WIDER BENEFITS OF LEARNING RESEARCH REPORT NO.11

Adult Education and Attitude Change

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Centre for Research
on the Wider
Benefits of Learning

ADULT EDUCATION AND ATTITUDE CHANGE

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The Centre for Research on the Wider Benefits of Learning (WBL) was established in 1999 by the then Department for Education and Employment, now the Department for Education and Skills (DfES). The Centre's task is to investigate the social benefits that learning brings to individual learners and to society as a whole. The views expressed in this work are those of the authors and do not necessarily reflect the views of the Department for Education and Skills. All errors and omissions are those of the authors.

Executive Summary

The Literature on Adult Learning and Attitude Change

1. Previous literature on learning and attitude change suggests that there may be a role for adult education in changing attitudes, but there is little evidence to suggest how (or why) adult education may change opinions. Moreover, there is little rationale for the importance of changing norms in terms of their impact on behaviour. This report aims to address these research questions.

Data, Reliability and Validity of Attitude Scales

2. A number of attitude scales were constructed from NCDS. These are racism, political cynicism, environmental concern, willingness to work, collectivism and markets (termed 'collectivism-markets'), authoritarianism and traditional family values. These scales are shown to have good internal reliability. This means items that comprise these scales are highly correlated.

3. Attitude scales are also shown to be associated with various forms of civic participation. For example, those who are members of political parties are less politically cynical and those who are members of environmental groups have greater levels of environmental concern. Attitude scales also are differentially associated with different forms of participation. In terms of the traditional family values scales, members of traditional child orientated associations (such as PTAs) show significantly ($p<0.05$) greater agreement with this scale than members of other associations. However, trade union members show significantly less support for these values. This discrimination by membership type shows that attitudes are measuring meaningful facets of behaviour.

4. In addition, there is an association between levels of racism in an area and support for a party that supports racial segregation – the BNP. Taking all 42 year olds in NCDS in each major postcode area an indicator of area racism is devised. The postcode areas with BNP councillors and/or high levels of racial disorder in 2003 were in the top quartile of all areas ordered by racism at 42. Again, this indicates that the racism attitude used here is associated with behaviour.

5. We distinguish between attitudes which are related to specific policy targets, those which are concerns of policy and those which are associated with more general ideology. Racism and political cynicism are described as 'target attitudes' given the importance of both to community cohesion and engagement. Environmental concern and willingness to work are described as 'policy concerns' as the measures reflect general views on these themes, rather than

attitudes to sustainability (in terms of recycling, for example) or work readiness. Authoritarianism, collectivism-markets and traditional family values are described as ideological concerns as they are an expression of opinion. They are not necessarily of policy concern, but they may be related to more general policy or government philosophies.

Findings

6. Through regression analysis we show that adult education has particular effects on attitudes. Namely, it has most influence on those attitudes where a more 'open minded' perspective may be taken (such as racism or authoritarianism) and less influence on more general points of ideology (such as collectivism-markets or traditional family values).

7. In terms of 'target attitudes' (racism and political cynicism) there are positive effects[1] of academic adult learning in reducing both racism and cynicism. For men, vocational adult education also reduces racism, whereas work and leisure related adult education is effective in reducing the racism of women. There are effects of leisure related adult education in reducing the political cynicism of women.

8. In terms of 'policy concerns', vocational courses have a positive effect on increasing the environmental concern of men. For both men and women, work related adult education is associated with positive willingness to work.

9. In terms of more general ideology, there are effects of academic adult education on reducing authoritarianism. For women work related, and for men leisure related, adult education reduces authoritarianism. There are few notable effects of adult learning in changing ideological position in terms of collective or market provision of resources or traditional family values.

10. By using cluster analysis we demonstrate that there is a clearly defined group of individuals with 'extremist' racist-authoritarian attitudes and that although adult education may not move individuals away from this extremist position it can prevent individuals from moving to this extreme attitude position. There is a sustaining, if not transforming, effect of adult learning.

[1] Unless otherwise stated, effects are significant at the 5% level of significance ($p<0.05$).

Conclusion

11. In conclusion, adult education is implicated in a movement towards more 'open minded' perspectives on race and authority, but not usually with more ideological shifts in position. Notably, it is associated with preventing individuals from moving to an entrenched racist-authoritarian position. This suggests that adult learning may be used as a policy instrument in influencing target attitudes and concerns without necessarily impacting upon other forms of ideology.

12. This does not mean that other factors are not of importance. A focus on individual attitudes and behaviours should be complemented by an understanding of the institutional contexts of individuals' lives.

13. There may be reservations concerning whether adult learning should be used as an instrument of attitude change. This question is in some ways misleading as adult education may change attitudes even if not as a direct target of policy: it is already changing attitudes. That adult education *should* be used to change *specific* attitudes is a question which is beyond the scope of this research report, but as we have shown, it *can and does* lead to attitude change.

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Acknowledgements

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1. Scope of the Report and Theoretical Perspective

1.1 Adult learning, Attitudes and Behaviours

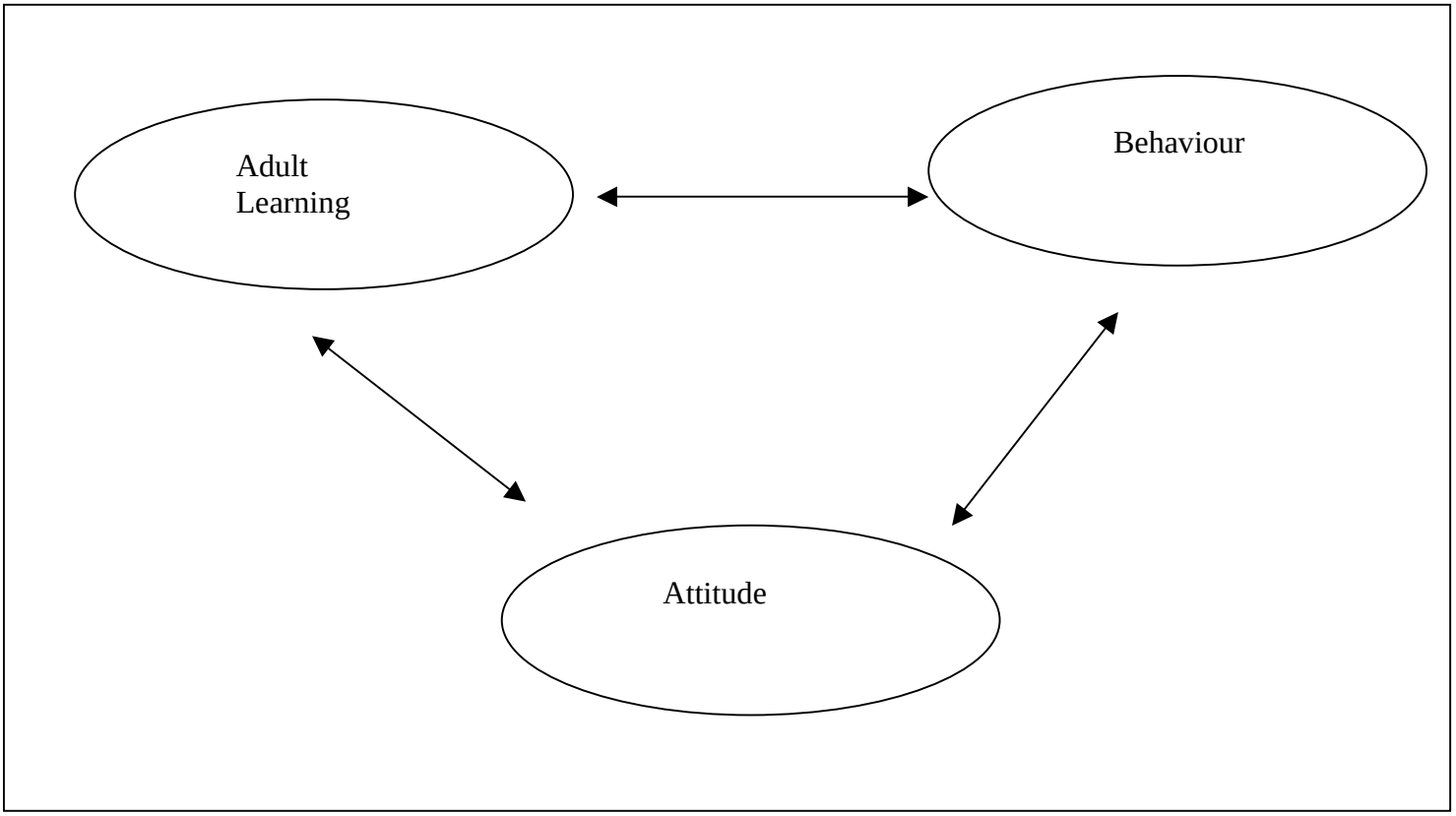
In WBL Research Report 8 (Feinstein, Hammond, Preston, Woods and Bynner, 2003) we examined the effects of adult education on attitudes towards race, authoritarianism and political cynicism. We also examined the effects of adult education on voting and civic participation. Both in terms of attitudes and behaviours, significant and substantial effects of adult education on these outcomes were identified.

In this report we extend this work and open up new areas of analysis in terms of the links between adult learning/education and social attitudes and behaviours. Here we focus upon the effects of learning on attitudes rather than behaviours. This is partly for pragmatic reasons in that attitude scales are more amenable to analysis than indices formed from types of behaviour. However, we also consider attitude to be an important influence on behaviour (Fishbein and Ajzen, 1975). We don't just assert this view but test it, showing that attitudes have predictive validity in terms of their associations with behaviours.

This existing and continuing work on social cohesion is part of a social cohesion strand of projects which will examine links between learning and social cohesion at micro (individual), meso (area) and macro (national and cross-national) levels. This current research deals with the micro components of social cohesion. Specifically it deals with concepts of 'norms' (attitudes) and the effect of adult learning on these individual attitudes. It is also concerned with the relationship between attitudes and behaviours in terms of civic participation – the various 'networks' to which individuals might belong.

It is realistic to conceive of attitudes, behaviours and participation in adult education as related components of positive or negative cycles of change within the life-course, but we do not hypothesise an a priori causal structure that links these three components in a single causal sequence. Figure 1 (below) provides a simple way of conceptualising the relationship between these components.

Figure 1: The relationship between adult learning, attitudes and behaviours



It is possible that adult learning might inspire a change in attitude which in turn brings about a change in behaviour. There are other circumstances in which a behavioural change might jointly precipitate adult learning and an attitude change. Theory on these relationships is discussed below in Section 1.3.

1.1.1 Research questions

In this report, we will investigate empirically the following five research questions:-

The importance of attitudes

1. How are the attitudes related to each other?
2. Do attitudes measure validity in terms of relating to behaviour?
3. Are attitude variables important for policy?

Adult learning and attitudes

4. Is adult learning associated with attitude change?
5. Can adult learning affect attitude change amongst those with extremist attitudes?

The first three research questions are concerned with whether attitudes are meaningful both in terms of the way in which they are exemplified by a range of

related opinions (internal reliability) and that they are associated with related behaviours (construct validity). For example, in suggesting that there is an attitude which we might call 'racism' we might expect that most racist individuals would agree with a number of opinion items regarding immigration, inter-race marriage and race-segregated schooling. Not all racist individuals would show the same level of agreement with all of these aspects of racism. However, in general we might expect that there would be a tendency of racist individuals to concur. Secondly, we would expect that racist individuals might be more likely to express racist behaviours such as support for parties which support their views.

In this report we show that there is both internal reliability and construct validity of attitude statements. Attitudes are 'real' in that they are associated with agreement with a number of related opinions. We additionally show that there are associations between related attitudes. For example, there is a strong relationship between racism and authoritarianism. In terms of Figure 1 (above) we show in this report that there are measurable attitudes and that these are related to behaviours.

After showing that attitudes have both internal reliability and construct validity we then turn to research questions 4-6 which are concerned with testing the effects of adult learning. In this report we use data from the NCDS (National Child Development Study) in which we are able to identify *changes* in these variables between *two* points in time. By using change, rather than the levels of these variables, we are better able to identify causal effects. This identification is not perfect, as we discuss, but evaluation is nonetheless improved by consideration of within-individual differences rather than between-individual differences as would be the case in cross-sectional analysis.

In the absence of experimental evidence, better identification of a causal chain would probably require the collection of new data as existing data sets do not have sufficiently detailed information on the timing of adult learning episodes. However, there is some merit in considering adult learning as part of other developmental changes in adulthood. Although it may start positive cycles of development, it is also likely to sustain existing cycles. This transforming/sustaining function of adult education has informed much of our work in the Centre to date (see Schuller et al, 2004, particularly 24-29). Thus even without full identification of causality we will still assert the benefit of adult learning as part of a cycle of positive development. We return to this issue below.

1.2 Structure of the Report

Before reporting the results of empirical analysis of the six research questions, we begin by examining the literature on adult learning and changes in attitudes and related behaviours. This involves a discussion of conceptual models which link learning to processes of attitude and behaviour change.

As our focus in this report is on attitudes, we begin by examining descriptive statistics on the attitude items used in NCDS (National Child Development Study – the 1958 birth cohort study). We then describe how these individual attitude items were analysed to create attitude scales using the technique of factor analysis. We give an account of a first order factor analysis. In the first order factor analysis, the 31 individual attitude items from NCDS were reduced to 7 attitude factors. Next, we show that the attitude scales have internal reliability (as attitude items are correlated) and predictive (construct) validity in that they are associated with related behaviours.

We then examine changes in attitudes over time. We examine the impact of various forms of adult learning on attitudes and report the results of regression analysis. Although this is useful in identifying effects of learning on a sample population as a whole it is often desirable to identify effects on sub-groups of a population that may be of particular policy interest. For example, in terms of attitude change those with strong racist and authoritarian views may be of particular concern. We use cluster analysis to identify population sub-groups with particular clusters of attitudes which may not be desirable in terms of social cohesion. We then identify whether adult learning acts to move individuals from racially intolerant and authoritarian clusters to potentially more socially cohesive ones.

Finally, we draw some initial conclusions from this work and propose future directions for research.

1.3 Adult Education and Attitude Change

There is an inter-disciplinary literature on the effects of learning on social and political attitude change and the consequences of such change. This literature – from political psychology, sociology and economics – largely concentrates on the role of education, rather than learning. However, there is an obvious degree of transference between the two.

In political psychology, the effect of adult learning on attitude change has recently been conceived as a multi-stage process through which affective, behavioural and cognitive changes are made. Such models are necessary as the mechanisms through which adult education affects one attitude may be different from those which affect another. For example, using panel data in the United States Nie et al. (1996) show that the ways in which education affects democratic enlightenment (support for

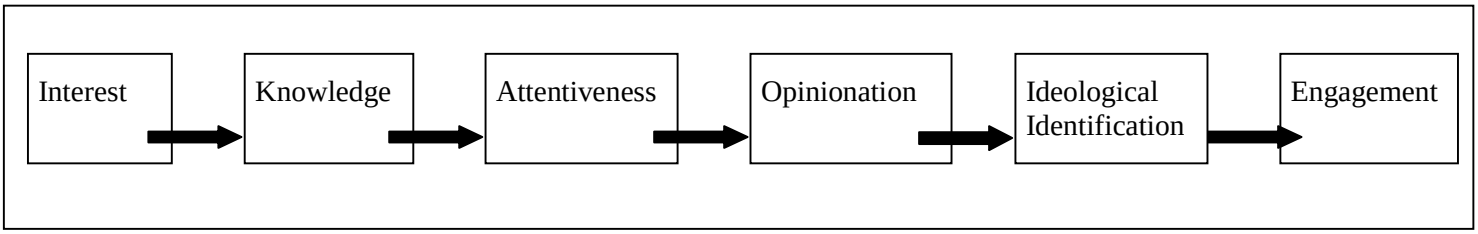
democracy) are different from the ways in which it affects the sense of efficacy necessary for engagement. This is because the verbal and cognitive skills necessary for enlightenment are different from the networking and social confidence necessary for engagement. However, this does not mean that minimal (basic) skills are not necessary for participation.

Multi-stage models are also useful as adult education may have complex effects on attitudes. Aside from 'third variable' explanations based upon income, status and wealth there are both direct and relative effects of education (Emler and Fraser, 1999: 260). Direct effects include the influence of education on knowledge and educational values whereas relative effects include the influence of education on 'relative self-esteem', opportunities and network position. Indeed, social networks and civic associations are particularly important in forming political views. In adulthood, social networks comprising a diversity of ethnic backgrounds can increase racial tolerance (Pettigrew et al, 1988).

In the multi-stage model of Bynner et al (2003) the process of attitude formation and subsequent behavioural change is sequential (Figure 2), although, according to this model, each stage does not necessarily lead to the next change. Interest is the starting point in a process that may lead to behaviour change. In the field of political engagement, for example, an interest in politics may lead to more attention paid to political stimuli such as newspapers, television programmes and debate amongst friends (attentiveness). From these sources, political knowledge may be formed. Through contact with others, political opinions may arise (opinionation) which become the basis for a more coherent set of beliefs (ideological affiliation). This may prefigure engagement in terms of voting or joining a political party.

This model is probabilistic in that it is not certain that learning will produce a movement from one part of the chain to another (for example, from attentiveness to opinionation). Moreover, there is no necessary connection between number of courses taken (or even type of course) and movement through the chain. It may be that one adult education course may take an individual through all of these processes. On the other hand, several courses may not be sufficient to even move an individual through the chain. This indicates the importance of identifying the features associated with different types of courses when modeling; for example, making distinctions between academic/vocational and accredited/unaccredited courses.

Figure 2: The formation of political attitudes and behaviours



This model has the strength that it can explain the relationship between different forms of education and social/political outcomes. As stated above, knowledge of the principles of democracy (political enlightenment) may not be sufficient to elicit joining a political party (political engagement) – different educational pathways are associated with each outcome. Didactic forms of education may be useful in stimulating interest, knowledge and attention. However, other types of school or post-school experience may be necessary in the formation of opinions and ideologies. Milligan et al (2003) find that raising the school leaving age led to increased opinionation. Using pooled data from various Eurobarometer surveys they find that those compelled to take an extra year of schooling because of the raising of the school leaving age were 7% more likely to try to persuade others to share their views, 6% more likely to discuss political matters with friends and 3% more to consider themselves politically active. The authors report that increased schooling was not sufficient to increase voter turnout. However, adult education can play a crucial role in stimulating opinions and bringing the learner in contact with politically engaged individuals and groups. In doing so, the learner is forming a *political identity*. This opinionation/ideological formation function of adult education has always been part of the discourse involving the functions of adult learning.

However, we should be critical of views that adult learning automatically shifts values towards any one political perspective. Rather, individuals might select themselves into courses and social groups which are likely to fit pre-existing opinions (Emler and Fraser, 1999). Even so, adult education has an important function in consolidating opinions into an ideological affiliation which might then become engagement.

The relationship between engagement and attitudes is also reciprocal. As Putnam (2000) reports, initial and post-compulsory education is a powerful predictor of civic engagement. Our own analysis supports similar results (Feinstein et al, 2003). According to Putnam, this initial involvement in civic groups encourages localised trust and reciprocity between individuals within the group which then becomes more generalised trust and tolerance. In this analysis, behaviours which might result from an increase in education are a precursor of attitude change.

It is clear in various literatures from psychology and political science that attitudes and behaviours are related. Moreover, evidence shows that attitudes have some predictive validity. For example, using evidence from the 1983 and 1987 British

Election Studies Evans et al (2003) show that position on the left-right scale of political preference is predictive of support for particular political parties. Those on the left are taken as being more likely to support the Labour Party, those on the right the Conservatives and those in the centre the (then) Liberal or Social Democrat Parties. Position on the authoritarianism scale was also predictive of political preference. This finding has also been replicated in a US study (Edlund and Pande, 2002). Interestingly in the Evans et al study, while position on the Left-Right scale did not predict voting, the consistency of political opinions did. That is, those who seemed to have a consistent political identity were also more likely to vote. This finding supports the above model of opinionation as a vital part of the process of engagement (Figure 2). We test these issues in our own data in Section 2.

It must be noted in reviewing this literature that the authors make a clear demarcation between learning on the one hand, and engagement on the other. This demarcation is not always useful and for some individuals adult learning may be a key site of engagement (for example, through engagement in a local history group in which community issues are also debated). Similarly, learning may take place through engagement (for example, through courses attended as a trade union representative).

1.4 Policy

In policy terms, there has been an increased interest in social and political attitudes as an instrument of policy. In a wide ranging consultation (National Policy Forum, 2002) the Labour government outlined a discussion concerning priorities with regard to citizenship. These included fostering attitudes concerning political efficacy and civic responsibility as well as tackling racism in society. Indeed, there has been a hardening of these general views towards more specific policy targets. Whilst not targeting attitude change directly, there is a focus on engagement with a Home Office Public Service Agreement (PSA) target to 'Increase voluntary and community sector activity, including community participation, by 5% by 2006' (Home Office, 2001). Such targets are being audited through the collection of information by government agencies on citizen opinions and actions. The Home Office Citizenship Survey (2001) collects evidence on views in terms of racism and attitudes to welfare agencies. However, changing attitudes can be seen as part of reforms across the public sector in terms of neighbourhood renewal, education action zones, anti-racism policies within the NHS and police reforms. There is therefore considerable inter-departmental policy interest in both the causes and consequences of attitude change.

1.5 Data Used

In this report we use data from the National Child Development Study (NCDS) which is a birth cohort study of individuals born in England during one week in 1958. The data comprise a number of sweeps. In this study, we are mainly concerned with data from sweeps when cohort members were aged 33 and 42. We also use earlier sweeps to control for factors such as prior ability and education.

2. Attitudes and Attitude Scales

The first aspect of assessment of the attitudinal variables assessed here is the internal reliability of the attitude. In Section 2.1 we examine how individual attitude items in the NCDS may be grouped to form attitude scales and explain the procedure by which we explored and confirmed that attitude items formed attitude scales. We show that each scale has a reasonable internal reliability, meaning that the individual opinion statements (items) which make up an attitude are closely associated. The 'meaning' of these scales is also described. This analysis addresses our first research question (Section 1.1.1) in that it shows that attitudes are both internally consistent (meaningful) and related to other associated attitudes.

Alongside the clarity of the attitude we also discuss the *relevance* of the attitude in terms of current policy targets and concerns. Here we make value judgments as to the possible utility of changing certain attitudes given the current policy context. We classify those attitudes which are strongly related to current policy objectives as policy targets and those which are less strongly related as policy concerns. The third category of attitude is those which are ideological. These are concerned with values and opinions which are not of themselves of concern for policy makers although they may be implicit in more ideological debates concerning the role of the state or the family. The last category of attitudes may not be of direct interest to policy makers. However, if adult education has significant effects on changing ideology then this may be of policy interest in itself.

An important issue is whether the attitudes are valid, that is, whether they are related to other attitudes and behaviours in a related and expected manner (research questions 1 and 2). In Sections 2.2 -2.3.1 we test various forms of validity. We firstly show that there are expected relationships between attitudes themselves (Section 2.2). For example, there is a relationship between racism and authoritarianism. In Section 2.3.1 we show how there is a close relationship between participation in certain organisations and attitudes. We also indicate (Section 2.3.2) that there are important ecological associations, i.e. a close correspondence between one of our attitudes (racism) and support for parties which might support a particular perspective on race (the BNP). This analysis addresses our second research question (Section 1.1.1) in showing that attitudes have some predictive validity in terms of their association with behaviours.

2.1 Seven Attitudes

One perspective on attitudes is that they are an underlying, reasonably stable disposition from which a range of opinions follow. For example, an attitude reflecting environmental concern may lead to agreement with a number of statements regarding policy priorities in terms of economic growth or recycling. As these underlying dispositions cannot necessarily be observed directly, we proceed from attitude items and use these to construct the underlying attitude.

Factor analysis is used here to reduce items to a smaller number of underlying (latent) variables. In factor analysis, these latent variables (factors) are identified which could reconstruct the original data set (Tabachnick and Fidell, 1996: 635). In this investigation, we used the attitude inventories ("What Do You Think") questions in NCDS sweeps 5 (when respondents were aged 33) and 6 (when respondents were aged 42) to select response items. Respondents were asked to rate the extent of their agreement or disagreement with each item on a Likert scale with 5 possible response categories: strongly agree (1); agree (2); neither agree nor disagree (3); disagree (4) or strongly disagree (5). The 31 items used in the final analysis with their mean and standard deviations are provided in Appendix A. Response rates for all items were above 85%. Selecting only those attitude scales present at both ages, the data provide information on attitudes of racism, 'collectivism-markets' (collectivism and markets), authoritarianism, traditional family values, political cynicism, environmental concern and willingness to work. From previous analysis of NCDS we had reason to suspect that we would discover these underlying attitude scales in the data (Bynner, Ferri and Wadsworth, 2003).

The factor analysis indicated that most items did comprise seven scales, which are reasonably theoretically consistent and which reflect the results of earlier analysis of attitude scales in other surveys as well as NCDS (Bynner, Ferri and Wadsworth, 2003). We dropped one item (whether the respondent agrees that people should 'take out private health care and stop relying on the NHS') as there was a weak correlation between this item and the resulting attitude scale. In order to test the reliability of each scale, Cronbach's alpha was used[2]. For most scales the alpha coefficient is greater than 0.6, and in some cases is over 0.7, which indicates that the scales derived are reasonably reliable for further analysis. In order to form a rating for each respondent in the survey, the score of each respondent in NCDS was calculated as the mean of the scale on the corresponding attitude items[3]. Reverse coding was applied as required. This gave a score of 1-5 for each respondent with 1 indicating the greatest amount of disagreement with the scale, and 5 indicating the greatest amount of agreement.

In the following discussion we examine each attitude scale in turn, commenting on the clarity of the attitude in terms of the content of each item and reliability scores (alphas at age 33 and age 42: α_{33} and α_{42} respectively. We also comment upon the policy relevance of each attitude.

i.) Racism ($\alpha_{33} = 0.82$, $\alpha_{42} = 0.81$). This includes items on inter-racial marriage, race and neighbourhoods, degree of racial mixing in schools, race in the workplace. It covers attitudes to race, potentially in terms of both preference and economic conceptions of racism. A higher score on this scale would

[2] Cronbach's alpha is a measure of the internal reliability of a scale, such as an attitude scale. Alpha (α) varies between 0 and 1 depending upon the correlations between scale items. Higher alpha scores indicate superior scale reliability.

[3] Pairwise deletion was employed.

indicate that the individual was more racist. This attitude can be related to direct policy targets in terms of reducing race conflict and racism in civil society.

ii.) Political Cynicism ($\alpha_{33} = 0.64$, $\alpha_{42} = 0.68$). This includes items on whether politicians are in politics for own benefit and whether any political party in power would benefit the country.

Political cynicism of this type is sometimes referred to as 'external political efficacy' as it refers to belief in the general ability of the electoral system to effect change, rather than the individual's ability to effect change ('internal political efficacy'). This clearly relates to policy targets regarding increasing political engagement in terms of voting and other forms of participation in democratic life.

iii.) Environmental Concern ($\alpha_{33} = 0.56$, $\alpha_{42} = 0.47$). This includes items on whether preserving the environment should be a top policy priority, whether problems in the environment are serious and whether there is a trade-off between environment and economic growth. The items measure strong ('deep green') forms of environmentalism in terms of regarding the environment as a top priority in competition with economic goals. Higher scores indicate a greater degree of environmental concern. Although issues of sustainability as related to use of resources and recycling are policy targets, the measure of environmentalism presented here identifies those who see the environment as dominating all other political concerns, an attitude that goes beyond a concern for sustainability. Therefore we consider that this attitude is indicative of a policy concern, rather than being a target attitude.

iv.) Willingness to Work ($\alpha_{33} = 0.63$, $\alpha_{42} = 0.54$). Includes items such as "any job is better than being unemployed", "that it is important to hang onto work even if unhappy" and "if respondent didn't like a job would pack it in". This measures willingness to work in terms of significance of job against unemployment/potential unemployment. Higher scores indicate a greater willingness to work. As with environmental concern, there are clear policy targets regarding employment and employability. However, the attitude shown here is more indicative of a willingness to take a job at any wage, rather than a more general aspiration towards working. Therefore, although it may be useful to examine the responsiveness of this attitude to education for sub-populations (such as the long term unemployed) for the majority of the population, changing this attitude is of general policy concern, rather than being a target attitude.

v.) Collectivism-Market ($\alpha_{33} = 0.72$, $\alpha_{42} = 0.64$). This includes items on the distribution of income, benefits for managers/owners compared to workers and abolition of private schools. Largely, this covers attitudes to relative income

shares between owners/managers/workers/ordinary people. In previous work, this has sometimes been referred to as 'socialism-laissez-faire' scale (Heath et al, 1993) or 'left-right' scale. However, given the multiple meanings of left-right (and socialism) in political philosophy, collectivism-market would seem to be a better label. Higher scores on this scale would indicate that the individual was in favour of collective forms of organisation as opposed to markets. The position of individuals on this scale may be of general interest to government, but is indicative of ideology rather than being a belief that governments should wish to change.

vi.) Authoritarianism ($\alpha_{33} = 0.65$, $\alpha_{42} = 0.65$). This includes items on the death penalty, censorship, length of prison sentences, moral codes taught by schools and behaviour of young people. This represents a standard authoritarian personality scale items in terms of moral rigidity and punitive nature of state. Higher scores indicate greater degree of authoritarianism; in that racist-authoritarians may hold particularly rigid beliefs, this may be a matter of policy concern (see Section 3.2). Other extreme forms of authoritarianism may also be policy relevant. However, in itself, authoritarianism in the more general population is a matter of individual opinion and not, in our view, necessarily a facet of belief that government would wish to alter.

vii.) Traditional Family Values ($\alpha_{33} = 0.59$, $\alpha_{42} = 0.62$). This includes items on the ease of obtaining divorce, marriage and co-habitation (whether married people should stay together, couples with kids should not separate) and women's right to an abortion. This amounts to what might be called traditional family values, particularly in terms of marriage to which most of these items refer. As with the position on the collectivism-markets and authoritarianism scale, policy makers may be interested in beliefs regarding the family without necessarily wishing to change them.

2.2 Validity 1: Relationships between Attitudes

According to several authors (Kerlinger, 1980, 1984; Bynner et al, 2003) attitudes such as the ones discussed above may in turn be explained by a deeper structure of attitudes and values which determine responses to a thematic set of items. In other words, 'first order factors' such as anti-racism and the collectivism-market scale may be explained by a smaller number of 'second order factors'.

Kerlinger's (1984) 'critical referents' theory identifies attitudes to re-distribution ('liberalism'), and personal morality and obedience to authority ('conservatism'), as underlying attitude constructs. Fleishman (1988) identifies two second order attitudes namely "individual liberty" and "economic welfare". This is supported by earlier work (Adorno et al, 1950) which suggests that racism and authoritarianism may be related attitudes as part of a more general 'authoritarian personality'.

Given these high inter-scale correlations it is plausible that our data might follow a similar structure. Indeed, a second order factor analysis (using the attitude scales, rather than individual attitude items as variables), which we have not reported here, showed that it was possible to decompose these first order factors into 3 second order factor scales. However, the policy value of second order scales which tend to represent abstract attitudinal concepts is less clear than that of the attitudinal scales themselves. Therefore they are omitted from this report.

Nonetheless the inter-attitude correlations, as a foundation of underlying factors, provide an important test of the validity of our attitudes. We test whether there are expected relations between the seven attitudes. We hypothesise three particular sets of relations between our seven attitudes:-

First, there should be a positive relationship between racism and authoritarianism as hypothesised by Adorno et al (1950).

Second, we expect a positive relationship between authoritarianism, traditional family values and willingness to work as representative of a more general 'conservatism' factor (Kerlinger, 1984).

Third, we would expect lower correlations between each of these three (conservatism) attitudes and environmentalism which may be associated with more liberal/radical political opinions.

The relations between attitude scales can be shown descriptively through the use of a correlation matrix. Table 1 (below) provides the correlation matrices showing correlations between attitudes and whether the correlation is significant at the 5% level of significance:-

Table 1: Correlations between attitude scales at age 33 and 42

	CORRELATIONS AT AGE 33							CORRELATIONS AT AGE 42						
	Racism	Collectivism-markets	Authoritarianism	Family-Values	Political Cynicism	Environmental Concern	Willingness to Work	Racism	Collectivism-markets	Authoritarianism	Family-Values	Political Cynicism	Environmental Concern	Willingness to Work
Racism	**1**							**1**						
Collectivism-Markets	**-0.10**	**1**						**-0.11**	**1**					
Authoritarianism	**0.27**	**-0.03**	**1**					**0.31**	**-0.15**	**1**				
Family Values	**0.12**	**0.03**	**0.29**	**1**				**0.13**	**0.02**	**0.29**	**1**			
Political Cynicism	**0.16**	**0.20**	**0.25**	**0.11**	**1**			**0.10**	**0.32**	**0.13**	**0.11**	**1**		
Environmental Concern	**-0.15**	**0.14**	0.0	0.0	**0.0**	**1**		**-0.19**	**0.15**	**-0.10**	-0.02	**0.02**	**1**	
Willingness to Work	**0.04**	**-0.06**	**0.22**	**0.15**	**0.04**	**-0.04**	**1**	**0.08**	**-0.05**	**0.27**	**0.18**	**0.06**	**-0.07**	**1**

Table 1 reports the Pearson correlation coefficients between attitudes for individuals at ages 33 and 42. For all coefficients in bold the level of significance is 5% ($p<0.05$). There are only a few coefficients where the correlations are not significant at the 5% level – between environmental concern and authoritarianism at age 33 and between environmental concern and traditional family values at ages 33 and 42.

There are strong correlations between some of the attitudes surveyed. In particular, there are important relationships between racism and authoritarianism (our first hypothesis, following the work of Adorno et al, 1950) and between authoritarianism, traditional family values and the work ethic (our second hypothesis, following the work of Kerlinger, 1984). At age 33, for example, the correlation between racism and authoritarianism is 0.27 and is even higher at age 42

(0.31). The correlation between authoritarianism and traditional family values is also significant ($p<0.05$) at age 33 (0.29) as is the correlation between authoritarianism and work ethic at the same age (0.22). Similar figures are reported at age 42.

As well as demonstrating predictive validity, these correlations also demonstrate some discriminant validity. For example, at age 33, there is no correlation between authoritarianism and environmental concern. In addition, authoritarianism is negatively and weakly (-.10) associated with environmental concern at age 42. This confirms our (third) prior hypothesis regarding the separateness of 'conservatism' from more liberal attitudes such as environmental concern. Therefore, validity has been demonstrated not only in terms of the expected relation between key attitudes but also in the manner in which some attitudes are not related or negatively related to others.

We also find relations between two attitudes which were not predicted by our theoretical model. One of the strongest associations in Table 1 is between position on the collectivism-markets scale and political cynicism. Both at age 33 and age 42, the correlation coefficients are significant ($p<0.05$) and positive (0.20 and 0.32 respectively). This means that there is a positive relationship between the degree to which individuals support collective forms of economic organisation and those who are cynical regarding the motivations of politicians and the efficacy of voting. It may be anticipated that individuals who favour economic organisation through markets would be less likely to trust the political process. These individuals may consider that the actions of politicians would interfere with the efficient operation of markets (Hayek, 1960). However, post hoc, we can rationalise the correlation as suggestive of more deep rooted distrust of politicians of the major political parties by those on the traditional 'left'.

2.3 Validity 2: Attitudes and Behaviours

In order to show that attitudes have meaningful policy consequences it is helpful to establish their relationship with behavioural outcomes. Although policy makers might desire a more tolerant, less cynical, more environmentally aware population it is normally the consequences of such attitudes, rather than the attitudes in themselves, which are foci of policy.

We have examined how these attitudes related to behaviours in terms of membership. Our prior hypothesis was that particular attitudes would be related to particular behaviours but that not all attitudes and memberships would be correlated. We first describe the information held on memberships and then layout our prior hypotheses about the relationships between attitudes and memberships. This is not a matter of causality – we make no attributions concerning the nature of causal relationships. Rather, we are concerned to test whether or not the attitude scales are related to memberships in the way one would expect. This is a test of the validity of

the attitude variables rather than of causality. We then examine whether there might be an ecological relationship between attitudes in a particular area and corresponding behaviours. These twin validity exercises – at the individual and area level – enable us to comment on our second and third research questions (Section 1.1), i.e. whether attitudes have validity in terms of their association with behaviours. Given the importance in policy terms of expanding organisational memberships and of creating tolerant communities this is an area where attitudes clearly matter.

2.3.1 Attitudes and behaviours at an individual level: organisational memberships

The civic behaviours surveyed in NCDS assess memberships of various associations. These are membership of a political party, environmental group, charity, women's group, townswomen's guild, Parent Teacher Association (PTA), tenants'/residents' association, Trade Union and Staff Association. If attitudes were related to actual behaviours we would expect there to be relationships between attitudes and related memberships. Validity in terms of relationships can be shown for all seven attitudes (Appendix B). We focus on three here for illustrative purposes – political cynicism, environmental concern and traditional family values

Political Cynicism

We would expect members of most mainstream political parties to be less politically cynical as there are obvious contradictions in supporting a political party whilst being distrustful of politicians or of parliamentary democracy more generally. We may also expect that there might be other more general memberships where trust in the political system is enhanced (Putnam, 2000: 336-349).

Environmental Concern

In terms of environmental concern, we would expect this attitude to be closely associated with membership of an environmental group and may also expect that there might be other memberships which are associated with greater environmental concern. However, for members of some organisations (such as trade unions) the environment may be perceived to be less important than other objectives, such as job creation.

Traditional Family Values

Finally, in terms of traditional family values we hypothesise that for family focused forms of membership such as a PTA these values may be increased whereas in non-family orientated memberships they may be diminished.

We apply regression analysis in order to clarify the relationship between each of these three attitudes and the set of nine memberships. We take each attitude

measure as a dependent variable regressed on the memberships, two regressions for each attitude since we split the sample by gender. These regressions are used entirely descriptively, no causal inferences are implied. Validity in terms of relationships with associational memberships can be shown for all seven attitudes; here we focus on three – political cynicism, environmental concern and traditional family values –for illustrative purposes.

Results are presented in Table 2. We have emboldened particular relationships of interest. In the discussion that follows, significant relationships are described where significance is at less than the 1% level.

In terms of political cynicism, for both women and men, there is a large and significant association between membership of a political party and a reduction in political cynicism, as hypothesised. Indeed, although other memberships are associated with reduced political cynicism, membership of a party has the largest association. This makes intuitive sense, as individuals who have a stake in the formal political system, through a party membership, are likely to be more trusting of that system. There are also other memberships which are negatively associated with political cynicism. For both sexes, membership of an environmental group and a PTA are associated with reduced political cynicism (although in the case of PTA membership for men there is significance at only the 5% levels. These supplementary results concerning environmental groups and PTAs support Putnam's (2000: 346-349) contention that localised trust fostered through many group memberships may be associated with more generalised political trust.

Similarly, for both women and men there is again a large and significant association between membership of an environmental group and increased environmental concern. There are equally strong associations between membership of a political party and environmental concern for both men and women. There are weaker positive associations between membership of a PTA and environmental concern and a negative relationship between membership of a trade union and this attitude, again for both men and women. This is expected since trade union members are likely to prioritise other economic objectives, such as job creation, above environmental concerns.

For traditional family values, we see that membership of a PTA is associated with greater agreement with these values for both sexes, as hypothesised. We also demonstrate that for other groups – political parties, environmental groups and trade unions – there is a negative association with traditional family values for both sexes. Interestingly, there is a positive association between membership of a charity and traditional family values. This may reflect the family or faith based nature of much charitable work.

Although we have shown validity for each of these three attitudes, an interesting comparison can be made of the associations between membership, political cynicism and traditional family values. As discussed above, many types of

memberships have been shown to be associated with lower political cynicism (i.e. membership of a political party, environmental group or PTA). However, positive associations between these memberships and traditional family values were not found in all cases. As we hypothesised, there is a large and significant relationship between this value and membership of a parent teacher association (PTA). There is also evidence of discriminant validity in that there are negative associations between other memberships and family values. For both sexes, membership of a political party or an environmental group (and additionally a trade union) is associated with a lower level of traditional family values.

These findings demonstrate discriminant validity in two ways. Firstly, there are different directional associations observed across attitudes. Whilst membership of a PTA is associated with *lower* political cynicism, it is associated with *greater* support for traditional family values. Secondly, there are different directional associations observed across membership groups. There are positive associations between PTA memberships and traditional family values and negative associations between memberships of a political party/environmental group and these values. This is robust evidence that these attitude constructs are both valid and related to behaviours. It positively addresses research question 2 (Section 1.1.1) in showing a clear relationship between attitudes and (civic) behaviours.

Table 2: The association between attitudes and behaviours at age 42 for men and women

	Political Cynicism		Environmental Concern		Traditional Family Values	
	Women	Men	Women	Men	Men	Men
Political party	**-0.747**	**-0.940**	0.094	0.034	-0.247	-0.247
	(8.38)**	**(11.56)****	(1.30)	(0.52)	(4.11)**	(4.11)**
Environment	**-0.291**	**-0.269**	**0.388**	**0.459**	-0.255	-0.255
	(4.75)**	**(3.40)****	**(7.75)****	**(7.22)****	(4.36)**	(4.36)**
Charity	-0.059	-0.195	0.121	0.060	0.138	0.138
	(1.53)	(4.08)**	(3.88)**	(1.56)	(3.90)**	(3.90)**
Women's	-0.189	0.000	0.002	0.000	0.000	0.000
	(2.53)*	(.)	(0.03)	(.)	(.)	(.)
Townswomen's	-0.062	0.000	0.039	0.000	0.000	0.000
	(0.39)	(.)	(0.30)	(.)	(.)	(.)
PTA	**-0.184**	**-0.154**	0.056	-0.021	**0.142**	**0.142**
	(5.12)**	**(2.25)***	(1.90)	(0.39)	**(2.81)****	**(2.81)****
Tenants'	-0.112	-0.065	-0.001	-0.090	-0.027	-0.027
	(1.73)	(0.77)	(0.02)	(1.35)	(0.44)	(0.44)
Trade Union	-0.068	-0.046	0.066	-0.004	-0.061	-0.061
	(2.64)**	(1.61)	(3.11)**	(0.18)	(2.88)**	(2.88)**
Staff Assoc.	-0.195	-0.038	0.051	-0.010	-0.083	-0.083
	(3.99)**	(0.62)	(1.26)	(0.21)	(1.82)	(1.82)
Constant	3.183	3.284	3.594	3.627	3.004	3.004
	(236.39)**	(206.27)**	(326.61)**	(283.56)**	(255.25)**	(255.25)**
Observations	4341	4077	4340	4076	4077	4077
R-squared	0.04	0.05	0.03	0.02	0.02	0.02

Absolute value of t statistics in parentheses; * significant at 5%; ** significant at 1%.

2.3.2 Attitudes and behaviours at a local level: support for the BNP

As we have seen in Section 2.4.1, there is a relationship between an individual's attitudes expressed in these data and their behaviours, at least in terms of organisational memberships. Using the data in NCDS it is also possible to examine whether there are ecological, or area, relationships between attitudes and behaviours. By grouping individuals by local authority we can calculate the mean level of attitude in that area as measured in the NCDS. Although such exercises must be undertaken with caution in that the attitude indicators are only for a sample of individuals in the area at age 42, there is a striking relationship between area racism as assessed in the scores in our data and area-level support for a party which has been associated with support for racial segregation. Table 3 (below) shows the levels of racism for the seven local authorities which had BNP elected councillors in 2003 (based on local council election results May 1st 2003). No other local authority had BNP councillors at this time. We have also included Oldham as a site of racially motivated civil disorder. All of these local authorities were in the top thirty of one hundred and forty five local authorities in terms of their level of racism in the NCDS for individuals at age 42. In Table 3, the third column shows their position in this ranking. Blackburn, with the highest number of BNP councilors, has the second highest racism score on our measure.

These results must be interpreted with caution. However, this is evidence of a relationship between the racism attitude at an area level and support for a party that supports racial segregation. The key point here is that the attitude measure is accurate. The *only* six areas in the UK with BNP representation on the council in 2003 were in the top quartile of racist areas, as measured by the NCDS (with the exception of Birmingham which was just outside this quartile). In addition, Oldham – an area which has experienced high levels of racially motivated disorder – was also in the top quartile.

Table 3: Support for the BNP by mean level of racism in that ward

Postcode Area	Racism (42)	Ranking in terms of racism at 42	BNP Councilors (2003)
Blackburn (BB)	2.48	2	8
Romford (RM)	2.31	7	1
Oldham (OL)	2.28	8	
Dudley (DY)	2.22	19	1
Halifax (HX)	2.18	29	2
Stoke-on-Trent (ST)	2.17	31	1
Birmingham (B)	2.16	33	2
Enfield (EN)	2.16	34	1
All areas	2.10	125 Areas	N/A

2.4 Conclusion: Do Attitudes Matter?

We would answer the question of whether attitudes matter in the affirmative. If attitude scales are carefully constructed (and we have shown good levels of internal reliability for all scales) then we are reasonably sure that they are related to consistent and stable measures of opinion. Moreover, they clearly matter in terms of their relation to behaviour – both in terms of their association with memberships and, at an area level between the racism attitude and support for a racially segregationist party. This exercise shows that there is validity in assessing attitude scales, but also that there are policy implications in changing the level of attitudes.

In policy terms, whether attitudes 'matter' or not is a question of the values held by policy makers, and in discussing each attitude scale we have attempted to assess whether attitudes might be a target, a concern or of ideological importance. Although somewhat beyond the scope of this report, there are implications for current policies on racism, participation, the environment and work. In terms of these policies, attitude change provides an important policy lever. In particular, there is a potential role for adult education in changing attitudes and preventing the formation of extremist attitudes – as we will discuss in the next section.

3. Effects of Adult Learning on Attitudes

To assess the effects of adult learning on the seven attitudes, we follow the method set out in Feinstein et al (2004). Because we are concerned that participation in adult learning may be correlated with important, unobserved, third factors, we accept that the correlation of adult learning and, say, low racism is a biased estimation of an adult learning effect. Cross-sectionally, an individual who participates in adult learning may differ from one who does not in a number of ways including in terms of their prior attitude.

To address this concern we estimate the effects of adult learning on changes in attitudes, rather than on the cross-sectional level. This method takes advantage of the longitudinal structure of the data and means that instead of comparing individuals to each other, we are comparing them at age 42 to themselves at age 33. We thus compare changes in attitudes between 33 and 42 of those who participated in adult learning to those who did not. An unobserved third factor that explains participation and attitudes will be dealt with in this approach and is unable to bias results as long as it is time-invariant. We recognise that time-varying, unobserved factors may still bias the effect estimate. However, this focus on change advances the robustness of estimates of effects of adult learning. Short of undertaking experimental approaches, some element of bias is inevitable, but we have substantially reduced that through this method.

Nonetheless, an association of adult learning and change in attitudes can only be interpreted as an effect of the former on the latter if we believe that selection bias has been dealt with. Yet participation in learning is not a random event. It is possible that it follows other changes in the lives of learners that may also lead to changes in attitudes. Thus the causal question begs a prior question of whether adult learning is concerned with positive or negative change. In the discussion of the results we return to this issue. Some handle on the problem can be gained from a consideration of the different results for different types of adult learning on the different attitudes. Overall, although we do not consider the estimates to be precise estimates of effect as they include elements of bias, we persist in calling them effects rather than associations as the approach is relatively robust and will remove most confounding association.

OLS regression was used in the analysis of the seven attitude variables – changes in racism, collectivism-markets, authoritarianism, family values, political cynicism, environmental concern and willingness to work. The change in each variable was standardised on the value of the variable at age 33. One regression model was run for each outcome by gender. Four adult education variables were included in the models, being the number of academic, vocational, work related and leisure courses taken between 33 and 42 (see Feinstein et al, 2003 for more information on the definition of these forms of participation and detail on take up). Controls for the level of the lag dependent variable at age 33 were included. Additional controls for

levels of academic and vocational qualifications at age 33 were also included and supplemented by a further control for the socio-economic status of the respondent at 33.

3.1 Results

Our findings show that there are substantial and significant effects of adult education on a wide range of first order attitude variables. The full results from each of the regression models are provided in Appendix C. Tables 5-8 provide a summary of results from these regressions organised by whether attitudes are closely connected with policy targets (racism and political cynicism), are policy concerns (environmental concern and willingness to work) or are ideological issues (authoritarianism, collectivism-markets and traditional family values). For each attitude in each table we provide for the set of adult learning variables effect sizes, t-statistics (in parenthesis) and an indication of significance (* significant at the 5% level, ** significant at the 1% level). We follow discussion of specific attitudes with a more general discussion in Section 3.2 (below) and return to the more general implications of these results in the conclusion.

Table 4: Effects of adult learning on target attitudes

OUTCOME	Racism		Political Cynicism	
	Men	Women	Men	Women
Academic Adult Education	-0.073	-0.099	-0.029	-0.066
	(3.80)**	(3.87)**	(1.32)	(2.21)*
Vocational Adult Education	-0.034	-0.020	0.020	-0.006
	(2.82)**	(1.11)	(1.42)	(0.30)
Work related Adult Education	-0.006	-0.013	-0.005	-0.003
	(1.69)	(4.59)**	(1.06)	(0.79)
Leisure Adult Education	-0.001	-0.036	-0.000	-0.030
	(0.11)	(2.93)**	(0.02)	(2.04)*

We have discussed the effects of adult education (AE) on racism and political cynicism in a previous report (Feinstein et al, 2003). As shown in Table 4 (above) there are sizeable and significant effects for academic adult education leading to reducing racism for both men and women. In addition, other courses (vocational adult education for men and work related and leisure courses for women) have an effect in reducing racism which is significant at the 1% level. In view of the preceding discussion about causality, it is important to note that the effects of all course types on racism are negative. The factors that lead individuals to participate in adult learning will vary – some positive, some negative – and yet all course types appear to lead to declines in racism. This is very likely, therefore, to be a genuine effect of course participation.

There is also an effect (significant at the 5% level) of academic adult education and leisure courses on reducing political cynicism for women.

Table 5: Effects of adult learning on policy concerns

OUTCOME	Environmental concern		Willingness to work	
	Men	Women	Men	Women
Academic Adult Education	0.028	0.040	-0.004	-0.047
	(1.28)	(1.36)	(0.18)	(1.61)
Vocational Adult Education	0.028	0.047	-0.024	-0.020
	(2.06)*	(2.30)*	(1.67)	(0.98)
Work related Adult Education	0.003	-0.000	0.010	0.007
	(0.81)	(0.12)	(2.28)*	(2.33)*
Leisure Adult Education	0.003	0.029	-0.024	-0.013
	(0.25)	(2.04)*	(2.25)*	(0.89)

Surprisingly, the most obvious effect on environmental concern is through taking vocational courses. For women, there is a large and significant effect of taking a vocational course and increased environmental concern (+0.05, t=2.30). For men, there is a similarly large and significant effect (+0.03, t=2.06). Additionally, for women, there is a large and significant (5%) effect on environmental concern through taking leisure courses (+0.03). These effects seem to confirm that education is associated with increased environmental awareness and sustainability more generally. The effect of vocational courses may be due to the increased emphasis on the environmental consequences of occupational practices which is increasingly becoming part of the vocational curriculum.

Perhaps unsurprisingly, work related courses have an effect on willingness to work for both men and women. Although coefficient sizes are small for both men and women (0.01 for both) each is significant at the 5% level of significance. However, for many other courses there are effects on *reducing* willingness to work, although none is significant at the 5% level except for men taking leisure courses (-0.02 coefficient size). For women, academic courses are associated negatively with willingness to work (-0.05), significant at the 10% level. Similarly, vocational courses are negatively associated with willingness to work for men (-0.02), again significant at the 10% level (t=-1.67). However, we would urge caution in interpreting these associations as the 'willingness to work' measure does not necessarily measure work ethic in terms of motivation/productivity. Rather, it seems to measure work-fatalism in terms of whether any job would be accepted at any wage, if necessary. Those investing in adult education may be less prepared to take any employment given their increased qualifications. Therefore, the seemingly adverse effect may be read positively as indicating an increased willingness to find a suitable job match, rather than to take the first job available.

Table 6: Effects of adult learning on ideology in terms of collectivism-markets and authoritarianism

OUTCOME	Collectivism-markets		Authoritarianism	
	Men	Women	Men	Women
Academic Adult Education	0.028	0.028	-0.101	-0.132
	(1.61)	(1.18)	(5.26)**	(5.44)**
Vocational Adult Education	0.002	0.013	-0.009	-0.018
	(0.19)	(0.79)	(0.75)	(1.08)
Work related Adult Education	-0.001	-0.007	-0.000	-0.007
	(0.39)	(2.79)**	(0.09)	(2.75)**
Leisure Adult Education	-0.020	0.007	-0.031	-0.002
	(2.48)*	(0.63)	(3.53)**	(0.15)

For men or women, we do not find consistent effects of adult education on change in the collectivism-markets scale. There is a small but significant effect for women of taking a work related course and moving away from a more collectivist position (-0.01), significant at the 1% level (t=-2.79) on this scale. For men, there is a small effect between taking a leisure course and moving away from a collectivist position (-0.031), again significant at the 1% level (t=3.53). On the other hand, academic adult education has small but positive effects on the scale, i.e. movement towards collectivism, although these results are not significant at even the 10% level of significance.

These results are consistent with other research that suggests education has little effect on ideological position (see Bynner et al 2003; Nie et al 1996). There is little quantitative evidence to the contrary. Although an effect of education on increased affiliation with the Democratic Party has been shown in the US (Edlund and Pande, 2002) this may not in itself indicate an ideological shift.

In terms of authoritarianism, though, there are sizeable and significant effects of taking academic courses (and work related courses for women) on reducing authoritarianism (as discussed in Feinstein et al, 2003). There is, therefore, an interesting distinction between the impact of academic courses on ideology in terms of authoritarianism (where there is an effect according to Feinstein et al, 2003) and position on the collectivism-markets scale (where there is no effect). This suggests that authoritarianism represents a different ideological form to collectivism-markets. Perhaps one's position on the authoritarianism scale may be altered by more careful self-interrogation of views, whereas there is no necessary reason for altering one's position on the collectivism-markets scale following an increase in cognitive skill or social engagement.

Table 7: Effects of adult learning on ideology in terms of traditional family values

OUTCOME	Traditional Family Values	
	Men	Women
Academic Adult Education	-0.018	-0.060
	(0.81)	(2.29)*
Vocational Adult Education	-0.020	0.003
	(1.41)	(0.16)
Work related Adult Education	-0.008	0.001
	(1.87)	(0.32)
Leisure Adult Education	-0.012	-0.022
	(1.20)	(1.74)

For women, academic courses have a moderate effect on reducing this conservative family-values scale (-0.06), significant at the 1% level (t=2.29), a movement away from accepting traditional family values. There is also a similar effect of leisure courses (-0.02) although here the significance is lower (t=1.74). The moving away from traditional family values for women may be associated with the empowerment and enlightenment effect of adult education courses for this group. It is feasible, however, that this is a selection bias, the empowerment preceding the participation in academic courses. For men, there are small effects of work related courses on reducing traditional family values at the 10% level.

3.1.1 Discussion of regression results

These results provide confirmation of the important role which academic adult education courses, and to a lesser extent other courses, play in attitude change. There are effects not only on attitudes to sustainability in a narrow sense, as the effects on environmental concern indicate, but also on sustainability in a broader sense. This is shown through the change in the racism dimension, commented on previously.

There are fewer significant shifts in ideology associated with adult education. As might be expected for women, participation in some forms of adult education is associated with a movement away from traditional family values, although effects are not on the whole apparent for men. In terms of movement along the collectivism-markets axis there are also few clear ideological effects. Although some forms of adult education may cause slight movement towards a more market-orientated position, academic adult education is associated with a movement in the opposite direction (although not significantly so). Therefore, adult education does not play a major role in ideological re-orientation.

As might be expected, work related courses increase willingness to work but, surprisingly, many courses are associated with a decrease in this attitude. This may be due to selection bias or the compulsory nature of some vocational courses on training schemes. This shows that willingness to work is unlike any of the other (non-ideological) attitude variables in that there are perverse effects of academic courses. This could be due to the close relation between this attitude and labour market experience.

In conclusion, the evidence presented here both confirms previous research findings of the WBL and others and offers some surprises. Adult education acts to increase socially cohesive attitudes generally and enhance those attitudes that facilitate tolerance towards others. Those experiencing such education are more likely to experience a decline in overt racism or change their attitudes towards environmental concern, for example. However, in terms of more 'ideological concerns' such as traditional family values or collectivism-markets, effects are not apparent. Although there are effects of adult learning in terms of a movement away from traditional family values for women, this is not true of men. In terms of position on the collectivism-markets axis we can also see that adult education is not necessarily associated with taking up a more collectivist (or market) position.

A level of skepticism should be maintained. This is not experimental evidence. Time-varying selection bias is possible. Thus, changes in personality or circumstance could lead to participation in adult learning and attitudinal change. It is important to note, therefore, that it is not the case that all forms of learning impact on all attitudes. For example, it is important that all types of learning impact on racism but only academic courses on traditional family values and only for women. A positive selection bias is possible for the latter result as women who experience some personal change, leading them away from their family-centred role, may then choose to undertake a an academic course, but why not also vocational training or leisure courses? The selection bias explanation is necessarily discriminating, i.e. it does not apply equally to all course types. Yet for racism the effect is universal across course types.

The selection bias story can not be ruled out but we see this evidence as indicating at least an element of causal benefit from adult learning. At the very least, learners also tend to experience positive attitudinal change. It is not altogether possible to distinguish cause from effect but it is clear that adult learning is, at the least, an element in positive cycles of change and progression, chosen by adults as part of other positive pathways in life.

3.2 Cluster analysis

Thus far we have examined attitude change largely in terms of attitudes as separate constructs. However, attitudes are not unrelated to each other. There are sometimes large correlations between some attitude variables. It is of theoretical and policy

interest to examine the ways in which individual patterning of attitudes change over time. One method by which individuals may be grouped in terms of similar patterns of attitudes is cluster analysis (or pattern centred analysis). This method attempts to identify groups of people thought of as particular types. It can also be thought of as a technique of data reduction whereby respondents are grouped on the basis of their scores on various dimensions, such as attitude scales. Hence individuals are grouped in terms of their scores on variables and it is these groupings of individuals (rather than the variables themselves) which are the primary source for data analysis.

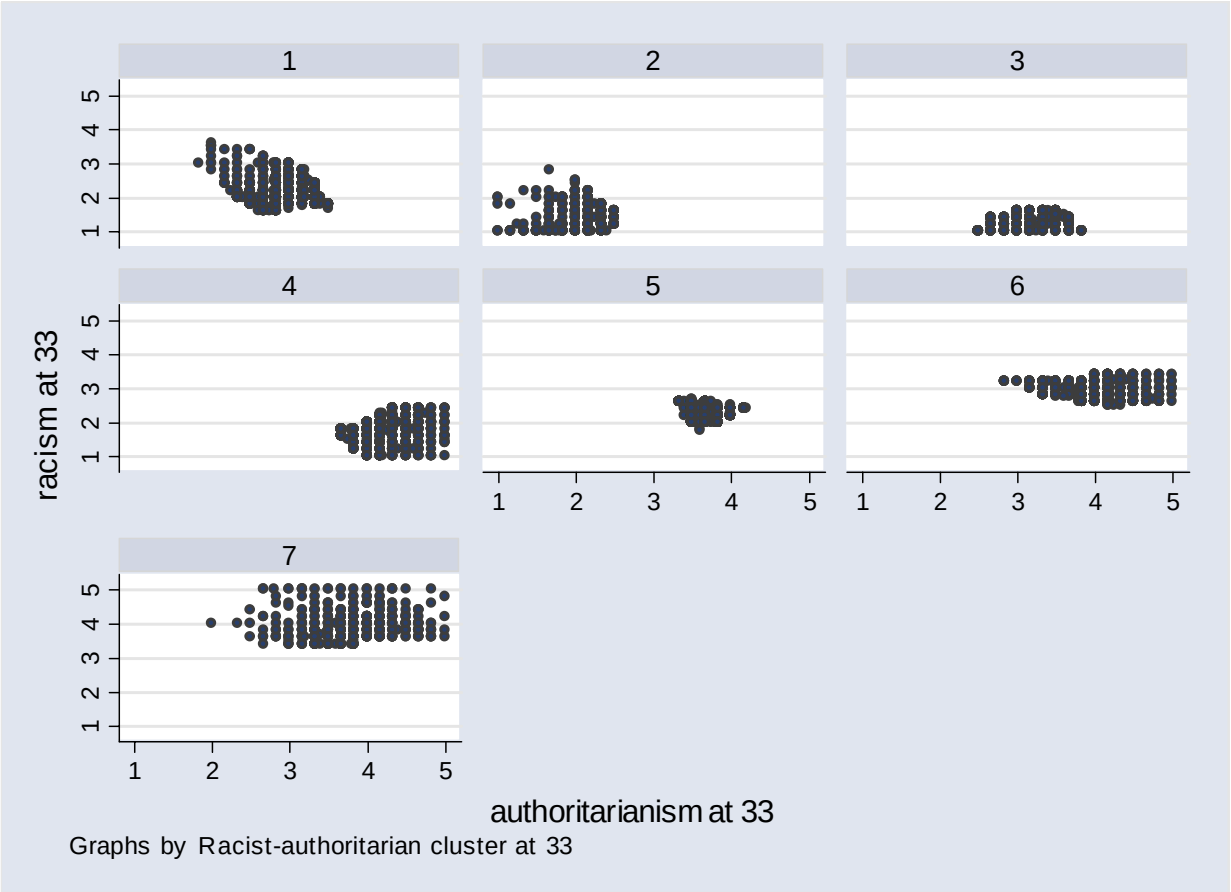
Cluster analysis is increasingly being used in the analysis of political attitudes (Keulder and Spilker, 2002; Delhey, 1999; Moon, Pierce and Lovrich, 2001). The process of cluster analysis uses a statistical algorithm to allocate individuals to groups on the basis of rules concerning their distance from each cluster. There are a number of algorithms which can be used to allocate individuals to clusters but the method of Ward's linkage with squared Euclidian distance is the most commonly used in the literature and is the one which we use here.

We explore clusters related to racism and authoritarianism. It is well established in the literature that these attitudes are related to each other and they were found to be highly correlated in NCDS at ages 33 and 42 (see Tables 4 and 5). Although we argue that authoritarianism as a value alone may not be a matter of particular policy relevance, when combined with extreme levels of racism it may produce adverse social consequences. For example, there are links between those displaying high levels of racism and authoritarianism and the F (Fascism) scale which indicates support for extreme right-wing politics (Adorno et al, 1950).

To begin we conducted a cluster analysis[4] of respondents with scores on racism and authoritarianism at 33 as the independent variables. We then repeated this analysis at 42 to see if similar clusters were established.

[4] The method of cluster analysis employed was Ward's linkage with squared Euclidian distance as the distance measure. The initial cluster analysis was carried out on the first 3,000 cases in NCDS, with other cases being matched by squared Euclidian distance to the three clusters.

Figure 3: Cluster analysis of racism/authoritarianism at age 33



(N=8,420)

Figure 3 (above) shows the results of a cluster analysis exercise conducted on racism and authoritarianism data. The decision to arrive at these seven separate groups was supported through the analysis of a dendogram[5] and to a lesser extent from the use of cluster stopping rules[6]. Seven clusters provided the best representation of the data. Using fewer than seven groups did not isolate a particularly racist and authoritarian group, whereas going beyond seven groups did not isolate a further sub-group of entrenched individuals beyond those identified in the seventh cluster.

A similar analysis was conducted for the age 42 data with similar results. In both, we identify a group of individuals who are fairly racist and authoritarian in their views at 33 and 42 – 'racist-authoritarians' (cluster 7 at age 33). We also identify groups who are authoritarian and not particularly racist – 'authoritarians' (clusters 4, 5 and 6 at age 33). Other groups are part of a 'neither' category. Note that there are no individuals in the analysis who are very racist and not authoritarian. This 'white

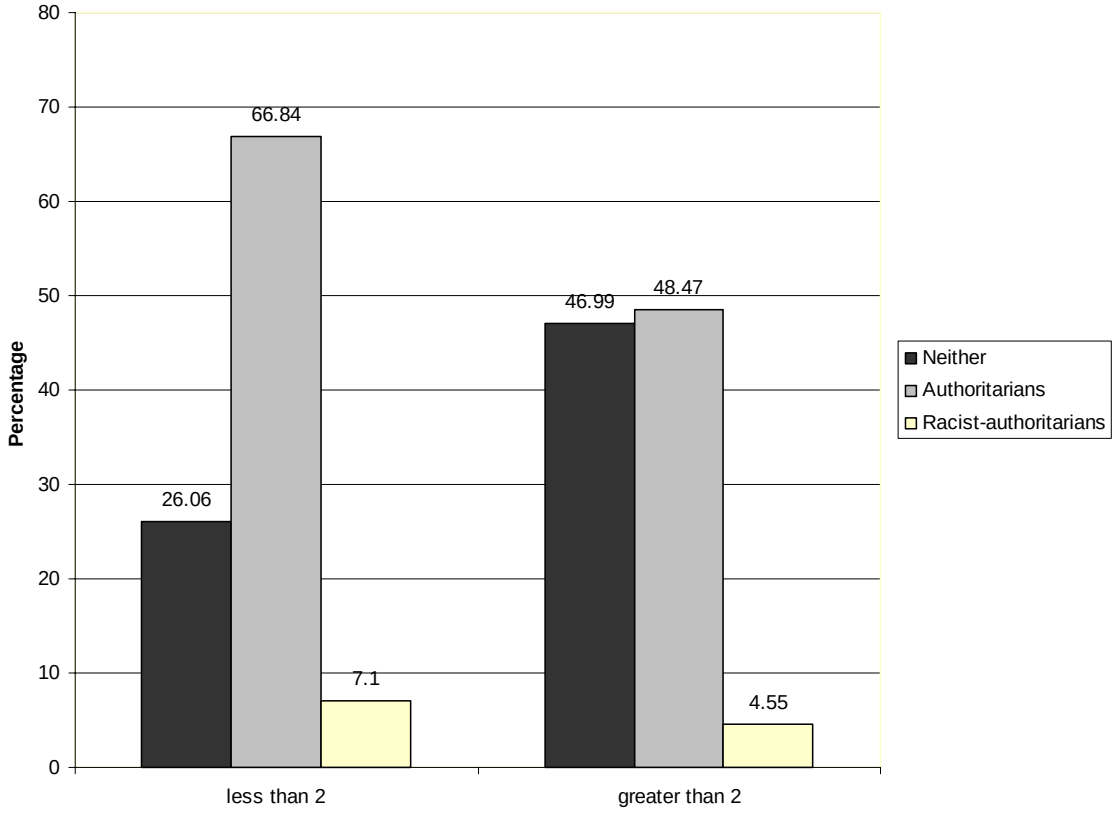
[5] A dendogram shows the degree of dissimilarity between groups.

[6] Multiple tests were conducted on samples of 1000 respondents from NCDS 5 and 6 using the Duda-Hart and Calinski and Haabasz stopping rules. The results were not always consistent but established that a small number of groups provided the best fit to the data.

space' in the cluster analysis is theoretically interesting as it means that (developmentally) racism and authoritarianism do not develop in opposition. This supports the view that racism and authoritarianism are intimately connected**.** By grouping clusters together according to similar criteria of interest (as in Roeser and Peck, 2004) we are able to evaluate the effectiveness of a particular policy intervention (in this case adult learning) on changing a set of related values.

We have established, then, that individuals fall into similar attitude clusters at 33 and 42 with respect to their orientations towards authoritarianism and racism. We next turned to examine how salient individual characteristics differed across these clusters, namely qualification level and socio-economic status. For brevity, we present results at age 33 only.

Figure 4: Cluster type by qualification level



(less than level 2: N=4704; level 2 or greater: N=3,716)

Figure 4 (above) shows how individuals with different levels of qualification at age 33 fall into each cluster type. As can be seen in the chart, 7.1% of individuals without level 2 qualifications are racist-authoritarian as compared to 4.55% of those with level 2 qualifications or better. Similarly, there is a higher proportion of individuals in the authoritarian category (66.84%) without level 2 qualifications than in the more highly qualified category (48.47%). Therefore, there are relatively fewer individuals who are not racist-authoritarian in the greater than level 2 category (46.99%) compared to the less than level 2 category (26.06%).

These descriptive statistics reflect much that is known about the patterns of authoritarianism and racist-authoritarianism amongst the UK and other populations, that is that they are concentrated amongst those with lower levels of education. This generalisation may be true when relative levels of authoritarianism and racism are considered. However, one of the strengths of cluster analysis in this context is that it groups together types of individuals on the basis of attitude similarity. On this basis, there remain a large proportion of individuals with various levels of education in each category. For example, over 50% of individuals with level 2 qualifications are either authoritarian or racist-authoritarian. Additionally, nearly 5% of these individuals are racist-authoritarian.

From both a policy and research perspective, those purely in the racist-authoritarian category are a particularly challenging category. In Table 8 (below) we present some descriptive statistics to indicate movement in and out of the racist-authoritarian category from age 33 to age 42.

Table 8: Transition matrix for changes between clusters at ages 33 and 42

	RA at 42	A at 42	Neither at 42	Total
RA at 33	244	54	205	503
	48.5%	10.7%	40.8%	100%
A at 33	491	2,451	2,003	4,945
	10.0%	49.5%	40.5%	100%
Neither at 33	77	1,240	1,655	2,972
	2.6%	41.8%	55.6%	100%
Total	812	3,745	3,863	8,420
	9.6%	44.5%	45.9%	100%

(Number of cases and row percentages shown in table, total N=8,420)

As can be seen in Table 8 (above) there is some entrenchment in the racist-authoritarian category. 48.5% (N=244) of respondents who were racist-authoritarian (RA) at 33 remain in this category at age 42. However, there was also considerable movement out of this extreme category. 10.7% (N=54) of respondents in this category at age 33 moved into the authoritarian (A) category at 42. A large proportion of racist-authoritarians at age 33 moved (205) moved into the neither category at age 42. Similarly, there was considerable positive movement out of the authoritarian category. Although 49.5% (N=2,451) of authoritarian respondents at age 33 were still in this category at 42 and 10.0% (N=491) of respondents moved into the racist-authoritarian category at age 42, 40.5% (N=2,003) of respondents

moved into the neither category. Only 2.6% (N=77) of those who were neither racist-authoritarian nor authoritarian at 33 ended up in the racist-authoritarian category at 42.

Table 8 indicates that, although there is some degree of entrenchment, these attitudes appear open to change over the life-course, at least for the individuals identified in this cluster analysis.

3.3.1 Adult education and racist-authoritarians: sustaining or transforming?

In previous work (Schuller et al, 2004) we have distinguished between the sustaining and transforming effects of adult learning. With relation to racist-authoritarian views there is an important distinction between learning which aims to move individuals from this extreme position (a transforming effect) and learning which aims to keep individuals from falling into this category (a sustaining effect).

In order to model the transforming and sustaining effects of adult learning we classify individuals by attitudinal cluster at ages 33 and 42. We treat racist-authoritarians as the least desirable category (ranked 0) and the neithers as the most desirable category (ranked 2) with authoritarians ranked 1. This reflects an underlying ordering in terms of the desirability of each attitudinal category. Then we model the effects of adult education on category change using an ordered probit specification with controls for prior qualifications and socio-economic status.

Three separate regressions are estimated, each treating a different but related sample. In the first ordered probit (model 1), we model for all groups the effect of adult learning on category membership at age 42, conditioning on the age 33 category. In the second ordered probit (model 2), we estimate the sustaining effect of learning for individuals in the neither category at age 33. That is, we test whether participation in adult learning sustains individuals in this desirable category. Our hypothesis is that for individuals in the neither category at age 33, participation in adult learning will mean that it is significantly less likely that they will be part of the authoritarian or racist-authoritarian category at age 42.

For the third ordered probit (model 3), we model the transforming effect of learning for individuals in the authoritarian or racist-authoritarian category at age 33. That is, we test whether participation in adult learning moves individuals out of these undesirable categories. Our hypothesis is that individuals in these categories at age 33 will be more likely to move to the neither category at age 42 if they had pursued adult learning. Here we control for whether the individual was in the authoritarian or racist- authoritarian category at age 33.

The full results from these regressions are given in appendix D and a summary of the effects of adult education is given in Table 9 (below). Table 9 reports coefficients from the regressions which because of the nature of ordered probit

estimation are not the same as marginal effects which describe the actual magnitude of the effects. For example, for the first model (all groups), we know that academic adult education and leisure adult education have highly significant effects on cluster membership ($p<0.01$). However, we can not use the coefficients given as indicators of effect size – they need to be converted into marginal effects. Marginal effects for the sustaining effect of adult learning (where we find significant and sizeable effects) are reported in Table 10 which follows a discussion of these effect sizes.

- If we examine the parameter estimates of adult learning on cluster membership for all respondents (model 1) then we see that for academic and leisure courses there is an effect (significant at the 5% level) that suggests that individuals who undertook these types of learning are more likely than non-participants to be in the neither category at age 42. *Therefore, some types of adult learning have an effect on the cluster to which individuals belong.*

However, if we break this effect down to compare between individuals by prior cluster membership (models 2 and 3) then results are mixed.

- For individuals who start in the 'neither category' (model 2), there are significant effects of academic, leisure and work related courses in sustaining individuals in this category significant at the 5% level (1% in the case of leisure courses). *This finding is in agreement with our hypothesis that adult education has a sustaining effect on attitudes.*

- By comparison, for individuals who start in the authoritarian or racist-authoritarian category (model 3), there are no significant effects at the 5% level. *We therefore find that there are no transforming effects of learning for individuals who start in this extremist group.*

Table 9: Parameter estimates of adult education on cluster membership

Model	(1) – all groups	(2) – sustaining effect	(3) – transforming effect
Academic AE	0.086	0.164	-0.018
	(3.40)**	(4.23)**	(0.93)
Vocational AE	-0.028	-0.053	0.001
	(1.80)	(1.94)	(0.20)
Work Related AE	0.004	0.013	0.021
	(1.26)	(2.03)*	(1.16)
Leisure AE	0.036	0.049	0.019
	(2.96)**	(2.79)**	(0.22)

* significant at the 5% level; ** significant at the 1% level.

The effects of adult learning on these attitudes are therefore sustaining rather than transforming. All forms of adult learning seem to sustain individuals who are not racist-authoritarian or authoritarian in the desirable (neither) category. However, adult learning does not lead to a movement of individuals out of undesirable attitudinal categories, at least in terms of racist-authoritarian or authoritarian clusters. It is a preventative rather than a palliative measure, at least in the forms in which it was delivered to those who participated in the programmes observed in these data. It may be that more targeted programmes might have transformative possibilities but it does not appear that general adult learning has such effects.

Table 10 (below) provides an indication of the effect sizes for the sustaining effects of adult learning.

Table 10: Marginal effects of adult learning on those in the neither category at age 33 (sustaining effects)

	Probability of racist-authoritarian at age 42	Probability of authoritarian at age 42	Probability of neither category at age 42
Academic	-0.8%**	-5.6%**	6.5%**
Vocational	0.3%	1.8%	-2.1%
Work related	-0.1%*	-0.4%*	0.5%*
Leisure	-0.3%**	-1.7%**	1.9%**

* significant at the 5% level; ** significant at the 1% level.

As can be seen in Table 10 (above) there are significant effects of adult learning on sustaining individuals who were in the neither category at age 33 in that category at age 42. These effects are sizeable, particularly for academic adult education courses, in that they are of the order of greater than a percentage point. In terms of the probability of being in the racist-authoritarian category at age 42, for each academic adult education course studied between 33 and 42 there is a -0.8% probability of being in that category at age 42. There is also a reduced probability of being in this category for each work related course taken (-0.1%/course) and each leisure course taken (-0.3%/course). Although taking a vocational course appears to increase the probability of being in this category at age 42, there is no significant effect at the 5% level. Similar effects for the same types of course are shown for the probability of being in the authoritarian category at age 42. Indeed, there is a particularly sizeable effect of taking an academic adult education course on reducing the probability of being in the authoritarian category at age 42 (-5.6%). It is also apparent from the last column of Table 10 that adult learning increases the chances of remaining in the neither category at age 42 given that an individual was a

member of this category at age 33. For each academic adult education course taken, there is a +6.5% probability of remaining in the neither category at age 42.

What we have shown in this cluster analysis is that the effects of adult education are not simply uni-dimensional, but may have an effect on the continuation of connected values. Namely, adult education in terms of academic, work related or leisure courses has significant effects (at the 5% level) in sustaining individuals in a non-racist-authoritarian/authoritarian position.

4.1 Conclusion

The focus of this research to date has been on attitudes and the effect of adult education on those attitudes. We have shown how the initial set of attitude items in NCDS was reduced to a narrower set of 'first order' factors. We then went on to show that adult education has effects over a whole range of attitude constructs and that these are meaningful in terms of behaviours. Moreover, we have shown through cluster analysis how adult education may affect an individual's position within a range of attitudes.

In terms of the impact of adult learning on attitudes we have shown that adult education has its main effects in terms of more 'open mindedness' rather than to dramatically shift an individual's ideological position. For example, although academic adult education may move individuals towards a less racist, less authoritarian position it does not necessarily mean that they become more (or less) predisposed towards markets or more (or less) predisposed towards family values (at least for men). This seems to support the view that although individuals may become more tolerant and open minded through adult education, they may select themselves into adult education courses where individuals share similar views to their own. For example, those disposed towards left-wing politics, or traditional family values may choose courses which reflect those views. We have little evidence to suggest that adult education results in the sort of ideological shifts that might be advocated by radical adult educators (Murphy, 2001: 346-347). However, although this might be true for the more general population, for those individuals who are *both* extremely racist and authoritarian adult learning may not move them into a less extreme position. It may mitigate the attitudes of these extremists (which in itself might be beneficial) but not sufficiently to move them to a position which would be characteristic of less polarised individuals – at least as identified through our cluster analysis.

However, we have shown that for a particular attitude characteristic – racist-authoritarianism – adult education may be instrumental in maintaining individuals from moving to a closed attitudinal position. Although it is difficult to conceptualise the objective of keeping individuals from moving to this position as an explicit policy target, there is evidence from this study that those areas where individuals have entrenched racist views are more likely to support parties with

racist ideologies. That open attitudes can be sustained by adult learning is an important confirmatory finding.

Moreover, this study shows the utility of using cluster analysis in attitudinal research. This approach has great potential in terms of allowing one to investigate patterning of attitudes and/or behaviours and hence identify the effects of adult education on sub-groups of policy interest. This may allow the targeting of policy initiatives on these groups, rather than identifying the effects of attitude change for the whole population. For example, one could cluster attitudes and/or behaviours around the theme of political engagement and examine the effects of adult education on those who are most likely to be disengaged across a number of dimensions. In addition, we may investigate both equifinality (how those individuals with different starting points end up with similar outcomes) and multifinality (how those individuals with the same starting points end up with different outcomes) with regard to both attitudes and behaviours (Roeser and Peck, forthcoming). Hence we would be able to investigate the development of attitudes and behaviours over time, and ascertain what might lead to these attitudes.

We conclude this report with a number of caveats. Firstly, these results suggest that attitudes are an important part of adult learning policy. Of course, this does not mean that other factors are not of importance and a focus on individual attitudes and behaviours should be complemented by an understanding of the institutional contexts of individual's lives. This work therefore needs to be considered within a whole range of WBL work on the theme of social cohesion. Secondly, there may be reservations concerning whether adult learning should be used as an instrument of attitude change. This question is in some ways misleading as adult education may change attitudes even if not as a direct target of policy; it is already changing attitudes. We have shown in this report that leisure courses may have an impact upon changing values. Moreover, as our qualitative work has indicated even where values are not addressed in adult education, the context in which adults learn has an impact upon their attitudes (Schuller et al 2004: 128-136). That adult education *should* be used to change *specific* attitudes is a question which is beyond the scope of this research report, but as we have shown, it *can* and *does* lead to attitude change.

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Appendix A: Descriptive Statistics for Common Attitude Items in NCDS 5 and NCDS 6

Descriptive Statistics	33		42	
	Mean	sd	Mean	sd
Racism				
Mixed race marriage is OK	2.07	0.88	1.89	0.85
Wouldn't mind if family of diff race moved next door	2.34	0.91	2.15	0.90
Would mind kids going to school with diff races	2.70	1.10	2.54	1.00
Wouldn't mind working with people from other races	1.87	0.70	1.74	0.76
Not want another race person as my boss?	2.09	0.88	2.11	0.88
Collectivism-Markets				
Big business benefits owners at expense of workers	3.22	1.05	3.54	1.01
Private schools should be abolished	3.12	1.10	2.47	0.98
Management get the better of employees	2.34	0.95	3.33	1.04
Take out own private health care, stop relying on NHS	3.28	1.13	3.61	1.02
Ordinary people don't get fair share of nations wealth	4.05	0.93	3.64	0.93
Government should redistribute income	3.28	1.10	3.22	1.05
The law should be obeyed even if wrong	3.32	1.01	3.39	1.06
Authoritarianism				
Death penalty for some crimes	3.69	1.30	3.66	1.28
Censorship is needed to uphold morals	3.54	1.06	3.66	1.02
Give law breakers stiffer sentences	3.68	0.91	3.96	0.91
Young people don't have respect for trad values	3.31	0.99	3.64	0.96
Schools teach children to obey authority?	3.83	0.87	4.02	0.78
Traditional Family Values				
Divorce is too easy to get these days	3.25	1.05	3.46	1.03
Married people happier than unmarried	2.44	0.83	2.67	0.90
Couples with kids should not separate	2.46	0.89	2.68	0.90
Marriage is for life?	3.59	1.13	3.62	1.09
Women should have the right to an abortion?	2.10	1.06	2.01	0.90
Political Cynicism				
No political party would benefit me	2.68	0.89	2.89	0.98
No difference which political party is in power in GB	2.60	1.16	3.20	1.07
Politicians in politics for own benefit?	3.15	0.97	3.37	0.95
Environmental Concern				
Problems in the environment not that serious	3.92	0.89	3.72	0.98
Preserving environment most important	3.12	1.00	3.19	0.94
The environment vs economic growth	3.97	0.73	4.02	0.71

Willingness to Work				
Any job is better than being unemployed	3.15	1.13	3.52	1.10
If I didn't like a job I'd pack it in	3.54	0.97	3.52	1.07
Important to hang onto job even if unhappy?	2.97	1.02	2.98	0.97

N>4,000 for all items

Note: Items are measured on a Likert scale where 1 is strongly agree, 2 agree, 3 neither agree or disagree, 4 disagree, 5 strongly disagree

Appendix B: Regressions Demonstrating Validity of Attitude Constructs

	Racism		Collectivism-markets		Authoritarianism	
	Women	Men	Women	Men	Women	Men
Political party	-0.346	-0.318	0.295	0.329	-0.428	-0.450
	(4.58)**	(4.57)**	(4.22)**	(5.23)**	(6.02)**	(7.22)**
Environment	-0.216	-0.472	-0.003	0.202	-0.317	-0.514
	(4.16)**	(6.98)**	(0.07)	(3.30)**	(6.50)**	(8.48)**
Charity	-0.141	-0.143	0.015	-0.105	-0.147	-0.060
	(4.36)**	(3.50)**	(0.51)	(2.84)**	(4.83)**	(1.65)
Women's	-0.057	0.000	-0.116	0.000	-0.182	0.000
	(0.90)	(.)	(1.99)*	(.)	(3.05)**	(.)
Townswomen's	0.095	0.000	-0.200	0.000	-0.037	0.000
	(0.70)	(.)	(1.60)	(.)	(0.29)	(.)
PTA	-0.102	-0.205	-0.054	-0.072	-0.077	-0.133
	(3.34)**	(3.50)**	(1.93)	(1.36)	(2.68)**	(2.53)*
Tenants'	-0.045	-0.140	-0.134	-0.205	-0.079	-0.143
	(0.82)	(1.97)*	(2.64)**	(3.18)**	(1.53)	(2.24)*
Trade Union	-0.193	-0.102	0.118	0.297	-0.157	-0.057
	(8.78)**	(4.18)**	(5.79)**	(13.50)**	(7.60)**	(2.62)**
Staff Assoc.	-0.088	-0.248	-0.046	-0.052	-0.198	-0.061
	(2.12)*	(4.72)**	(1.21)	(1.09)	(5.07)**	(1.30)
Constant	2.129	2.216	3.261	3.249	3.823	3.771
	(186.78)**	(162.88)**	(308.82)**	(263.89)**	(355.88)**	(309.12)**
Observations	4341	4077	4341	4077	4341	4077
R-squared	0.04	0.05	0.02	0.06	0.06	0.05

Appendix B continued

	Family Values		Political Cynicism		Environmental Concern		Willingness to Work	
	Women	Men	Women	Men	Women	Men	Women	Men
Political party	-0.260	-0.247	-0.747	-0.940	0.094	0.034	-0.098	-0.074
	(3.43)**	(4.11)**	(8.38)**	(11.56)**	(1.30)	(0.52)	(1.07)	(0.95)
Environment	-0.120	-0.255	-0.291	-0.269	0.388	0.459	-0.160	-0.260
	(2.30)*	(4.36)**	(4.75)**	(3.40)**	(7.75)**	(7.22)**	(2.53)*	(3.43)**
Charity	0.018	0.138	-0.059	-0.195	0.121	0.060	-0.096	0.002
	(0.56)	(3.90)**	(1.53)	(4.08)**	(3.88)**	(1.56)	(2.43)*	(0.04)
Women's	0.097	0.000	-0.189	0.000	0.002	0.000	-0.177	0.000
	(1.53)	(.)	(2.53)*	(.)	(0.03)	(.)	(2.30)*	(.)
Townswomen's	0.261	0.000	-0.062	0.000	0.039	0.000	-0.024	0.000
	(1.93)	(.)	(0.39)	(.)	(0.30)	(.)	(0.14)	(.)
PTA	0.117	0.142	-0.184	-0.154	0.056	-0.021	-0.048	0.051
	(3.84)**	(2.81)**	(5.12)**	(2.25)*	(1.90)	(0.39)	(1.29)	(0.78)
Tenants'	-0.036	-0.027	-0.112	-0.065	-0.001	-0.090	-0.046	-0.061
	(0.66)	(0.44)	(1.73)	(0.77)	(0.02)	(1.35)	(0.69)	(0.76)
Trade Union	-0.058	-0.061	-0.068	-0.046	0.066	-0.004	0.011	0.077
	(2.65)**	(2.88)**	(2.64)**	(1.61)	(3.11)**	(0.18)	(0.42)	(2.80)**
Staff Assoc.	0.047	-0.083	-0.195	-0.038	0.051	-0.010	0.076	0.116
	(1.14)	(1.82)	(3.99)**	(0.62)	(1.26)	(0.21)	(1.50)	(1.96)
Constant	2.803	3.004	3.183	3.284	3.594	3.627	3.305	3.385
	(244.94)**	(255.25)**	(236.39)**	(206.27)**	(326.61)**	(283.56)**	(237.95)**	(221.42)**
Observations	4341	4077	4341	4077	4340	4076	4341	4077
R-squared	0.01	0.02	0.04	0.05	0.03	0.02	0.01	0.01

Absolute value of t statistics in parentheses; * significant at 5%; ** significant at 1%.

Appendix C: Results of Regression Analysis

Regression Results for Men

	Racism	Collect.	Authority	Family	Cynicism	Enviro.	Work
Academic AE	-0.073	0.028	-0.101	-0.018	-0.029	0.028	-0.004
	(3.80)**	(1.61)	(5.26)**	(0.81)	(1.32)	(1.28)	(0.18)
Voc. AE	-0.034	0.002	-0.009	-0.020	0.020	0.028	-0.024
	(2.82)**	(0.19)	(0.75)	(1.41)	(1.42)	(2.06)*	(1.67)
Work rel. AE	-0.006	-0.001	-0.000	-0.008	-0.005	0.003	0.010
	(1.69)	(0.39)	(0.09)	(1.87)	(1.06)	(0.81)	(2.28)*
Leisure AE	-0.001	-0.020	-0.031	-0.012	-0.000	0.003	-0.024
	(0.11)	(2.48)*	(3.53)**	(1.20)	(0.02)	(0.25)	(2.25)*
Att. at 33	-0.637	-0.673	-0.703	-0.733	-0.758	-0.868	-0.791
	(36.20)**	(40.84)**	(36.02)**	(35.24)**	(42.19)**	(42.51)**	(45.99)**
Lvl 1 Aca.	-0.058	0.000	-0.005	-0.053	-0.059	0.084	-0.077
	(1.47)	(0.01)	(0.12)	(1.15)	(1.27)	(1.86)	(1.60)
Lvl 2 Aca.	-0.095	-0.071	-0.100	-0.108	-0.147	0.160	-0.053
	(2.64)**	(2.14)*	(2.79)**	(2.58)**	(3.49)**	(3.93)**	(1.22)
Lvl 3 Aca.	-0.119	-0.108	-0.235	-0.142	-0.259	0.245	-0.065
	(2.54)*	(2.46)*	(4.99)**	(2.60)**	(4.67)**	(4.57)**	(1.14)
Lvl.4 Aca.	-0.200	-0.063	-0.381	-0.044	-0.387	0.238	-0.138
	(4.26)**	(1.47)	(8.04)**	(0.82)	(7.03)**	(4.49)**	(2.44)*
Lvl.5 Aca.	-0.277	-0.110	-0.551	-0.100	-0.569	0.372	-0.466
	(2.63)**	(1.13)	(5.21)**	(0.82)	(4.65)**	(3.13)**	(3.67)**
Missing Aca.	-0.429	0.012	0.048	-0.296	-0.146	0.386	-0.356
	(2.25)*	(0.07)	(0.25)	(1.34)	(0.66)	(1.79)	(1.54)
Lvl 1 Voc.	-0.008	-0.024	-0.068	-0.014	-0.051	-0.008	-0.049
	(0.25)	(0.80)	(2.05)*	(0.36)	(1.33)	(0.21)	(1.23)
Lvl 2 Voc.	0.071	-0.032	-0.027	-0.033	-0.060	-0.009	0.053
	(1.98)*	(0.96)	(0.74)	(0.78)	(1.44)	(0.22)	(1.22)
Lvl 3 Voc.	-0.030	-0.021	0.015	0.049	0.001	0.068	-0.005
	(0.74)	(0.57)	(0.37)	(1.03)	(0.03)	(1.47)	(0.09)
Lvl 4 Voc.	-0.034	-0.066	-0.045	0.015	-0.080	0.045	-0.062
	(1.00)	(2.07)*	(1.32)	(0.37)	(2.02)*	(1.17)	(1.50)
Missing Voc.	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(.)	(.)	(.)	(.)	(.)	(.)	(.)
SES 5	-0.013	-0.107	-0.025	-0.029	0.058	0.023	-0.096
	(0.24)	(2.16)*	(0.47)	(0.46)	(0.92)	(0.38)	(1.47)

SES 3	-0.013	-0.125	-0.034	0.012	-0.003	-0.095	-0.094
	(0.26)	(2.60)**	(0.66)	(0.19)	(0.06)	(1.61)	(1.49)
SES 4	0.018	-0.165	0.014	-0.004	0.049	-0.147	-0.145
	(0.29)	(2.95)**	(0.23)	(0.06)	(0.69)	(2.14)*	(1.98)*
SES 2	-0.059	-0.117	-0.052	0.016	0.034	-0.089	-0.054
	(1.10)	(2.35)*	(0.97)	(0.26)	(0.54)	(1.47)	(0.83)
SES 1	-0.023	-0.174	-0.091	0.007	0.097	-0.035	0.168
	(0.27)	(2.18)*	(1.06)	(0.07)	(0.97)	(0.36)	(1.61)
SES missing	-0.015	-0.042	0.014	0.033	0.088	-0.027	-0.176
	(0.23)	(0.72)	(0.23)	(0.46)	(1.20)	(0.38)	(2.30)*
Constant	1.359	2.424	2.964	2.262	2.673	3.032	2.838
	(21.05)**	(31.79)**	(33.44)**	(26.87)**	(31.58)**	(32.82)**	(34.02)**
Observations	4341	4340	4341	4335	4332	4335	4336
R-squared	0.24	0.29	0.24	0.23	0.30	0.30	0.33

Absolute value of t statistics in parentheses; * significant at 5%; ** significant at 1%.

Regression Results for Women

	Racism	Collect.	Authority	Family	Cynicism	Enviro.	Work
Academic AE	-0.099	0.028	-0.132	-0.060	-0.066	0.040	-0.047
	(3.87)**	(1.18)	(5.44)**	(2.29)*	(2.21)*	(1.36)	(1.61)
Voc. AE	-0.020	0.013	-0.018	0.003	-0.006	0.047	-0.020
	(1.11)	(0.79)	(1.08)	(0.16)	(0.30)	(2.30)*	(0.98)
Work rel. AE	-0.013	-0.007	-0.007	0.001	-0.003	-0.000	0.007
	(4.59)**	(2.79)**	(2.75)**	(0.32)	(0.79)	(0.12)	(2.33)*
Leisure AE	-0.036	0.007	-0.002	-0.022	-0.030	0.029	-0.013
	(2.93)**	(0.63)	(0.15)	(1.74)	(2.04)*	(2.04)*	(0.89)
Att. at 33	-0.633	-0.638	-0.671	-0.737	-0.676	-0.835	-0.743
	(36.94)**	(38.61)**	(36.00)**	(35.90)**	(36.32)**	(40.52)**	(43.36)**
Lvl 1 Aca.	-0.058	-0.085	-0.024	-0.053	-0.072	-0.025	0.043
	(1.35)	(2.17)*	(0.59)	(1.20)	(1.42)	(0.52)	(0.88)
Lvl 2 Aca.	-0.117	-0.069	-0.098	-0.059	-0.142	-0.049	0.015
	(2.94)**	(1.89)	(2.63)**	(1.45)	(3.04)**	(1.10)	(0.34)
Lvl 3 Aca.	-0.217	-0.181	-0.272	-0.130	-0.174	-0.035	0.140
	(4.01)**	(3.66)**	(5.35)**	(2.34)*	(2.73)**	(0.58)	(2.29)*
Lvl.4 Aca.	-0.298	-0.110	-0.385	-0.180	-0.346	-0.054	0.008
	(5.70)**	(2.34)*	(7.77)**	(3.39)**	(5.65)**	(0.91)	(0.14)
Lvl.5 Aca.	-0.424	-0.155	-0.533	-0.155	-0.394	-0.098	-0.021
	(4.60)**	(1.85)	(6.11)**	(1.65)	(3.65)**	(0.94)	(0.21)

Missing Aca.	0.121	-0.078	-0.081	-0.113	-0.270	-0.352	0.109
	(0.63)	(0.45)	(0.45)	(0.57)	(1.20)	(1.61)	(0.50)
Lvl 1 Voc.	0.099	-0.071	-0.006	-0.002	0.054	-0.008	0.052
	(2.36)*	(1.85)	(0.16)	(0.04)	(1.10)	(0.17)	(1.09)
Lvl 2 Voc.	0.010	-0.045	-0.015	0.044	-0.080	-0.024	0.019
	(0.27)	(1.31)	(0.43)	(1.14)	(1.81)	(0.56)	(0.44)
Lvl 3 Voc.	0.034	-0.021	0.019	0.001	-0.017	0.002	-0.035
	(0.85)	(0.59)	(0.52)	(0.04)	(0.37)	(0.04)	(0.79)
Lvl 4 Voc.	0.050	-0.058	-0.041	0.057	-0.019	-0.059	-0.012
	(1.39)	(1.75)	(1.19)	(1.54)	(0.45)	(1.43)	(0.30)
Missing Voc.	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(.)	(.)	(.)	(.)	(.)	(.)	(.)
SES 5	0.021	-0.127	-0.024	-0.117	-0.078	-0.023	0.020
	(0.24)	(1.60)	(0.29)	(1.32)	(0.76)	(0.23)	(0.20)
SES 3	0.003	-0.052	-0.081	-0.208	-0.023	-0.124	0.049
	(0.03)	(0.64)	(0.96)	(2.27)*	(0.22)	(1.22)	(0.48)
SES 4	0.051	-0.094	0.022	-0.183	-0.011	-0.078	-0.090
	(0.61)	(1.23)	(0.28)	(2.13)*	(0.11)	(0.82)	(0.95)
SES 2	0.021	-0.162	-0.083	-0.095	-0.109	-0.061	0.008
	(0.25)	(2.08)*	(1.03)	(1.08)	(1.08)	(0.63)	(0.08)
SES 1	-0.021	-0.238	-0.107	-0.031	-0.066	-0.138	0.076
	(0.22)	(2.69)**	(1.17)	(0.32)	(0.58)	(1.25)	(0.69)
SES missing	0.136	-0.017	-0.088	-0.247	0.027	-0.012	-0.090
	(1.33)	(0.18)	(0.92)	(2.35)*	(0.23)	(0.10)	(0.78)
Constant	1.358	2.361	2.881	2.506	2.648	3.126	2.560
	(14.73)**	(24.54)**	(28.23)**	(23.93)**	(23.16)**	(26.33)**	(23.44)**
Observations	4077	4077	4077	4064	4064	4075	4064
R-squared	0.26	0.28	0.26	0.25	0.25	0.29	0.32

Absolute value of t statistics in parentheses; * significant at 5%; ** significant at 1%.

Controls

Academic/Vocational/Work/Leisure AE – number of adult education courses.
Att. at 33 – Level of the attitude at 33 (lag dependent variable)
Lvl 'n' aca./voc – Level of academic/vocational education at age 33
SES – Socio-economic status at age 33
Missing aca./voc./SES – missing value

Appendix D: Ordered Probits on Clusters

Note: Controls are the same as for regression analysis, except that groups 1 and 2 are dummy variables representing various cluster memberships.

i) All groups

Group 1 (Racist-Authoritarian)	0.634
	(11.74)**
Group 2 (Authoritarian)	0.977
	(17.14)**
Academic AE	0.086
	(3.40)**
Vocational AE	-0.028
	(1.80)
Work Related AE	0.004
	(1.26)
Leisure AE	0.036
	(2.96)**
SES 5	0.012
	(0.17)
SES 3	0.042
	(0.60)
SES 4	0.002
	(0.03)
SES 2	0.049
	(0.69)
SES 1	0.049
	(0.53)
SES missing	0.025
	(0.29)
Lvl1 Acc.	0.071
	(1.58)
Lvl2 Acc.	-0.001
	(0.02)
Lvl 3 Acc.	0.147
	(2.65)**
Lvl 4 Acc.	0.260
	(4.70)**
Lvl 5 Acc.	0.457
	(3.96)**
Missing Acc.	0.071
	(0.34)
Lvl 1 Voc.	-0.016
	(0.38)
Lvl 2 Voc.	0.038
	(0.94)
Lvl 3 Voc.	0.037
	(0.85)
Lvl 4 Voc.	0.001
	(0.02)
Female	0.010
	(0.35)
Observations	8418

Absolute value of z statistics in parentheses; * significant at 5%; ** significant at 1%.

ii) Ordered probit for only those in the neither category at age 33 (sustaining effect)

Group 1 (Racist- Authoritarian)	N/A
Group 2 (Authoritarian)	N/A
Academic AE	0.164
	(4.23)**
Vocational AE	-0.053
	(1.94)
Work Related AE	0.013
	(2.03)*
Leisure AE	0.049
	(2.79)**
SES 5	0.006
	(0.04)
SES 3	0.138
	(0.99)
SES 4	0.049
	(0.35)
SES 2	0.176
	(1.28)
SES 1	0.269
	(1.65)
SES missing	0.105
	(0.64)
Lvl1 Acc.	-0.056
	(0.60)
Lvl2 Acc.	0.034
	(0.42)
Lvl 3 Acc.	0.288
	(2.95)**
Lvl 4 Acc.	0.413
	(4.47)**
Lvl 5 Acc.	0.419
	(2.91)**
Missing Acc.	-0.194
	(0.56)
Lvl 1 Voc.	-0.080
	(1.08)
Lvl 2 Voc.	-0.041
	(0.53)
Lvl 3 Voc.	-0.001
	(0.01)
Lvl 4 Voc.	-0.067
	(1.08)
Female	-0.028
	(0.58)
Observations	2970

Absolute value of z statistics in parentheses; * significant at 5%; ** significant at 1%.

iii) Ordered probit for those in the racist-authoritarian and authoritarian categories (transforming effect)

Group 1 (Racist- Authoritarian)	0.624
	(11.49)**
Group 2 (Authoritarian)	0.025
	(0.72)
Academic AE	-0.018
	(0.93)
Vocational AE	0.001
	(0.20)
Work Related AE	0.021
	(1.16)
Leisure AE	0.019
	(0.22)
SES 5	0.013
	(0.16)
SES 3	-0.016
	(0.20)
SES 4	0.001
	(0.02)
SES 2	-0.085
	(0.71)
SES 1	0.004
	(0.04)
SES missing	0.100
	(1.95)
Lvl1 Acc.	-0.007
	(0.14)
Lvl2 Acc.	0.074
	(1.07)
Lvl 3 Acc.	0.091
	(1.22)
Lvl 4 Acc.	0.658
	(2.52)*
Lvl 5 Acc.	0.219
	(0.82)
Missing Acc.	0.020
	(0.41)
Lvl 1 Voc.	0.066
	(1.40)
Lvl 2 Voc.	0.059
	(1.15)
Lvl 3 Voc.	0.051
	(1.00)
Lvl 4 Voc.	0.019
	(0.55)
Female	5448
Observations	

Absolute value of z statistics in parentheses; * significant at 5%; ** significant at 1%.

WIDER BENEFITS OF LEARNING RESEARCH REPORT NO.11

Adult Education and Attitude Change

Previous literature on learning and attitude change suggests that there may be a role for adult education in changing attitudes, but there is little evidence to suggest how (or why) adult education may change a variety of opinions. Moreover, there is little rationale for the importance of changing norms in terms of their impact on behaviour. This report aims to address these research questions. Using data from the National Child Development Study (NCDS) we construct seven attitude scales – racism, political cynicism, environmentalism, willingness to work, collectivism-markets, authoritarianism and traditional family values. By using changes in the lives of over 8,000 individuals in our sample between age 33 and 42 we demonstrate that adult learning has effects on positive attitude change.

The report shows that adult education is implicated in a movement towards more 'open minded' perspectives on race and authority and suggests that adult learning may be used as a policy instrument in influencing and sustaining key attitudes and concerns. In particular, there is a role for adult learning in increasing community cohesion and engagement through reducing racism and political cynicism. Given policy concerns related to community cohesion such as the entrenchment of racist attitudes amongst youth and adults in some areas, adult learning might have an important role to play in reducing such tensions.

John Preston is a Research Officer in the Centre for Research on the Wider Benefits of Learning, leading the Social Capital and Social Cohesion strand of Research and **Dr Leon Feinstein** is the Research Director in the Centre.

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