

Students as Rational Decision-makers: The Question of Beliefs and Attitudes

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Rational choice theorists have analysed rates of participation in post-compulsory education, and, in particular, class differentials in these rates. Various claims have been made about the motivations of student decision-makers, but these claims have not been grounded empirically. This paper will assess the question of whether students' attitudes to education and beliefs about their own academic abilities vary according to social background and gender. Evidence is presented that students' attitudes to education do not vary greatly according to gender or social background, but that both the social background and gender of students affect their perception of their own abilities.

1 Introduction

Several studies have found that, even controlling for initial educational attainment, working class students have been less likely than middle and upper-class students to remain in post-compulsory education and to pursue prestigious educational curricula and attend prestigious institutions (Blossfeld and Shavit 1987; Micklewright 1989; Hearn 1991), although recent British evidence shows no evidence of this in the transition to Higher Education (Galindo-Rueda 2004). Boudon (1974) terms the initial social class differences in educational attainment the ‘primary effects’ of stratification, whereas the differences in educational participation that remain once the ‘primary effects’ are controlled are the ‘secondary effects’.

Rational choice theorists have focused on these ‘secondary effects of stratification’ rather than on initial inequalities in educational attainment. However, this work has not been informed by an empirical examination of students’ motivations for the educational decisions they make. This paper argues that the subjective beliefs and attitudes that help to determine students’ decisions are worthy of empirical examination.

Any social class differences in students beliefs regarding the value of education and their chances of academic success that remain once the ‘primary effects’ of stratification have been controlled may help to account for the ‘secondary effects’.

In addition, there are gender differences in educational participation, most notably in terms of field of study (Jonsson 1999). Any gender differences in attitudes and beliefs regarding education that remain once differences in initial levels of attainment have been controlled may help to account for the ‘secondary effects’ of gender inequality. Of course, beliefs and attitudes regarding education may also effect initial attainment, and therefore may help to account for the ‘primary effects’ of stratification.

2 Rational Choice and Motivations

According to rational choice theory, actors maximise the fulfilment of their desires on the basis of their beliefs about the situation (or at least, in general they behave as if this was what they were doing). “*The action should be the best way of satisfying the agent’s desires given his beliefs*” (Elster 1990:19).

But, any action can be interpreted as rational in the light of some set of beliefs and desires - the assumption of rationality alone does not rule out any possible action. So, it is clear that we cannot generate any hypotheses about action simply on the basis that it is rational without making any claims about the beliefs and desires held by the actor. The use of untested auxiliary assumptions in the construction of rational choice accounts, and the use of post-hoc assumptions to rescue such accounts, are commonplace, and have been widely discussed (Simon 1986, Green and Shapiro 1994).

One response to this problem has been the attempt to give a more substantive definition of rationality, one that specifies what counts as a rational belief or a

rational desire. This is inherently problematic, as in general we do not choose our beliefs and desires, or at least we do not choose them in the same sense that we choose our actions. So the rationality of beliefs and desires cannot be defined instrumentally, as the rationality of actions is. Attempts to define 'rational' desires have been unconvincing, failing to overcome the basic point that one cannot argue with taste. The characterisation of beliefs as rational or irrational has also proved problematic. For instance, Elster (1983) states that a belief is not rational if the belief is affected by the agent's interests or desires, or if cognitive errors (i.e. illogical thinking) play a part in the formation of the belief. However, the work of social psychologists suggests that cognitive errors are in fact widespread and systematic (Kahneman, Slovic and Tversky 1982). For Elster, this is perhaps unimportant, as he sees rational choice primarily as a normative theory. However, if rational choice is to work as an explanatory theory, then it should not be founded on a false view of belief formation. Boudon's (1994) response to evidence of the importance of cognitive biases in belief formation has been to adapt his concept of rationality to allow for these errors. This leaves us nearly back where we started, with a version of rational choice theory that rules very little out.

Clearly, what we mean by 'rationality' when talking about beliefs, desires, and actions are three entirely different things. An agent's desires may not be best explained by any kind of rationality assumption, even if the step from desires to actions is (Brennan, 1990). This principle may also be extended to apply to

beliefs. So, rather than theorising about what might count as a rational motivation for an action, it may be more useful to analyse agents' motivations empirically.

There has been a great deal of debate on the strength of assumptions that should be made by rational choice theorists regarding preferences, values and beliefs (Hechter 1994, Goldthorpe 1998). There is a school of thought which recognises that the rationality assumption is, in itself, merely a 'practical syllogism' (Popper 1945; Von Wright 1971, 1972) and which recognises the fruitlessness of attempting to give a more substantive definition of rationality, which would incorporate beliefs and preferences. However, empirical applications of rational choice theory have still shown a marked tendency to rely on the doctrine of revealed preference. (Although there is a literature of experimental work examining preferences and values (Roth 1995; Fehr, Kirchsteiner and Riedl 1993)).

Rational choice theorists analysing class differentials in educational participation have made different assumptions about students' beliefs and desires. To date, these claims have not been assessed empirically. Yet it is crucial to examine the motivations of student decision-makers directly, as their actions alone cannot tell us what their motivations are.

3 Rational Choice and Educational Inequality

Several rational choice theorists have addressed the issue of social class differences in educational participation, but their views regarding students' beliefs

and attitudes vary. Murphy (1981) takes issue with the view that class differentials in educational attainment have anything to do with inequality of opportunity. He states that the equation of class differentials in educational attainment with class inequality is due to a failure to take class differences in educational aspiration seriously. In Murphy's view, working class youth simply demand lower levels of education than do middle class youth. This difference in the levels of demand for education is not due to inequality of opportunity, but is simply a matter of taste. Murphy treats preferences as given, and not in need of explanation. The supposed social class difference in tastes is inferred from the differential in educational participation.

Gambetta (1987) also explains the class differential in educational participation partially in terms of preferences, but introduces an additional mechanism in the form of social norms "*...it could either be that relatively more subjects in the middle class feel a greater normative pressure to resist the temptation to abandon school after a failure or, on the other hand, that relatively more subjects in the working class do not attach as high a value to education*" (Gambetta 1987: 173).

Interestingly, the distinction between these rational choice accounts of class differentials in educational participation, and 'culturalist' accounts such as Willis' (1977) explanation of the behaviour of his 'lads' in terms of a working class anti-school culture, is not as sharp as one might expect. The common feature of these accounts is the view that working class people have relatively negative attitudes to education or schooling in comparison with middle class people.

Other rational choice theorists reject the view that values, norms and beliefs about education vary according to social class. Boudon (1974) states that class differentials in educational attainment are explained by the difference in the costs and benefits that are associated with different educational options for students from each social class. The benefits associated with each educational option vary by social class because ambition is relative to the social starting point of an individual. So, a working class child who wants to be a lawyer must be more ambitious than a middle class child who wants to be a lawyer. Prestigious educational options may be essential in avoiding social demotion for middle class students, but not for working class students.

This view is developed by Breen and Goldthorpe (1997). They make explicit Boudon's implicit assumptions, 1) that people's priority is to avoid social demotion, rather than to pursue social mobility, and 2) that failure in a high prestige option is believed to be more likely to lead to social demotion than not attempting to pursue such an option. Breen and Goldthorpe explicitly state that values, norms and beliefs regarding education do not vary by social class, and that classes differ in terms of two factors only, average ability and resources.

So, rational choice theorists have made various assumptions about the attitudes and beliefs of individuals regarding education. The question of whether preferences vary by social class is the subject of much disagreement. But rational choice theorists have made little attempt to ground these claims about students' motivations in empirical evidence regarding such questions as students' academic self-concepts and attitudes to studying.

4 Research Questions

1. Is there an association between students' attitudes to education and their sex, social-class background, parents' educational level, and parents' and students' cultural participation? Does this association remain once students' educational attainment is controlled?

Education may be valued as a good in itself, or as a means to success in the labour market. There could be a social class difference in the evaluation of the worth of education on the labour market, for instance if working class students saw educational credentials as less essential to occupational success. Another possibility is that middle class students may place a higher intrinsic value on education than working class students, perhaps being more likely to see education as enjoyable, or as a tool for self-development.

A further possibility, perhaps applying especially strongly to the intrinsic value of education, is that the subjective evaluation of education may be especially positive among those families with high levels of 'cultural capital' (Bourdieu and Passeron 1977).

There may be a gender difference in attitudes to education. Girls are often seen as having a more positive or 'mature' attitude towards education than boys, and therefore being better behaved and harder working in school.

If attitudes to education do vary by social class and gender, then this may help to explain differentials in educational participation. If, on the other hand, attitudes to education do not vary by social class, then the idea that the class differential in

educational participation simply reveals a difference in preferences for education between the social classes should be rejected.

2. Are students' beliefs about their own academic abilities affected by their sex, social-class background, parents' educational level, and parents' and students' cultural participation? So, controlling for students' actual academic attainment, is there a significant association between the students' background characteristics and their beliefs regarding their own abilities?

Beliefs about ability may not be entirely determined by actual ability, and it is possible that an individual's social background and gender may affect these beliefs. Breen and Goldthorpe's formulation of rational choice theory does not assume that beliefs are necessarily formed entirely rationally, on the basis of the relevant evidence. What it does assume is that there is no systematic distortion of beliefs by social category. So, if men overestimate their abilities in comparison with women, this would violate their assumption. Previous research would suggest that there is a gender bias in people's self-evaluations, such that women generally underestimate their abilities, whereas men overestimate theirs (Colwill 1982). These differences emerge at an early age (Tizard et. al. 1988, Parsons et. al. 1976).

It is possible that students from different social classes may form systematically distorted views of their abilities. If it is the case that working class students underestimate their abilities in comparison to middle class students, this might help to provide an explanation for the comparatively low rate of participation of

working class students in post-compulsory education, and particularly in more prestigious educational courses.

5 Methodology

The survey respondents are 465 'Year 11' students – i.e. students of about 16 years of age in their final year of compulsory schooling. The survey was piloted in 1997 and carried out in 1998.

The sample includes four schools. Two of these are mixed sex, two single sex. All are comprehensive schools (i.e. state maintained schools which are not academically selective). Rational choice theory is concerned with general processes, which are not contingent on any particular school context. Therefore, while the sample is not representative of the English year 11 population, it should be borne in mind that the research is not designed to make population estimates. The sample was too small for a consideration of differences according to ethnicity.

The reason for only using comprehensive schools was that the sample size was restricted by practical constraints, making it impossible to examine school-sector effects. Of course, institutional contexts may establish structures of incentives that shape rational decision-making. In addition, institutional contexts may affect the formation of beliefs and attitudes. However, given the necessarily restricted size of the current sample, school type effects had to be excluded from the scope of the research. Furthermore, the comprehensive sector is extremely important in its own

right, as a large majority of British secondary school students attend comprehensive schools.

A questionnaire was administered for self-completion by students. Students were not allowed to confer while completing the questionnaire. Students and schools were assured of the confidentiality of their responses. Students were surveyed on: their parents' social class and education, their own and their parents' cultural participation, attitudes to education, and beliefs regarding their own academic abilities. More detail on these variables is provided in Appendix 1. The educational attitudes scale, and a discussion of its reliability, are provided in Appendix 2.

In three out of the four schools, the entire year group was surveyed. In the remaining school, for time-tabling reasons, five out of seven forms were surveyed. Out of a potential sample of 557 students, 465 questionnaires were adequately completed, giving a response rate of 83.5 %. The majority of the non-response was due to absenteeism. It must be acknowledged that the absent students are likely to differ in relevant respects from those students who were in school, as some absent students were no doubt truanting. This problem is inherent in school based research.

6 Analysis

The analyses presented here examine the associations between students' social characteristics (class, gender, parental education, cultural participation) and

students' attitudes, beliefs and expectations regarding education. Linear Regression (Ordinary Least Squares) is used, in order to control for initial inequalities in attainment (as measured by GCSE results). This is crucial in allowing us to determine whether social differences in students' attitudes and beliefs remain even when comparing students at the same level of academic attainment.

6.1 Attitudes to Education

The students generally responded positively to the questions on their attitudes towards education. For instance, 81% either agreed, or strongly agreed that '*The more qualifications you get, the better the job you are likely to get*', and 69% either agreed or strongly agreed that '*Studying is worthwhile for its own sake*'.

Table 1. shows students' mean scores in the educational attitude scale, according to gender, social class and parental educational level. The first column shows the means for the whole educational attitudes scale. The next three columns show associations with the components of the scale – attitudes to education as an intrinsic good, attitudes to education as an instrumental good, and attitudes which do not fall neatly into either of these categories. The maximum score is 80 for the whole scale, 35 for the 'intrinsic' items, 25 for the 'instrumental' items, and 20 for the other items. Where the difference in means between the categories compared is statistically significant, the significance level is shown on the higher scoring mean, in the usual way (* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$).

[Table 1]

Female students, students from the salariat and students whose parents are graduates all have relatively high mean scores on the scale of educational attitudes, but only very slightly so.ⁱ While there is no significant social class difference in students' evaluation of education as an instrumental good (i.e. its labour market value), the salariat students had significantly more positive attitudes towards education as an intrinsic good, and also responded significantly more positively to those items that fit into neither the intrinsic nor the instrumental category. The cultural participation scales are treated as bivariate (top 50% contrasted with bottom 50%) in this table. The mean differences in educational attitudes between students who have high levels of cultural participation, and whose parents have high levels of cultural participation, and those who have lower levels of cultural participation, are highly significant.

Table 2 shows the results controlling for GCSE attainment, in order to show the variation in the attitudes of students at the same level of educational attainment. This is important, as, if the lower staying on rates of working class students compared to middle class students at the same level of initial examination performance were to be explained by social class differences in attitudes to education, then these differences would have to remain after controlling for GCSE performance. Each of the Beta coefficients shown is separate, i.e. the explanatory variables are not included together as a model. Table 2 shows that, controlling for GCSE results, there is no significant association between social class and attitudes to education. This suggests that the social class difference in attitudes to education

may be a result of working class students' poorer school performance, rather than its cause. It is natural enough that enjoyment of studying should be associated with academic success.

[Table 2 here]

One might expect to find a positive relationship between parents' qualifications and students' attitudes to education, since parents who have benefited from education themselves might be expected to pass on a positive view of education to their children. In fact, Table 1. shows no significant association between parents' qualifications and students' overall attitudes to education, although there is a significant association between graduate parents and attitudes towards the instrumental value of education. It is striking that, despite the strong association between parents' educational level and students' educational performance, the lack of association between parents' qualifications and students' attitudes to education is apparent even before controlling for students' GCSE attainment.

Table 2 shows that the association with instrumental attitudes to education becomes insignificant once GCSE results are controlled. Given the absence of a clear association between attitudes to education and parents' qualifications, it is notable that there is a highly significant association between parents' cultural capital and students' attitudes to education, which remains after controlling for performance at GCSE. This is most significant in the case of students' view of the intrinsic worth of education. The association between parents' cultural capital and students' attitudes to education as an instrumental good is just barely significant at the 0.05 level. A slightly stronger association holds between students' own

cultural capital and attitudes to education than between parents' cultural capital and students' attitudes to education. Again, this association is at its strongest in the case of students' views of the intrinsic worth of education. There is no significant association between students' cultural capital and the extent to which students value education as a labour market good. The high value placed on the intrinsic worth of education by families rich in cultural capital may be due to the fact that the leisure activities valued by these families, such as reading, may demand and/or develop intellectual abilities which also provide an educational advantage. Since these abilities are important to social life, (where social life includes cultural participation), as well as to work, education is more likely to be seen as crucial to self-development in families that have high levels of participation in 'high' culture.

Girls have significantly more positive attitudes to education than boys, but this association is limited to attitudes to the intrinsic value of education, and is fairly small. There is no significant difference in boys' and girls' evaluations of the value of education in the job market, suggesting that this aspect of educational attainment is equally important to both boys and girls.

So, attitudes to education vary only slightly by social class, and this association is mediated by students' GCSE performance. However, cultural participation and gender are significantly associated with attitudes to education as an intrinsic good, even once GCSE performance has been controlled.

6.2 Beliefs About Ability

Students in their final GCSE year were asked what grades they thought they were likely to get in their GCSEs. They were also asked to rate their academic abilities in comparison to other students at their school. These responses were then compared to the actual grades achieved by the students.

Firstly, how accurate are the students' beliefs about their own abilities in general? Overall, students' overestimate themselves. Table 3 shows students' self-assessed ability and self-predicted grades. The self-assessed ability column (total) shows pupils' responses to the question "In general, how do you rate your academic abilities as compared to other students at your school?" Strikingly, only 4% of students rated themselves as either below average or poor. Students did not show a strong tendency to rate themselves as 'excellent' (only 5.4% did so). The great majority of students (90.9%) rated themselves as either average or above average. The self-predicted grades column shows students' responses to the question "What grades do you think you are most likely to get in your GCSEs?" No student placed themselves in the lowest category, 'mostly Gs and ungraded', although in fact 16 students in the sample failed to achieve any GCSE passes at all.

[Table 3 here]

A GCSE score was calculated, giving one point for a G grade, 2 for an F etc., up to 8 points for an A*. This score was divided by the number of GCSEs each student was studying for at the time of the survey, to give a mean score. Table 3 shows a comparison of students' self-predicted grades to the actual mean scores

students' achieved. This table shows a general tendency for students to be overly optimistic in predicting their results. For instance, a D grade scored 4 points, and a C grade scored 5. Therefore, a student who expects to get 'mostly Cs and Ds' is expecting to achieve an average score of around 4.5. Table 3 shows that, in fact, students' who expected to achieve mostly Cs and Ds gained a mean score of 3.4. This means that these students' mean grade scores were on average approximately one grade lower than they predicted.

These findings are consistent with research in psychology showing excess optimism in educational expectations (Ganzach 2000) and a general 'optimistic bias' in people's expectations and judgements (Sears 1983, Ganzach and Krantz 1991, Ganzach 1993). However, this finding only contradicts the strong view that rational actors must form accurate beliefs. It has no bearing on the view that beliefs are not systematically distorted by social category. If the view that there is no systematic belief distortion by social category is to be supported, there should be no relationship between social class, gender, etc. and students' estimation of their own abilities once actual academic performance is taken into account.

Table 3 shows students' estimation of their own academic abilities, and self-predicted GCSE grades broken down by gender. We can see that girls have a lower estimation of their abilities than boys. In particular, boys are considerably more likely to rate themselves as being above average than girls are (42.1% compared to 28.2%). Girls are much more likely to rate themselves as average than boys are, (63.2% compared to 48.3%), and are more likely than boys to have placed themselves in the bottom half of the table for self-predicted grades (mostly

Ds and Es or less). 15.7% of girls are in the bottom four categories, as compared to 10% of boys. This is in contrast to the fact that the girls achieved superior GCSE results to the boys, and more girls than boys achieved 5 Cs or more. 53.8% of girls failed to achieve this level, as compared to 63.9% of boys. So, the unrealistic optimism of some less able students seems to be more extreme in the case of boys, although the low proportion of students of either sex who place themselves in the bottom four categories is also striking.

Table 4 shows the associations between students' self evaluations and social category, controlling for students' GCSE attainment. The comparisons shown in this table are between boys and girls, salariat and non-salariat pupilsⁱⁱ, and children of graduates and non-graduates. The effects of parental cultural capital and pupils' cultural capital are also shown. These are continuous variables. Each of the associations shown is separate.

The gender differences presented above are shown to be statistically significant. Boys predicted significantly higher grades for themselves than girls, controlling for actual GCSE grades. Boys also rated their own academic abilities significantly more highly than girls rated their own abilities, controlling for both actual GCSE grades and school attended. Salariat students and students with graduate parents predicted significantly higher grades for themselves than students in the comparison categories, controlling for actual GCSE grades. Salariat students rated their academic abilities significantly more highly than other students, controlling for actual GCSE performance and school attended. However, the effect of parents' qualifications on students' estimation of their academic abilities

compared to others in their school is not significant. Parents' and students' cultural participation were both positively associated with self-predicted grades and self-assessed ability, with controls as above.

[Table 4]

It could be argued that these results are compatible with the possibility that beliefs about ability are not distorted by social class and gender (or any other social category). Self-assessed ability was measured before students sat their GCSE exams. Therefore, the association between self-assessed ability and social class and gender could be explained by a differential change in performance over time according to class and gender. According to this account, self-assessed ability at time t , when the students were asked for their assessments of their own abilities, was undistorted by social class and gender. However, between time t and time $t+1$, when students sat their GCSEs, girls and working class students improved their performance to a considerably greater extent than boys and middle class students. This accounts for the fact that boys and salariat students do not seem to perform in accordance with their self-assessed ability at time t , and is sufficient to explain the positive association between being male or a member of the salariat and self assessed ability at time t , controlling for performance at time $t+1$.

I acknowledge that the above account is compatible with the findings presented here. However, given the strength of association between social class and gender and self assessed ability at time t controlling for performance at $t+1$, it is not plausible that this association can be explained by an association between change in performance over time and these social categories. There is no reason to think

that in the few months between the survey and the GCSE examinations, female and non-salariat students should have improved their performance at a substantially greater rate than male and salariat students respectively.

7 Conclusions

Rational choice theorists have generally not used subjective data on individuals, preferring to focus on actual behaviour. Perhaps data on outcomes is seen as more reliable than data on attitudes and beliefs. However, in this case, actions do not speak louder than words, since we cannot make confident inferences about either the beliefs and wants, desires or attitudes that form the basis for a decision or the rationality of the decision making process, from the action alone. Therefore, an understanding of social class and gender differences in educational participation demands an empirical analysis of the beliefs and attitudes relevant to decisions regarding educational participation. This paper has set out to test the hypotheses that 1. attitudes to education are related to an individual's social category (class, gender, etc.) and 2. expectations of academic success and beliefs regarding academic ability are related to an individual's social category.

The view that attitudes to education vary according to social class gains little support from this research. The association between social class and attitudes to education was small, and disappeared once GCSE performance was controlled. This is consistent with the view that any social class difference in attitudes to education is actually caused by the comparatively low levels of educational

success of working class students, rather than vice versa. Though it is plausible that a process of low attainment leading to demoralisation, which in turn further lowers attainment, represents a downward spiral for low-achieving students.

The lack of a class difference in attitudes to the intrinsic value of education once GCSE grades are controlled suggests that placing a high value on education is not a distinctively middle class characteristic. Given the realities of the current labour market, it is not surprising that working class students are aware of the need for educational credentials.

Of course, attitudes to education may vary by social class in ways that are not reflected by the items in the survey instrument used here. In addition, there could be attitudinal differences between different fractions of the working and middle classes (according to industrial sector for example). However, the findings presented here support the view that one cannot read off attitudes and aspirations from outcomes. It is easy to put forward a ‘poverty of aspirations’ explanation for failure, yet groups with very high aspirations who place a high value on education can still fail (for example US blacks (Coleman et. al. 1966, Ogbu, 1978)). This is not an argument for ignoring the role of values, but it is an argument against using values as unexamined post-hoc explanations for inequalities.

Perhaps surprisingly, there is no relationship between parents’ qualifications and their children’s attitudes to education as an intrinsic good. In contrast, both parents’ and students’ cultural capital have a significant effect on students’ estimation of the intrinsic value of education. This ties in with the idea of the

cultured family promoting the value of education in the development of an individual, rather than just its value in the labour market.

Girls' are significantly more positive in their attitudes to education than boys. However, this effect is not large and is limited to the evaluation of education as an intrinsic good.

The view that beliefs about ability are not systematically distorted by social category is not supported by this research. Boys significantly overestimate themselves compared to girls, both in predicting their GCSE results and in evaluating their general academic abilities compared to others at their school. Students from salariat families significantly overestimate their general academic abilities and their GCSE grades as compared to students from lower social class categories. Students whose parents have degrees overestimate their GCSE performance significantly compared to students whose parents are not graduates. Students whose parents have relatively high levels of cultural participation significantly overestimate both their GCSE grades and their general academic abilities. The association with students' own cultural participation is even stronger, suggesting that participation in 'cultured' activities gives students a high estimation of their own abilities.

In sum, the view that the secondary effects of stratification – i.e. social class differences in educational participation that remain when taking account of initial examination performance - can be explained by social class differences in attitudes towards education cannot be supported, since there is no significant association between social class and students' attitudes to education once GCSE

performance is controlled for. However, neither can the view that attitudes to education do not vary by any social category be supported, since both gender, and parents' and students' cultural capital have some impact on students' attitudes to education. Breen and Goldthorpe's assumption that students' subjective probabilities of success are not distorted by social class is not supported by this study. Systematic belief distortion may help to explain differentials in educational participation, since it appears that gender and social background systematically distort students' beliefs about their own abilities.

Students' expectations of their own performance are not formed in a vacuum, but are determined partly by their parents and teachers (Entwisle and Hayduc 1981). So, if parents and teachers evaluate children of the same prior academic performance differently according to their gender and social background, this is likely to distort students' perceptions of their own abilities. Furthermore, parents and teachers have a role in encouraging or discouraging students from pursuing further and higher education. Therefore, their beliefs about students' abilities are likely to have a direct impact on students' educational decisions.

Middle class parents may be more likely to encourage children to have a positive academic self-concept, perhaps communicating their own self-confidence to their children. There is evidence that parents hold gender-stereotyped beliefs about their children's academic abilities, and that these are communicated to the children (Bhanot and Jovanovic 2005, Bleeker and Jacobs 2004, Herbert and Stipek 2005).

Students' are highly dependent on their teachers to give them feedback on their academic abilities and progress. Some research evidence suggests that teachers' assessments of children's abilities can be affected by the non-academic characteristics of students such as gender, ethnicity, social class, perceived character and physical attractiveness (Dusek and Joseph 1983, Bennett et al., 1993, Doherty and Hier, 1988).

There is evidence that teachers underestimate girls' abilities in mathematics (Stobart et. al. 1992, Tizard et al. 1988). Further research is needed into the question of whether students' estimations of their own abilities in different academic subjects (e.g. sciences vs. humanities) vary according to social class and gender, and whether this affects students' choices regarding field of study. For instance, it may be that such distortions in self-evaluated ability could help to explain girls' and women's relatively low participation in maths and sciences both at school and in higher education.

The fact that systematic distortion by social class, gender, etc. of students' beliefs about their own academic abilities occurs does not in itself show that this is even part of the explanation for class and gender differentials in educational participation rates. However, it does suggest that analysis of this possibility is worthwhile.

It is interesting that boys (who are relatively low achievers) and middle class students (who are relatively high achievers) are both especially prone to overestimating their academic abilities. If a high estimation of one's abilities led to complacency and was therefore associated with poor work-habits, this might

help to explain boys' lower levels of academic attainment compared to girls, but would not help to explain the advantage of the middle classes. In fact, the evidence suggests that a positive academic self-concept has a beneficial effect on both learning and educational interest (Marsh et. al. 2005), and lack of self confidence in mathematics or 'maths anxiety' is a particular obstacle to performance faced disproportionately by females (Miller and Bichsel 2004). Given this, girls' advantage over boys in terms of academic attainment must be in spite of, rather than because of, their lower estimation of their own abilities, so we can assume that the gender gap in attainment would be greater if girls' sense of self-confidence was equal to that of boys. Conversely, working class students' relative lack of self-belief may contribute to their educational disadvantage.

This paper has only been able to speculate about the process through which working class and female students develop relatively poor academic self-concepts, and further research in this area is clearly needed.

8 Tables

Table 1. Students' attitudes to education – mean scores

	Educational attitudes (overall)	Intrinsic	Instrumental	Neither
	Mean (Std. Deviation)	Mean (Std. Deviation)	Mean (Std. Deviation)	Mean (Std. Deviation)
Male	56.7(6.9)	23.1(3.9)	19.3(2.6)	14.3(2.6)
Female	58.3(6.6)*	24.0(4.0)*	19.3(2.3)	14.9(2.4)*
Salariat	58.8(6.9)**	24.1(4.0)*	19.6(2.3)	15.1(2.4)*
Non salariat	56.9(6.9)	23.2(3.8)	19.3(2.4)	14.4(2.5)
Degree	58.5(6.4)	23.7(4.0)	19.8(2.1)*	15.0(2.3)
No degree	57.6(7.3)	23.7(4.0)	19.2(2.6)	14.6(2.6)
High parental cultural participation	59.1(6.5)***	24.2(3.9)**	19.8(2.2)***	15.1(2.3)***
Low parental cultural participation	56.3(7.4)	23.1(4.0)	19.0(2.6)	14.2(2.6)
High student cultural participation	59.0(7.0)***	24.3(4.0)***	19.5(2.4)	15.2(2.4)***
Low student cultural participation	55.9(7.1)	22.8(3.8)	19.1(2.5)	14.0(2.5)

Table 2 - Students' attitudes to education controlling for GCSE results

	Educational attitudes (overall)	Instrumental	Intrinsic	Neither
	B (s.e.)	B (s.e.)	B (s.e.)	B (s.e.)
Sex (M)	-1.32 (0.66)*	0.01 (0.23)	-0.88 (0.37)*	-0.43 (0.22)
Class (service)	0.87 (0.77)	0.14 (0.27)	0.77 (0.43)	-0.04 (0.26)
Parents' qualifications (degree)	0.07 (0.86)	0.47 (0.30)	-0.19 (0.48)	-0.21 (0.29)
Parents' cultural capital	0.28 (0.09)**	0.06 (0.03)*	0.17 (0.05)***	0.05 (0.03)
Students' cultural capital	0.51 (0.14)***	0.05 (0.05)	0.33 (0.08)***	0.13 (0.05)**

Table 3 - Pupils' self-assessed ability and self-predicted grades

	Male		Female		Total			
Self-assessed ability	Count	%	Count	%	Count	%		
Excellent	15	6.2	10	4.5	25	5.4		
Above average	102	42.1	62	28.2	164	35.5		
Average	117	48.3	139	63.2	256	55.4		
Below average	6	2.5	9	4.1	15	3.2		
Poor	2	0.8	0	0	2	0.4		
Self-predicted grades	Count	%	Count	%	Count	%	Average score should be	Actual mean score
Mostly As	6	2.5	7	3.1	13	2.8	7	6.3
Mostly As and Bs	35	14.6	34	15.2	69	14.9	6.5	5.9
Mostly Bs and Cs	88	36.8	72	32.3	160	34.6	5.5	4.7
Mostly Cs and Ds	87	36.4	75	33.6	162	35.1	4.5	3.4
Mostly Ds and Es	18	7.5	27	12.1	45	9.7	3.5	2.8
Mostly Es and Fs	5	2.1	7	3.1	12	2.6	2.5	1.8
Mostly Fs and Gs	0	0	1	0.4	1	0.2	1.5	2.3
Mostly Gs and ungraded	0	0	0	0	0	0	0.5	-

Table 4 - Students' Self-predicted Grades and Estimation of Own Abilities

	Grades	Ability
	B (s.e.)	B (s.e.)
Sex (M)	0.23 (0.07)***	0.21 (0.73)**
Class (service)	0.27 (0.08)***	0.19 (0.60)***
Parents' qualifications (degree)	0.46 (0.09)***	0.14 (0.08)
Parents' cultural participation	0.04 (0.01)***	0.02 (0.01)**
Students' cultural participation	0.08 (0.15)***	0.04 (0.01)***

(Controlling for GCSE attainment and, in the case of estimation of own abilities, school attended).

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Appendix 1 - Variables

- **GCSE results**

The GCSE exams are designed to be taken by all students at the end of their compulsory schooling. Typically, students study 8 or 9 subjects. Pass grades range from G to A*. (The A* grade was introduced in 1994, due to fears that there was not enough differentiation at the top level).

A total GCSE score was calculated, giving 1 point for a G, 2 for an F etc.

- **Parental Social Class**

Students' responses on parents' occupations were coded using the Goldthorpe class schema. For the sake of simplicity in the presentation of this analysis, a bivariate class schema (salarial /non-salarial) is used. (The salariat contains employers, managers and professionals). Students with at least one salariat class parent were classified as belonging to the salariat. There are 57 missing cases on social class (12%). 34% of the sample were categorised as belonging to the salariat, 21% are 'routine non-manual', 11% petty bourgeois, and 22% manual.

- **Parents' educational credentials**

Seven categories were used for parental education, but again, a bivariate classification (degree/ no degree) is used here for the sake of simplicity. The problem of missing data is more severe for parental education than for social class, at 122 missing cases. This is probably due to a lack of knowledge of

parents' education, in line with Looker's (1989) finding that children report less accurately on parental education than on parental social class.

- **Students' cultural participation.**

As broad as possible a measure of cultural participation was used. Students were asked about: library use, the type of books they read, and how much they read; participation in 'formal culture' such as gallery, theatre and concert attendance; type of TV and film consumption, type of music listened to, newspapers read (Sullivan, 2000, 2001).

- **Parents' cultural participation.**

Students were surveyed on their parents' cultural participation. The questions asked to determine parents' cultural capital were similar to those asked about students' cultural capital. Note that de Graaf, de Graaf and Kraaykamp (2000) find that respondents own cultural practices have no effect on their reporting of their parents' cultural practices.

- **Students' beliefs regarding their own academic abilities.**

Students were asked "In general, how do you rate your academic abilities as compared to other students at your school?" The possible responses were excellent, above average, average, below average, and poor. This question was designed to assess students' subjective estimation of their own general academic abilities in comparison to their peers. Students were also asked "What grades do you think you are most likely to get in your GCSEs?" The possible responses ranged from "Mostly As" to "Mostly Gs and Ungraded". This more specific

question may be expected to illicit relatively ‘realistic’ responses from students’, as one would expect students’ to have received substantial feedback from teachers regarding their likely grades.

- **Students’ attitudes to education**

Students were asked a series of questions designed to assess their attitudes towards education. This scale, and a discussion of its reliability, is included in appendix 2. It is divided into subscales designed to reflect the intrinsic value of education (e.g. “*Studying is worthwhile for its own sake*”, “*I enjoy studying*”) and the instrumental value of education (e.g. “*The more qualifications you get, the better the job you are likely to get*”, “*Studying can help you to gain skills which will be useful at work*”).

Appendix 2 - Educational Attitudes Scale

These are questions to which students responded either *agree strongly*, *agree*, *neither agree nor disagree*, *disagree* or *disagree strongly*. Those items that are marked with an asterisk are phrased negatively, and the scales for these items have been reversed.

9.1 Intrinsic

- STUDY3 Studying is worthwhile for its own sake.
STUDY4 I enjoy studying.
STUDY8 Studying increases your confidence.
STUDY9 Studying increases your ability to think clearly.
STUDY14 *I don't like studying.
STUDY15 Studying improves your ability to be creative.
STUDY16 *Studying is only ever worthwhile if it leads to a job.

9.2 Instrumental

- STUDY2 The more qualifications you get, the better the job you are likely to get.
STUDY5 *Qualifications are useless for getting jobs.
STUDY6 Studying can help you to gain skills which will be useful at work.
STUDY7 *These days, it doesn't matter how many qualifications you get, you still won't get a job.
STUDY13 These days, if you are unqualified, you can't get a job.

9.3 Neither

- STUDY1 *School is a waste of time.
STUDY10 *I muck about in lessons.
STUDY11 *Studying is irrelevant to real life.
STUDY12 I take school seriously.

Reliability

The reliability for the whole 16-item scale is standardised item alpha = 0.80. The reliability for the 7-item sub-scale for attitudes to education as an intrinsic good is standardised alpha = 0.73. The reliability for the 5-item sub-scale for attitudes to education as an instrumental good is less high, at standardised item alpha = 0.43. Nevertheless, I think that use of this sub-scale is justified in that it meets my theoretical purpose. Also, one must bear in mind that reliability analysis is based on an assumption that the responses for each item are normally distributed. This assumption is strongly violated in the case of this educational attitude scale.

Factor analysis shows one factor accounting for 27% of the variance, with further factors being much less important. (The second factor accounts for 9% of the variance, the third for 8%). I have limited the number of factors extracted to three.

Component Matrix

	Component		
	1	2	3
STUDY1	0.59	-0.01	0.31
STUDY2	0.42	0.47	-0.25
STUDY3	0.40	0.29	0.10
STUDY4	0.71	-0.43	-0.17
STUDY5	0.30	0.43	0.12
STUDY6	0.50	0.04	0.04
STUDY7	0.31	0.39	0.48
STUDY8	0.63	0.15	-0.25
STUDY9	0.64	0.17	-0.15
STUDY10	0.56	-0.46	0.02
STUDY11	0.38	0.26	0.22
STUDY12	0.70	-0.24	0.12
STUDY13	0.18	0.17	-0.65
STUDY14	0.73	-0.37	-0.13
STUDY15	0.52	0.27	-0.15
STUDY16	0.34	-0.15	0.48

Extraction Method: Principal Component Analysis.

The first component can be seen as reflecting students' general attitude towards education. The highest loading items are 'I don't like studying' and 'I enjoy studying'. The highest loading items in the second component are 'The more qualifications you get, the better the job you are likely to get', 'Qualifications are useless for getting jobs', and 'These days, it doesn't matter how many qualifications you get, you still won't get a job'. This may suggest that component 2 reflects the 'instrumental' attitudes to some degree. However, the overall picture for components 2 and 3 is rather messy, and may simply reflect differences in the distributions of responses for each item.

ⁱ In supplementary analysis using a six-class schema none of the social class parameters showed up as significant, although the social class variable as a whole explained significant variance. It is possible that, given a larger sample, significant differences would have been found between the sub-groups of the 'non-salariat' category.

ⁱⁱ Supplementary analysis using a six-class schema showed the salariat/non-salariat divide to be the most significant class difference.