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Childhood intelligence predicts voter turnout, voting preferences, and political involvement in adulthood: the 1970 British Cohort Study

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Abstract

Little is known about the association between measured intelligence and how people participate in democratic processes. In the 1970 British Cohort Study, we examined the association between childhood intelligence and, at age 34: whether and how people voted in the 2001 UK general election; how they intended to vote; and whether they had taken part in other political activities. People with higher childhood intelligence were more likely to vote in the 2001 election (38% increased prevalence per SD increase in intelligence), and were more likely to vote for the Green Party and the Liberal Democrats (49% and 47% increased prevalence per SD increase in intelligence, respectively). The intelligence-Green party voting association was largely accounted for by occupational social class, the intelligence-Liberal Democrat voting association was not. Similar associations between intelligence and preference for the Green Party or Liberal Democrats were found as regards voting intentions, but neither of these associations was accounted for by occupational social class. People with higher childhood intelligence were more likely to take part in rallies and demonstrations, and to sign petitions, and expressed a greater interest in politics (40%, 65%, 33%, and 58% increased prevalence per SD increase in intelligence, respectively).

Introduction

Democracy as a political system allows—indirectly through elections—the whole adult population to be involved in the government of the nation. The involvement includes the regular selection of elected representatives, and the other legal means by which politically relevant concerns may be voiced (attending demonstrations, signing petitions, etc.). Liberal democracy involves stability and change. Stability includes the enduring aspects of the legal, financial, educational and other institutions of the society. None of these is entirely fixed; they evolve and, ultimately, suggestions for change can be traced to the decisions made by the electorate concerning their choice of their representatives and their decisions to become involved and press for societal changes in other ways. At the between-country level of description, intelligence has been reported as relevant to democracy, rule of law, and political freedom (Rindermann, 2008). Here, we investigate how individual differences in psychometric intelligence are associated with engaging in democratic processes.

Political scientists have a strong interest in individual differences in voting behaviors, because decisions made by the electorate are so important for societies. Most research to date has concentrated on whether or not people vote in elections. The favoured explanatory variables for people's participation in voting include political interest, civic duty and, especially relevant here because of its association with cognitive ability, education (Nie, Junn, & Stehlik-Barry, 1996). However, the cause of the association between deciding to vote and educational attainments has been questioned, with the possibility that the underlying causal variable is cognitive ability (Herrnstein & Murray, 1994, pp. 258-263; Hauser, 2000; Denny & Doyle, 2008). Surprisingly, it is only recently that psychological individual differences have been considered relevant to democratic participation and decision-making. Hauser's (2000) empirical results with three USA datasets led him to

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conclude that, "researchers will lose little if they ignore cognitive ability as a direct causal factor when formulating models of civic participation" (p. 581). However, Denny and Doyle (2008) criticised Hauser's (2000) data on two counts: the cognitive ability tests were inadequate in two of the studies, and cognitive data were always collected in adulthood or when people had finished, or were about to finish, high school. Their study of the United Kingdom's 1958 birth cohort suggested that the association between education and voting was weak, and that cognitive ability measured at age 11 years was a much stronger contributor to the decision about whether or not to vote in the 1997 General Election when the subjects were almost 40 years old (Denny & Doyle, 2008). These authors made a strong case for seeking other data sets containing childhood intelligence and voting information, so that cognitive ability measures that were recorded prior to educational attainments could be used to examine voting behavior. Specifically, they recommended that future research might use data from the 1970 British Cohort Study, which is what we have done in this report.

We contend that the study of intelligence and political involvement should extend beyond the important topic of voter turnout, to include details of how, in addition to whether, people engage in elections, and whether they also take part in political and democratic activities outside of elections. Influences on how people vote include their occupational social class (Evans, 2000), and the political party that was in power when they reached the age at which they were eligible to vote (Tilley, 2002). One reason for exploring this issue further is that intelligence test scores are related to social attitudes. Social attitudes are embedded in the creeds of different political parties (see Appendix) and in the rationales of other, extra-parliamentary pressure groups seeking to bring about political change. People with higher mental test scores as children are more likely, as adults, to endorse liberal

social attitudes (Scarr & Weinberg, 1981, p. 400; McCourt, Bouchard, Lykken, Tellegen, & Keyes, 1999, p. 987). Specifically, they are more likely to agree with attitude statements that are anti-racist, in favour of working women, are socially liberal, and are more likely to have trust in the fairness of the democratic process (Deary, Batty, & Gale, 2008). Thus, intelligence is, in effect, associated with different political attitudes, and it is important to discover if there are intelligence differences according to preference for particular political parties.

In summary, there is debate about the importance of intelligence in relation to whether people vote in elections, and there is currently little information on how people with different levels of intelligence choose to vote in elections, and to what extent they become involved in non-election activity in democratic systems. In the present study we extend the study of intelligence and its relevance to political matters by investigating the association between childhood intelligence test scores and: whether people voted in the 2001 UK general election; reports of which parties they had voted for in the 2001 election, and which parties they would vote for currently; and participation in political activity outside of the normal election process. It is important to include information on occupation, because voting in the UK has traditionally been influenced by occupational social class (Evans, 2000). The study was based upon longitudinal data available from a large, representative UK study: the 1970 British Cohort Study.

Methods

Participants

The 1970 British Cohort Study is an ongoing longitudinal study that takes as its subjects the 17,198 live births occurring to parents residing in Great Britain between April 5 and 11,

1970. The present analyses primarily use data from 1980-1981, when study participants completed tests of cognitive ability at age 10 years (though we also use cognitive data from 5 years to test the consistency of the findings), and from 2004-5 when, at age 34 years, they responded to enquiries about their political attitudes and behaviors. In all, 14,875 children took part in the 10-year follow-up, 93% of those eligible to participate (alive and living in England, Scotland and Wales). Written, informed consent was given by parents. Testing took place in schools. Of 13,197 cohort members eligible to take part in the 34-year follow-up, 9,665 (73%) agreed to be interviewed. In total, 6,352 (66% of those interviewed) had data on cognitive ability at the age of 10 years, political attitudes and behaviors at age 34, and current occupational social class. Compared to these 6,352 people, non-participants in the 34-year follow-up had a lower score on the tests of cognitive ability (IQ-type scale equivalent = 102.4 (14.3) *vs* 96.9 (15.3); p <0.001).

Data collection at age 5 years

Testing of the children's mental ability took place in the children's homes. Four tests were used: the Human Figure Drawing Test, a Copying Designs Test, the English Picture Vocabulary Test and the Profile Test. The Human Figure Drawing Test was a modified version of the Draw-a-Man Test, devised by Goodenough (1926) and developed by Harris (1963). The drawings were scored using an adapted version of the Harris–Goodenough scale (Scott, 1968; Koppitz, 1968). In the Copying Designs Test, children were asked to make two copies of eight designs (Davie, Butler, & Goldstein, 1972). The English Picture Vocabulary Test is an adaptation of the American Peabody Picture Vocabulary Test (Brimer & Dunn, 1968). In the Profile Test, children saw an incomplete profile of a head, were asked what it was, completed the drawing, and identified the parts. The correlations among the four tests are shown in Table 1. We carried out a principal components analysis

of these four tests. Examination of the scree slope suggested the presence of a single component. The first unrotated principal component accounted for 45% of the total variance among the four tests. The factor loading of each of the tests on the first unrotated principal component was 0.71 for the Human Figure Drawing Test, 0.75 for the Copying Designs, 0.63 for the English Picture Vocabulary Test and 0.55 for the Profile Test. Scores were saved for each subject on the first unrotated principal component, to provide an indicator of each person's general cognitive ability (*g*) at 5 years. These scores were converted to traditional IQ-type scales with mean = 100, SD = 15.

Data collection at age 10 years

Cognitive ability was assessed using a modified version of the British Ability Scales (Elliot, Murray, & Pearson, 1978), adapted to facilitate administration by teachers. Verbal ability was assessed using 2 subscales: word definitions and word similarities. The word definitions subscale consisted of a list of 37 words. The teacher articulated each word in turn and quizzed the child about its meaning. The word similarities subscale consisted of 42 items composed of 3 words (e.g., orange, banana, and strawberry, or sad, worried, and happy). For each item, the teacher enunciated the 3 words and asked the child to name another word consistent with the theme. Nonverbal ability was also assessed using 2 subscales: recall of digits and matrices. The recall of digits subscale consisted of 34 items. For each item, the teacher read out digits at half-second intervals and asked the child to repeat them. The matrices subscale consisted of 28 incomplete patterns arrayed as a grid. For each item, the teacher asked the child to draw in the missing part of the pattern. Details of the validity and reliability of the British Ability Scales have been published (Elliot, 1983). The reliabilities of these 4 subscales in children aged 10 were .91 (matrices), .82 (digit recall), .79 (similarities), and .90 (word definitions). The correlations among the four

tests are shown in Table 2. We carried out principal components analysis of the scores from the four tests taken at age 10 years. Pearson correlation coefficients between scores on the four tests ranged from $r = 0.31$ (matrices and recall of digits) to $r = 0.66$ (word similarities and word definitions). Examination of the scree slope suggested the presence of a single component. The first unrotated principal component accounted for 57% of the total variance among the four tests. The loadings of the 10-year tests on the first unrotated principal component were 0.83 for word definitions, 0.84 for word similarities, 0.58 for digit recall, and 0.74 for matrices. Scores were saved for each participant on the first unrotated principal component, thereby providing a measure of general cognitive ability (g) at age 10 years. These scores were converted to traditional IQ-type scales with mean = 100, SD = 15.

Data collection at age 34 years

Participants completed a computer-administered questionnaire that included items on political behavior and attitudes. Participants were asked whether they had voted in the General Election in 2001 and, if so, which party they had supported. They were also asked to indicate which party they would support currently and how interested they were in politics (on a 4-point scale ranging from 'very interested' to 'not at all interested'). In addition, they were asked whether, during the previous year, they had taken part in a public demonstration, attended a public meeting or rally, or signed a petition.

Data on the person's current occupation were collected and used to derive social class. If no data were available on current social class due, for example, to a small proportion of women not being employed while caring for their family, information on social class from the previous follow-up in adulthood (age 30) was used instead. This was coded into six

categories according to the UK Registar General's Classification of Occupations (Office of Population and Census Studies, 1980). The categories are named in the columns of Appendix Table 1.

Statistical analyses

The principal analyses used logistic regression to investigate the relation between childhood general cognitive ability (intelligence) score and political attitudes and behaviors reported at age 34, with adjustment for adult occupational social class. Risk estimates (odds ratios) are expressed per standard deviation increase in intelligence score, and per unit change in social class category. An odds ratio of exactly 1.0 means the predictor has no relation with an outcome. An odds ratio greater than 1.0 indicates that the predictor variable is associated with an increase in the rate at which the behavioral outcome occurs, whereas an odds ratio below this value is evidence of a decrease. For example, an odds ratio of 1.30 means that there is a 30% increase in the prevalence of the outcome per unit of measurement in the predictor; and an odds ratio of 0.70 means that there is a 30% decrease in the prevalence per unit of measurement in the predictor. If the 95% confidence intervals do not span 1.0 (unity) then the relationship is statistically significant at the conventional level ($p < .05$). We also provide point biserial correlations to complement these analyses.

Results

Unless age 5 intelligence data are mentioned specifically, all other results with childhood intelligence scores below refer to the tests taken at age 10. The correlation between the general cognitive ability factors (actually, the first unrotated principal components) extracted at age 5 and age 10 years was .497 ($p < .001$).

The 2001 UK general election

Subjects who voted in the 2001 UK general election had higher childhood intelligence
scores at age 10 than those who did not (p < .001) (Appendix Table 1). Similar results were
found for intelligence scores at age 5, where voters had a mean of 102.3 and non-voters a
mean of 99.4 (p < .001). Voters were more likely to be employed in more professional
occupations (p < .001) (Appendix Table 1). There was no significant sex difference
between voters and non-voters.

There was a significant difference in intelligence test scores when the party voted for in the
2001 general election was considered (p < .001) (Appendix Table 1, and see Appendix for
brief descriptions of political parties). People who reported voting for the Green Party and
the Liberal Democrats had the highest mean intelligence scores, and those voting for the
UK Independence Party had the lowest scores. There was a significant sex difference in
voting patterns (p < .001). Women were somewhat more likely to vote Labour, Liberal
Democrat, Green, and less likely than men to vote for the other parties (Appendix Table 1).
There was a significant difference in occupational social class according to party voted for
(p < .001). For example, 24.8% of people in 'professional' occupations voted for the
Conservative Party, but only 9.7% of people in 'unskilled' jobs. By contrast, 46.4% of
those in professional occupations and 77.4% of those in unskilled jobs voted for the Labour
Party.

The likelihood that people voted in the 2001 general election rose by 38% per standard
deviation increase in intelligence test score at age 10 (p < .001; r_{pb} = .14), and by 30% per
category change in social class toward more professional occupations (p < .001) (Table 3).
When the intelligence association with voting was additionally adjusted for occupational

social class the rate was attenuated only slightly—to a 24% increase per standard deviation—and was still highly significant. A similar pattern was seen in relation to intelligence at age 5. The odds ratio for voting according to a SD increase in general intelligence test score at age 5 was 1.23 (95% CI = 1.17, 1.29). After adjusting for adult occupational social class, this was undiminished, at 1.25 (95% CI = 1.18, 1.33).

Next, we examined the odds ratios of voting for a party other than the Labour Party (the party with the largest number of voters in this sample, and the party in power at the time of the survey). In sex-adjusted models, there was a 47% increased prevalence of voting for the Liberal Democrats, and a 49% increased likelihood of voting for the Green Party per standard deviation increase in intelligence test scores (Table 3). No other comparisons were significant. In sex-adjusted models, there was a 25% increased prevalence of voting for the Liberal Democrats, a 61% increased likelihood of voting for the Green Party, and a 18% decreased prevalence of voting for the British National Party per unit change toward more professional occupational status. When the associations between intelligence test scores and party voting were additionally adjusted for occupational social class, the association with voting for the Green Party was attenuated by 45% (odds ratio of 1.49 changed to 1.27), and was no longer significant. The association between intelligence and voting for the Liberal Democrats was attenuated by only 13% (odds ratio of 1.47 changed to 1.41) and remained significant at p < .001. One additional analysis was carried out, based on voting for the Liberal Democrats rather than the Conservative Party. The sex-adjusted odds ratio for this per standard deviation increase in intelligence is 1.40 (95% CI = 1.26, 1.56). If further adjusted for social class, the odds ratio is 1.44 (95% CI = 1.28, 1.62).

The correlations between intelligence test scores and voting decisions were as follows: Conservative Party rather than Labour Party, $r_{pb} = .041$ ($p = .017$); Liberal Democrats rather than Labour Party, $r_{pb} = .15$ ($p < .001$); Liberal Democrats rather than Conservative Party, $r_{pb} = .14$ ($p < .001$).

Voting intentions in 2004

There was a significant ($p < .001$) difference in intelligence test scores according to which party people said they would vote for currently (Appendix Table 1). The pattern was similar to that found for party voted for at the 2001 general election, as were the patterns for the sex and occupational social class differences. Although starting from low absolute numbers in the 2001 general election, with respect to voting intentions in 2004 there were notably increased percentages of women and men intending to vote for the UK Independence and Green Parties, and more men intending to vote for the British National Party (Appendix Table 1).

We examined the odds ratios of intending, in 2004, to vote for a party other than the Labour Party (the party with the largest number of intending voters in this sample). In sex-adjusted models, based on a standard deviation increase in intelligence scores, the following were significant: there was a 11% increased prevalence of intending to vote for the Conservative Party, a 46% increased prevalence of intending to vote for the Liberal Democrats, a 49% increased prevalence of intending to vote for the Green Party, and a 26% decreased prevalence of intending to vote for the British National Party (Table 4). With regard to each category change of occupational social class, people in more professional occupations were significantly more likely to vote Conservative (11%), Liberal Democrat (28%), Green (15%), and significantly less likely to vote Scottish National (16%), British

National (34%), and UK Independence (13%). When the associations between intelligence test scores and current voting intentions were additionally adjusted for occupational social class, the association with intending to vote for the Liberal Democrats was attenuated by 17% (odds ratio of 1.46 to 1.38) and was still significant (p < .001), and the association with intending to vote for the Green Party was attenuated by only 4% (odds ratio of 1.49 to 1.47) and was still significant (p < .001). Other associations between intelligence and party voting were non-significant after adjusting for occupational social class. One additional analysis was carried out, based on intentions to vote for the Liberal Democrats rather than the Conservative Party. The sex-adjusted odds ratio for this per standard deviation increase in intelligence is 1.31 (95% CI = 1.20, 1.43). If further adjusted for social class, the odds ratio is 1.32 (95% CI = 1.20, 1.46).

The correlations between intelligence test scores and voting intentions were as follows: Conservative Party rather than Labour Party, r_{pb} = .075 (p < .001); Liberal Democrats rather than Labour Party, r_{pb} = .17 (p < .001); Liberal Democrats rather than Conservative Party, r_{pb} = .11 (p < .001).

Political interest and activity other than elections
People who took part in a political meeting or rally in the last year, those who took part in a public demonstration, those who signed a petition, and those who were fairly or very interested in politics had higher mean intelligence test scores at age 10 (Appendix Table 1). In sex-adjusted models, the increased prevalence of engaging in these activities or of being interested in politics per standard deviation increase in intelligence was: political meeting or rally = 40%, public demonstration = 65%, petition = 33%, and interested in politics = 58% (Table 5). All of these associations were significant at p < .001. People in more

professional occupations were also more likely to report these political involvements and interest (Appendix Table 1 and Table 3). After adjusting the associations between intelligence and political involvement and interest for occupational social class, all of them remained significant at p < .001, and the attenuations in the odds ratios were as follows: political meeting or rally = 30% (odds ratio of 1.40 to 1.28), public demonstration = 15% (1.65 to 1.55), petition = 6% (1.33 to 1.31), and interested in politics = 26% (1.58 to 1.43) (Table 3).

The correlations between intelligence test scores and aspects of democratic participation were as follows (all $p < .001$): whether attended a rally/public meeting, $r_{pb} = .069$; whether taken part in a demonstration or protest, $r_{pb} = .069$; whether signed a petition, $r_{pb} = .11$; and fairly or very interested in politics, $r_{pb} = .20$. These four items and whether people voted or not in the 2001 election were combined to make a five-point scale of overall political involvement, which correlated .24 ($p < .001$) with general cognitive ability at age 10.

Discussion

In the present study, childhood intelligence was associated with whether people vote in elections, how they vote, and whether they engage in other political actions that contribute to the democratic process. Higher intelligence at the age of 10 was a predictor of voting in the UK's 2001 General Election, as was general intelligence from age 5. The effect was somewhat attenuated by occupational social class, but still highly significant after adjustment for this factor. Compared with voting Labour, people with higher intelligence were more likely to vote for the Green Party and the Liberal Democrats. The former was largely accounted for by occupational social class, the latter was not. With respect to voting intentions in 2004, support for these same two parties and the Conservative Party were

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associated with higher childhood intelligence. Intention to vote for the British National Party—a party with a strongly anti-immigration ideology—was less likely among people of higher childhood intelligence. After adjustment for occupational social class, only the intention to vote for the Liberal Democrats and the Green Party remained significantly associated with childhood intelligence. Engagement in other forms of political and democratic activity was significantly associated with childhood intelligence, as was degree of interest in politics. None of these associations was strongly accounted for by occupational social class.

The study adds to the debate about whether intelligence plays a part in people's decision about whether or not to vote in elections. Hauser (2000) concluded that intelligence was unimportant in this respect, but Denny and Doyle (2008) disagreed, and insisted that childhood intelligence measures were important, because they pre-date major educational differences. In the present study we examined general intelligence from cognitive test batteries taken at age 5 and 10 years, and scores from both ages were related to reports about whether people had voted. The age 5 results are especially striking as no formal schooling has taken by that age. By age 10, the subjects had been involved in primary school education only, and up to this stage there is no differentiation of the curriculum according to ability.

It is becoming clear that intelligence plays an important role in socio-political attitudes and actions: it is linked with more liberal social attitudes (Deary, Batty & Gale, 2008) and the decision to vote (Denny & Doyle, 2008). It is notable that higher intelligence was associated with endorsing 'alternatives' to the two major UK political parties. The Liberal Democrats are seen as the alternative to the two major parties that have traditionally been

linked with occupational social classes, and the Green Party is associated with an alternative, more sustainable way of living. In 2001, voting for the Liberal Democrats was associated with intelligence and this association was not accounted for by occupational social class. This was also found, in 2004, for voting intentions toward both the Green Party and Liberal Democrats. This contrasts with the associations we found between intelligence and whether or not people supported the Conservative Party and the British National Party, both of which were accounted for by adult occupational social class. This might be because support for both these parties has traditionally been strongly social-class based, drawn predominantly from non-manual occupational social classes in the case of the Conservative Party, and from more disadvantaged social classes in the case of the British National Party.

Strengths of the study include the large, fairly representative sample of the UK population, the measurements of intelligence in early life prior to the period of major educational attainment and before there are large differences in schooling, and the assessment of intelligence with validated subtests and the extraction of a general cognitive component. The study's limitations include the facts that all the political measures were self-reported, affiliations with some political parties had small numbers, and the results are based on a single sample of the same age. Although these data apply to one country's political system, there are broad similarities in political parties across Western democracies, and so these data might have wider relevance beyond the UK. Non-responders were about one-third standard deviation below the responders on childhood intelligence. Therefore, the sample had range restriction with respect to the population. Accordingly, the results presented here might be slight underestimates of the population effects due to this range restriction in cognitive ability. The criterion measures used here are mostly single items. Single items

tend to be relatively low in reliability. It is possible that the results presented here are underestimates of the population effects due to the imperfect reliability of the dependent measures.

In conclusion, participation in voting and other democratic activities are associated with intelligence, and these are largely not a result of occupational social class. Childhood intelligence is associated with how and how much people engage in the democratic processes, and with support for political ideologies that are based on ecological sustainability and social liberalism. This extends the areas of modern living for which intelligence differences have significance.

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Table 1

Correlations between cognitive ability measures at age 5.

	English picture vocabulary test	Human figure drawing test	Copying designs test
Profile test	.14	.22	.19
English picture vocabulary test	-	.29	.32
Human figure drawing test		-	.50

All correlations significant at $p < .001$.

Table 2

Correlations between cognitive ability measures at age 10.

	Recall of digits	Word definitions	Word similarities
Matrices	.31	.47	.49
Recall of digits	-	.32	.33
Word definitions		-	.65

All correlations significant at $p < .001$.

Table 3

Odds ratios (95% CI) for voting in the 2001 general election and for voting for other political parties in preference to Labour.

	No (%)	OR for a SD increase in intelligence, adjusted for sex	OR for a category change towards higher adult social class	OR for a SD increase in intelligence, adjusted for sex and adult social class
Voted in 2001 General Election	4093 (64.4)	1.38 (1.30 to 1.46)***	1.30 (1.25 to 0.36)***	1.26 (1.19 to 1.24)***
Party voted for in preference to Labour				
Conservative	1058 (33.8)	1.05 (0.97 to 1.14)	1.13 (1.06 to 1.20)	1.00 (0.92 to 1.09)
Liberal Democrat	615 (22.8)	1.47 (1.34 to 1.62)***	1.25 (1.15 to 1.35)***	1.41 (1.27 to 1.56)***
Scottish National	92 (4.24)	0.93 (0.75 to 1.16)	0.90 (0.76 to 1.06)	0.96 (0.76 to 1.22)
Green	78 (3.62)	1.49 (1.17 to 1.89)***	1.61 (1.27 to 2.02)***	1.27 (0.98 to 1.65)
British National	69 (3.21)	0.86 (0.67 to 1.11)	0.82 (0.68 to 0.99)*	0.93 (0.71 to 1.21)
UK Independence	61 (2.85)	0.79 (0.59 to 1.02)	0.88 (0.72 to 1.08)	0.79 (0.59 to 1.06)
Plaid Cymru	37 (1.75)	0.96 (0.68 to 1.34)	0.99 (0.76 to 1.29)	0.95 (0.66 to 1.36)

***p<0.001, *p<0.05

Table 4
Odds ratios (95% CI) for intending to vote for other political parties in preference to Labour in 2004.

Party intending to vote for in preference to Labour	No (%)	OR for a SD increase in intelligence, adjusted for sex	OR for a category change towards higher adult social class	OR for a SD increase in intelligence, adjusted for sex and adult social class
Conservative	1436 (44.6)	1.11 (1.03 to 1.19)**	1.11 (1.04 to 1.17)**	1.07 (0.99 to 1.16)
Liberal Democrat	902 (33.6)	1.46 (1.34 to 1.59)***	1.28 (1.19 to 1.37)***	1.38 (1.26 to 1.51)***
Scottish National	246 (12.1)	0.87 (0.71 to 1.05)	0.84 (0.73 to 0.98)*	0.92 (0.74 to 1.13)
Green	211 (10.6)	1.49 (1.28 to 1.73)***	1.15 (1.02 to 1.30)*	1.47 (1.25 to 1.73)***
British National	113 (5.96)	0.74 (0.57 to 0.96)*	0.66 (0.54 to 0.80)***	0.88 (0.67 to 1.16)
UK Independence	62 (3.36)	0.90 (0.78 to 1.03)	0.87 (0.78 to 0.96)**	0.96 (0.82 to 1.19)
Plaid Cymru	39 (2.14)	0.82 (0.59 to 1.13)	0.94 (0.73 to 1.21)	0.81 (0.57 to 1.15)

***$p < 0.001$, **$p < 0.01$, *$p < 0.05$

Table 5
Odds ratios (95% CI) for taking part in other democratic procedures in the previous year and for being interested in politics.

	No (%)	OR for a SD increase in intelligence, adjusted for sex	OR for a category change towards higher adult social class	OR for a SD increase in intelligence, adjusted for sex and adult social class
Attended public meeting or rally in last year	282 (4.4)	1.40 (1.24 to 1.59)***	1.35 (1.21 to 1.51)***	1.28 (1.11 to 1.46)***
Taken part in public demonstration	131 (2.1)	1.65 (1.37 to 1.98)***	1.32 (1.13 to 1.54)***	1.55 (1.27 to 1.89)***
Signed a petition	1459 (23.0)	1.33 (1.25 to 1.41)***	1.13 (1.08 to 1.19)***	1.31 (1.22 to 1.40)***
Fairly or very interested in politics	2670 (42.0)	1.58 (1.50 to 1.67)***	1.35 (1.29 to 1.41)***	1.43 (1.35 to 1.52)***

***p<0.001

Appendix

Brief descriptions of UK political parties

Labour Party

Founded in 1900 to represent the interests of the working-class population. Traditionally left-wing, with strong ties to trade unions, the Labour Party has become increasingly centrist. Labour has been the party in power in Britain since 1997 to date (2008). Its ideology is social democracy.

Conservative Party

Founded in 1830, this traditionally centre-right to right wing party is currently the chief opposition to Labour. It is the largest political party on the centre-right. It was in power in the UK most recently from 1979 to 1997. Its ideology is conservatism.

Liberal Democrat Party

Founded in 1988 but originating from the early 19th century 'Liberal Party', this traditionally centrist party is the smallest of the three major political parties in Britain. It is strongly committed to the welfare state and social provision. Its ideology is social liberalism.

Scottish National Party

Founded in 1934, this centre-left party has representatives in the United Kingdom's parliament at Westminster, and has been in power in the devolved Scottish Government since 2007. Its ideology is Scottish independence and social democracy.

Plaid Cymru (Party of Wales)

Founded in 1925, this centre-left party is traditionally popular in Welsh-speaking parts of Wales. Its ideology is Welsh independence and social democracy.

Green Party

Founded in 1973, this centre-left party is committed to ecological sustainability. As yet, it has very few elected representatives. Its ideology is green.

UK Independence Party

Founded in 1993, the aim of this party is to seek UK withdrawal from the European Union. Its ideology is conservatism and 'Euroscepticism'. As yet, it has very few elected representatives.

British National Party

Founded in 1982, this minor far-right party is committed to "stemming and reversing the tide of non-white immigration". Its ideology is white and British nationalism.

Appendix Table 1
Characteristics of the participants according to voting behavior, voting intentions and indicators of democratic participation and interest in politics (n=6352).

		Mean (SD) intelligence at age 10	Sex – no (%)		Current social class – no (%)					
			Male	Female	Professional	Managerial/ technical	Skilled non-manual	Skilled manual	Semi-skilled	Unskilled
Voted in 2001 General Election	Yes	104.0 (14.2)	1997 (63.6)	2096 (65.2)	309 (75.0)	1767 (71.0)	905 (65.0)	643 (53.5)	405 (56.3)	64 (46.0)
	No	99.7*** (14.1)	1141 (36.4)	1118 (34.8)	103 (25.0)	720 (29.0)	487 (35.0)	559 (46.5)	315 (43.8)	75 (54.0)***
Party supported in 2001 Election										
Conservative	-	103.7 (13.5)	562 (28.6)	496 (23.9)	78 (24.8)	485 (27.8)	236 (26.2)	166 (26.2)	89 (22.5)	6 (9.7)
Labour	-	103.0 (14.2)	980 (49.8)	1095 (52.7)	142 (46.4)	855 (49.0)	460 (51.1)	341 (53.8)	229 (58.0)	48 (77.4)
Liberal Democrat	-	108.2 (14.4)	266 (13.5)	349 (16.8)	69 (22.5)	280 (16.0)	148 (16.4)	67 (10.6)	46 (11.6)	5 (8.1)
Scottish National	-	102.2 (14.2)	59 (3.0)	33 (1.6)	5 (1.6)	34 (1.9)	18 (2.0)	22 (3.5)	11 (2.8)	2 (3.2)
Green	-	108.3 (12.9)	24 (1.2)	54 (2.6)	9 (2.9)	47 (2.7)	12 (1.3)	7 (1.1)	3 (0.8)	0 (0)
British National	-	101.1 (15.7)	16 (0.8)	11 (0.5)	0 (0)	6 (0.3)	8 (0.9)	8 (1.3)	5 (1.3)	0 (0)

UK Independent	-	99.7 (13.4)	37 (1.9)	25 (1.2)	2 (0.7)	24 (1.4)	12 (1.3)	16 (2.5)	8 (2.0)	0 (0)
Plaid Cymru	-	102.5 (16.5)***	22 (1.1)	15 (0.7)***	3 (1.0)	15 (0.9)	7 (0.8)	7 (1.1)	4 (1.0)	1 (1.6)***
Party intending to vote for in 2004										
Conservative	-	103.1 (13.9)	807 (28.6)	629 (23.5)	104 (28.8)	604 (27.9)	307 (26.2)	276 (25.8)	129 (21.5)	16 (12.8)
Labour	-	101.6 (14.6)	861 (30.5)	923 (34.5)	113 (31.3)	700 (32.3)	376 (32.1)	338 (31.6)	213 (35.5)	44 (35.2)
Liberal Democrat	-	106.9 (14.5)	397 (14.1)	505 (18.9)	92 (25.5)	416 (19.2)	208 (17.8)	108 (10.1)	65 (10.8)	13 (10.4)
Scottish National	-	100.2 (12.8)	71 (2.5)	42 (1.6)	3 (0.8)	39 (1.8)	19 (1.6)	34 (3.2)	14 (2.3)	4 (3.2)
Green	-	107.1 (13.7)	86 (3.0)	125 (4.7)	14 (3.9)	100 (4.6)	42 (3.6)	32 (3.0)	19 (3.2)	4 (3.2)
British National	-	99.6 (13.5)	48 (1.7)	14 (0.5)	1 (0.3)	11 (0.5)	12 (1.0)	25 (2.3)	9 (1.5)	4 (3.2)
UK Independence	-	97.4 (12.2)	150 (5.3)	96 (3.6)	8 (2.2)	80 (3.7)	54 (4.6)	66 (6.2)	33 (5.5)	5 (4.0)
Plaid Cymru	-	98.7 (17.0)	25 (0.9)	14 (0.5)	3 (0.8)	15 (0.7)	6 (0.5)	8 (0.7)	5 (0.8)	2 (1.6)
None	-	98.1 (13.4)***	375 (13.3)	325 (12.2)***	23 (6.4)	202 (9.3)	147 (12.6)	182 (17.0)	113 (18.8)	33 (26.4)***
Democratic participation and political interest										
Attended	Yes	106.8 (14.7)	142 (4.5)	140 (4.4)	35 (8.5)	128 (5.1)	62 (4.5)	38 (3.2)	17 (2.4)	2 (1.4)

public meeting or rally in last year	No	102.2 (14.2)***	2996 (95.5)	3074 (95.6)	377 (91.5)	2359 (94.9)	1330 (95.5)	1164 (96.8)	703 (97.6)	137 (98.6)***
Taken part in public demonstration in last year	Yes	109.0 (14.8)	64 (2.0)	67 (2.1)	15 (3.6)	63 (2.5)	26 (1.9)	16 (1.3)	9 (1.3)	2 (1.4)
	No	102.3 (14.3)***	3074 (98.0)	3147 (97.9)	397 (96.4)	2424 (97.5)	1366 (98.1)	1186 (98.7)	711 (98.8)	137 (98.6)*
Signed a petition in last year	Yes	105.3 (14.0)	615 (19.6)	844 (26.3)	105 (25.5)	648 (26.1)	311 (22.3)	215 (17.9)	156 (21.7)	24 (17.3)
	No	101.6 (14.3)***	2523 (80.4)	2370 (73.7)***	307 (74.5)	1839 (73.9)	1081 (77.7)	987 (82.1)	564 (78.3)	115 (82.7)***
Fairly or very interested in politics	Yes	105.9 (14.3)	1589 (50.6)	1081 (33.6)	253 (61.4)	1254 (50.4)	474 (34.1)	436 (36.3)	211 (29.3)	42 (30.2)
	No	99.9 (13.7)***	1549 (49.4)	2133 (66.4)***	159 (38.6)	1233 (49.6)	918 (65.9)	766 (63.7)	509 (70.7)	97 (69.8)***

Note: 4,044 participants provided information on which party they had voted for in the 2001 General Election, and 5,493 on which party they would vote for currently. *** p<0.001; these p values refer to comparisons of the outcomes based on childhood intelligence scores, sex, and adult occupational social class.