

Table 6 – Summary of strength and direction of evidence for child behaviours and participation

AAB	Association/sequence	Interventions
Extra-curricular	None	None
Individual paid work	None	None
Individual poor behaviour	None	None
Individual substance abuse	Weak, mixed	None

The review found indicative evidence of the influence of extra-curricular activities, after-school clubs, and participation in sports on attainment (Table 5) but hardly anything on post-compulsory participation in education (Table 6). The former still falls well short of that needed to assume that it is a causal influence, because so little evidence was found and because of the lack of controlled comparisons. Work in this area could be slowly built up, working towards a series of possible trials. The area is still in development stage (IES Goal 2, see above). One of the issues to face will be how to overcome geographical, school-based and income-based disparities in provision.

In general, not enough evidence was found in this review to suggest a causal link from individual work intensity while at school to attainment or participation. There was no clear evidence of sequence, no evidence from interventions on how much paid work pupils did while still in full-time education. Work in this area should probably not be a priority (although as with substance abuse there may be different outcomes to consider).

In general, not enough good evidence was found in this review to suggest a complete causal link from poor pupil behaviour to attainment or to participation. There was too little clear evidence of association or sequence from poor behaviour to educational outcomes. However, there were a few promising interventions of reasonable quality, and so this area could repay further work. What is not clear from the few successful interventions in this area is how much of any effect is due to overcoming poor behaviour, and how much is due to the success of innovative teaching approaches adopted to deal with the poor behaviour. This could be quite easily settled by using the teaching approaches for mainstream pupils, and by encouraging better behaviour other than by altering or extending existing teaching. The importance of making progress in this area could come from a multiplier effect. Unlike the other changes to individual's behaviour, reduced disruptive behaviour can benefit others in the classroom as well (Gorard and See 2011).

There is very little evidence from this review that combating child (or parent) substance abuse has a discernible benefit for either attainment or participation. Assuming that interventions to reduce child substance abuse are developed or in use for different outcomes anyway, any improvements in education might be a bonus.

### **Suggestions for future research**

Several of the aspirations, attitudes or behaviours found in the search and covered in this review have such an unpromising evidence base that is not worth pursuing them

at present, if the only reason for doing so is to improve educational outcomes. These include parental and individual substance abuse, children's general attitudes to education, and the amount of paid work young people do during schooling (within reason). All of these are coloured red in the key findings above.

There has been very little rigorous work on the AAB causes of post-compulsory participation in education, which is quite surprising since widening participation has been a favoured policy for more than a decade in the UK. Prior reviews of specific areas of participation such as post-16 (See et al. 2011) and HE (Gorard et al. 2007) largely confirm this gap. Work could be commissioned in the most promising areas. However, given that these same reviews also note that participation is closely related to prior attainment at school, measures to improve attainment could have a longer-term impact on participation as well.

It is noticeable that it is possible to devise a plausible explanatory mechanism for the effect of any of the 13 AABs covered in this review, even where there is little or no empirical evidence of effect. This suggests that the mechanism is the least important part of any causal model (just as, according to some accounts, in the development of many practical breakthroughs such as the development of powered flight). If it is clear that altering an AAB works to improve educational outcomes with no damaging unintended consequences and at reasonable cost, then it matters less if the mechanism is not understood. On the other hand, even the most convincing explanation possible is of little consequence if the AAB has no discernible effect on educational outcomes (or is damaging).

Much of the work found in this review on the causes of attainment was conducted in the USA. Its results may be relevant to the UK, but it would be helpful to see rather more of this kind of work in a UK context and culture, relevant to both participation and attainment. A particular concern is that any area may become dominated by only one style of work, contributing to only one part of the causal model (the longitudinal work on self-concept is a clear example). One way forward would be for funders to adopt an approach closer to that of US federal funding. Clearly an intervention study in any area would generally be premature and unethical unless there is a *prima facie* case that the intervention would be effective. Therefore, each iteration of the research cycle (Gorard and Cook 2007) legitimately starts with exploratory development work (often small-scale and tentative). However, in the same way that it would be unethical to move to interventions with this preliminary basis, it would be unethical not to pursue any promising developments into efficacy and cost-effectiveness trials and, depending on results, leading to national rollout and monitoring. Inevitably even many promising ideas will not work (just as many pioneer powered aircraft failed to fly). But this is no reason not to test them, as appears to happen too often at present.

In general, there was no consistent reporting of effect sizes in the studies reviewed here, partly because the evidence in most areas is generally too immature at present, and partly because most authors still rely on significance testing alone. Without more consistent use of effect sizes, it is not possible to conduct either a meta-analysis of impacts or a cost-benefit analysis of interventions in each area. It is important that future work moves towards estimates of both, and that funders and researchers realise the importance of this step. For the same reason, even where there is evidence in this review of the effect of an intervention, without effect sizes there can be no differential

effectiveness estimates for specific sub-groups of learners such as low SES, low attainers, or SEN pupils. Some studies did focus on specific sub-groups by design and these are noted throughout. This is very different from statistical dredging for differences by sub-groups after the research has been conducted.

Greater use of the simple four criteria model of causation would then be beneficial both to funders (who could specify what kind of evidence was lacking or next in order of priority) and to research groups and innovators. A summary work plan could include:

- begin development of work on AABs and post-16 participation
- clarify what aspirations and attitudes actually are
- encourage a move towards reporting of effect sizes and, where possible, the costs of interventions
- overcome the mis-placed resistance from some quarters to any robust evaluations of ways to improve outcomes for poorer families
- design suitable and cost-effective interventions to enhance parental involvement (including parenting styles and expectations) in their children's learning
- consider conducting efficacy trials of interventions that raise children's education expectations, if this is deemed ethical
- design, develop, conduct closely controlled and independent trials on self-concept /self-esteem and self-efficacy/locus of control to decide on their causal or coincidental nature
- conduct trials to estimate the effects of extrinsic motivation, such as payment by results
- develop work on reducing poor classroom behaviour, and perhaps to confirm the causal influence of extra-curricular activities.

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*This document was added to the Education-line collection on 2 November 2011*