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Life at both ends of the ladder: Education-based identification and its association with well-being and social attitudes

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Abstract

Level of formal education is an important divide in contemporary societies; it is positively related to health, well-being and to social attitudes such as tolerance for minorities and interest in politics. We investigated whether education-based identification is a common underlying factor of these education effects. Indeed, education-based identification was stronger among the higher educated, especially for identification aspects that encompass education-based group esteem (i.e., the belief that one’s educational group is worthy and that others think so, too). Furthermore, while group esteem had beneficial effects across educational levels, aspects of identification that were unrelated to group esteem had positive effects for the higher educated but not for the less educated. Thus, the less educated do not benefit from the psychologically nourishing effect of identification that exists for other groups. The stigma and responsibility related to low education could be a common explanation for a wide range of outcomes.

Keywords: Education, identification, well-being, political attitudes, prejudice
Life at both ends of the ladder: Education-based identification and its association with well-being and social attitudes

Social psychologists have devoted much attention to groups based on gender, race, ethnicity, and age. Although level of formal education is also one of the major divides in contemporary societies, there has been almost no research that has specifically investigated psychological processes among education-based groups. This is surprising given that low levels of formal education are related to poor health, lower life expectancy, and lower personal well-being (Marmot & Wilkinson, 2006), as well as social attitudes that threaten social cohesion and engagement, such as prejudice, lack of interest in politics, and lack of trust in others (Elchardus & De Keere, 2013). We refer to the association between education and all these outcomes collectively as the education effect and in the present research we aim to understand the psychological bases of this effect.

Although the existence of the education effect clearly implies that education is an important topic for investigation, research on education as a predictor of well-being and societal attitudes has thus far been mainly rooted in sociology. This is despite the potential for proximal psychological processes to provide a common underlying explanation for the diverse outcomes that are included in the education effect. In the current research we argue that those with lower levels of education have difficulty in constructing a positive social identity around their level of education, and that this common cause can to a large extent explain the education effect.

The importance of education

Empirical approaches to “social class” range from occupation-based class systems inspired by sociological theory (see Crompton, 2008) to measures in which
participants are asked to place themselves relative to others in terms of income, education, and occupational status (Kraus, Piff, Mendoza-Denton, Rheinschmidt, & Keltner, 2012). Here we focus more narrowly on education for two reasons. First, a low level of education is related to a wide range of outcomes, over and above the effects of other aspects of socioeconomic status (Easterbrook, Kuppens, & Manstead, 2015). Second, education has become increasingly important both personally and societally; education is economically beneficial for individuals (Day & Newburger, 2002) and countries (Aghion, Boustan, Hoxby, & Vandenbussche, 2009), and its importance as a determinant of class position (Featherman & Hauser, 1976; Grusky & DiPrete, 1990) and choice of marriage partners (Hou & Myles, 2008) has increased over time.

This is consequential. Lower levels of education are related to poor health, higher rates of depression and suicide (Hudson, 2005; Marmot & Wilkinson, 2006; Ritsher, Warner, Johnson, & Dohrenwend, 2001), as well as to societal attitudes such as increased prejudice (Pettigrew et al., 1997), exclusionist and authoritarian attitudes (Coenders & Scheepers, 2003), and less political engagement (Persson, 2014). Moreover, education often has a stronger relation with these outcomes than do variables such as income or occupation (e.g., Easterbrook et al., 2015; Smets & Van Ham, 2013). Thus there are good reasons to study education effects. Below we report three studies in which we include a range of outcomes that previous research has indicated are different manifestations of the education effect, and offer a psychological perspective that is intended to explain commonalities across these different manifestations.
Education and social identity

In terms of psychological processes, one relevant aspect of the increased importance of education as an indicator of social status is that it represents a change in the perception of social status from being primarily ascribed to being primarily achieved. Social inequalities have always existed, but with the increased importance of education, inequalities are now more easily perceived as being individuals’ personal responsibility (the ideology of “meritocracy”, Tannock, 2008). We argue that this has profound consequences for the way in which those with less education see themselves and the way they deal with their low-status position. While high status groups furnish their members with a positive social identity from which they can derive self-esteem, belonging to a low-status group amounts to having a negative social or collective identity that can be threatening to self-esteem (Tajfel & Turner, 1986). We propose that less educated people have difficulties in dealing with the negative identity that is associated with being less educated, and that this is an underlying mechanism explaining many of the education effects (Ellemers, Spears, & Doosje, 2002).

How do those who have low status cope with their negative social identity? Some people react to their low status by forming a social identity around their status group and identifying with others who share their social position. Identifying with a social group has been consistently found to be positively related to health and well-being (Jones & Jetten, 2010; Sani, 2011) and to buffer against the negative consequences of perceived discrimination (Schmitt & Branscombe, 2002). Several mechanisms have been proposed to explain this link, including an increase in perceived social support from ingroup members (Sani, 2011), a cognitive sense of resilience to and rejection of stigma (Crabtree, Haslam, Postmes, & Haslam, 2010),
and a heightened sense of personal control (Greenaway et al., in press). Thus, if the less educated can form a social identity and therefore identify with their educational group, their well-being is likely to be enhanced.

However, there are several factors that are known to discourage identification that are directly relevant to the case of the less educated, which may undermine the beneficial consequences of identification. Firstly, because education is often perceived to be a legitimate way of according status to people (Bourdieu, 1984), less educated people might not perceive themselves to be the victims of discrimination. This renders their low status legitimate, which discourages group-based identification (Jetten, Schmitt, Branscombe, Garza, & Mewse, 2011). Second, education can also be seen as a system that rewards characteristics of individuals rather than groups, and this individual nature of group assignment also reduces the salience of group-based identities and therefore reduces identification (Ellemers, 1993). Third, being less educated is defined by an absence of something; that is, a lack of education. This is in contrast to other stigmatized identities where the group-defining element (e.g., being a woman) is often perceived to be multifaceted and to consist of many potentially positively elements, at least by those who are stigmatized. For these reasons we question whether the less educated are able to benefit from the buffering effect of identification. This is the key empirical question of the present research.

Although our argument hitherto has focused mainly on well-being outcomes, we expect similar processes to account for the relationship between education level and social attitudes. For example, if low status groups cannot construct a positive social identity, then group members may resort to denigrating outgroups of similar status in an attempt to raise the relative status of their ingroup by lowering the status of a perceived competitor. Applying this to those with low levels of education could
explain why they show heightened levels of racism and anti-immigrant attitudes. This is important because such attitudes have often been attributed literally and directly to a lack of education (Lipset, 1981), rather than, as we propose, to the stigmatic and esteem consequences of this identity.

Yet another reaction to being a member of a group whose low status is perceived to be legitimate is simply to withdraw from areas associated with the low status attribute. Given the increased importance that society places on education, and the overrepresentation of the highly educated in politics, this could be reflected in the lack of political engagement reported by the lower educated.

**The Present Research**

We predict that people with lower levels of education identify less with their educational group compared to more highly educated people. Surveys in Denmark and Flanders found that the less educated are less likely to respond to a forced-choice question in which they are asked to indicate whether they identify with higher educated or less educated people (Spruyt & Kuppens, 2014; Stubager, 2009). A limitation of those studies is that the identification measure used asked merely whether people identified with higher educated, less educated, or neither.

By contrast, our approach to measuring identification is more in line with psychological research on social identification. We first analyze people's degree of identification with their own education level (rather than making them choose between two broad education levels) using a single-item measure that was included in two large, representative British surveys. We then conduct our own experimental studies in which we define people’s educational group and assess their identification with this particular group using a multidimensional identification scale (Leach et al., 2008). We examine whether there are differences in the effects and responses
associated with the different facets of identification, which remain hidden in studies using single-item identification measures.

Our second aim is to investigate whether identification with one’s educational group plays a role in any or all of the outcome variables that are known to be related to education. Given the evidence for the beneficial effect of group memberships and identification (Iyer, Jetten, Tsivrikos, Postmes, & Haslam, 2009; Jetten, Haslam, & Haslam, 2012; Jones & Jetten, 2011), we could expect positive effects, regardless of education level. However, it is also possible that the negative social identity of the less educated precludes any positive effects of identification, or even leads to negative effects.

**Overview of Studies**

In Study 1 we use two representative samples of the UK population to assess the relation between education and identification, providing evidence that people do use their level of education to define who they are, at least to the same extent that they use other, more frequently studied social categories. We also show that there are important differences in the degree to which education is incorporated into the self-concept depending upon one’s level of education. Study 2 replicates this effect and additionally shows that educational differences are strongest for affective identification or group esteem – the satisfaction people feel about belonging to a group. Study 1 and Study 3 (with a US sample) also explore the relation between identification and the outcome variables relevant to the education effect. Finally, Study 3 adds a manipulation of the salience of education, allowing us to investigate the impact of a cue indicating that education is important within this particular context. This is important because it allows us to go beyond correlational
interpretations of the data, and also because it mirrors the increase in the weight society attaches to education.

Study 1

We use representative samples of the UK population to investigate (1) people’s identification with their educational group and whether this is related to their educational level, and (2) the relation between identification and outcomes known to be related to education.

Method

Datasets and Samples. We identified two datasets that contained items that were appropriate for our purposes: the Understanding Society Study (USS) and the Citizenship Survey (CS).

USS. The USS is a longitudinal study of a representative sample of around 40,000 UK households. We analyzed data from Wave 2, which were collected via interviews and self-completion questionnaires in 2010-11. We focused exclusively on those who were not currently involved in full-time education, which, with listwise deletion across the predictor and control variables, left 27,467 respondents (age range: 16-102 years, $M_{age} = 47.17$, $SD_{age} = 16.66$; 56% female). More information can be found on the USS website [https://www.understandingsociety.ac.uk].

CS. The CS is a (now discontinued) biannual survey of a regionally representative sample of around 10,000 adults in England and Wales. We analyzed data collected via interviews in 2010-11. We again focused exclusively on respondents who were no longer in full-time education, which, with listwise deletion across the predictor and control variables, left 11,737 respondents (age range: 16-69 years, $M_{age} = 41.45$, $SD_{age} = 14.09$; 54% female). More information can be found on the CS website.
Education-based identification


**Education.** In both the USS and the CS, respondents' highest educational qualification was categorised as follows: No qualifications, GCSE or equivalent, A-Level or equivalent, Higher education qualification below degree level, Degree or equivalent and above (see Table 1 for frequencies). For our main analyses, we dichotomised respondents' highest educational qualification into those who had achieved a university degree versus those who did not. We did this for several reasons. Firstly, the education effect is mainly driven by the difference between university graduates and all others (Easterbrook et al., 2015), suggesting that this is the most important divide. Second, UK university entry levels are currently around 50% [http://www.bbc.co.uk/news/education-22280939], and the majority of educational policy is geared towards issues associated with access and uptake of university-level education, attesting to its wide societal and institutional significance as a status indicator. Thirdly, a dichotomization of the education categories greatly simplifies our models, especially those that include interactions between education and identification. Finally, it maintains consistency with the experimental studies reported later.

**Identification.** The USS and the CS data both included a question assessing the extent to which respondents incorporated different social categories into their sense of self. Respondents were asked how important social categories were “to your sense of who you are”, and the item "Your level of education," was included in this list. The other social categories included in the USS and CS are shown in Figures 1 and 2.
Controls. USS. We included several control variables in our analyses that are known to affect the outcome variables: respondents’ age and gender (1 = male, 2 = female), marital status (0 = single, 1 = married or in a civil partnership), employment status (including the categories unemployed, employed, retired, family carer, long-term illness or disability, and other), and total monthly income in pounds sterling.

CS. We included several control variables: respondents’ age and gender (1 = male, 2 = female), marital status (0 = single or separated, 1 = married), and their income, which was coded into 15 categories.

Outcome Variables. We recoded all analyzed continuous variables so that higher values indicate a greater endorsement of the construct.

USS. A self-reported health item read, "In general, would you say your health is ...?". A life satisfaction scale (α = .81) asked how satisfied respondents were with their health, income, amount of leisure time, and their life overall. The “General Health Questionnaire 12” (GHQ12, Goldberg, 1992) was also included.

CS. Trust in institutions was measured by asking “How much do you trust...” and then presenting three items (α = .67): “The police,” “Parliament,” and “Your local council.” A measure of life satisfaction read, "All things considered, how satisfied are you with your life as a whole nowadays?" A measure of self-reported health read, "How is your health in general?" Attitudes towards immigration were assessed by the item "Do you think the number of immigrants coming to Britain nowadays should be increased, reduced or should it remain the same? Do you think that the number should be increased/reduced a little or a lot?"

Results

Education and identification. We first investigated the relationship between education level and identification in both the USS and CS data. Figure 1 (USS) and
Figure 2 (CS) clearly show that people incorporate their education level into their sense of who they are (USS: $M = 2.73$; CS: $M = 3.32$), and that they do this to a degree that is comparable with (and often exceeds) the extent to which they incorporate other, more frequently studied social categories such as ethnicity (USS: $M = 2.44$; CS: $M = 3.10$), gender (USS: $M = 2.92$; CS: $M = 3.25$), and nationality (CS: $M = 3.25$).

Next, we investigated the relation between people’s educational level and identification. We conducted hierarchical multiple regressions predicting identification, in which we entered the control variables in Step 1, and the Degree dummy variable in Step 2. The results for the USS (Table 2) and CS (Table 3) indicate, as expected, that those with a university degree incorporated their education level into their identity to a greater extent (USS: $M = 3.16$, SE $= .01$; CS: $M = 3.47$, SE $= .01$) than did those without university degrees (USS: $M = 2.60$, SE $= .01$; CS: $M = 3.19$, SE $= .01$). The Degree dummy variable accounted for an additional 6.8% of the variation in identification in the USS data and an additional 2.5% of the variation in identification in the CS data, equivalent to a medium- and small-sized effect, respectively. The CS data had higher identification means, especially for those without university degrees, suggesting that the weaker effect size associated with the degree dummy variable in the CS analyses may be due to a partial ceiling effect. Alternatively, this difference could be due to the fact that the identification question was asked during a face-to-face interview in the CS rather than self-completion questionnaire in the USS. Less educated people might be reluctant to openly admit the unimportance of their educational level in a face-to-face interview.

**Education-based identification and health, well-being, trust, and societal attitudes.** To test whether education-based identification was related to outcomes
known to be affected by education, we conducted a series of hierarchical regressions.
We entered the control variables into Step 1, followed by the Degree dummy variable
in Step 2, the identification variable in Step 3, and the identification by Degree
interaction in Step 4. Because all the 95% confidence intervals (CIs) associated with
the interactions between identification and Degree included zero, we omit the results
for Step 4, but they are available from the second author on request. Finally, we used
Hayes’ (2013) PROCESS macro in SPSS to conduct mediation analyses to investigate
whether any of the effects of gaining a university education on our outcome variables
could be accounted for by increases in identification.

The USS data show that those with a university degree reported significantly
better health, were more satisfied with their life situation, and had higher mental well-
being than those without a university degree (Table 2). Step 3 in the hierarchical
regression indicated that, for all three outcome variables, there was a positive main
effect for identification. This shows that respondents who incorporated their level of
education into their identity reported better health, satisfaction with life, and mental
well-being. Furthermore, none of the CIs for the indirect effects contained zero,
suggesting that identification mediates some of the effect of holding a university
degree on these outcomes.

The CS data indicate that, compared to those without university degrees, those
with degrees reported significantly higher levels of trust in societal institutions, life
satisfaction and self-reported health, as well as more favourable attitudes towards
immigration (Table 3). The results from Step 3 indicate that identification was
positively related to all four outcome variables, suggesting that the more respondents
incorporated their level of education into their identity the more trust they had in
societal institutions, the more satisfied they were with their lives, the better they
perceived their health to be, and the more favourable their attitudes towards immigration. Finally, none of the 95% CIs associated with the indirect effects contained zero, suggesting that identification mediates some of the effect of holding a university degree on these outcomes.

**Discussion**

The results from the USS and CS analyses clearly indicate that people identify with their level of education, and that they do this to a degree comparable with other social categories such as ethnicity and nationality. This supports our proposition that there is merit in studying education-based identification. Also, our results are consistent with previous evidence suggesting that those with lower levels of education identify less with their level of education. Furthermore, irrespective of education level, there are psychological benefits to be gained from incorporating education level into one's identity: The more respondents did so, the higher were their self-reports of health, satisfaction with life, mental well-being, favourable attitudes towards immigrants, and levels of trust in societal institutions. Finally, increases in identification accounted for some of the beneficial effects of having a university degree.

Although these initial results are encouraging, the single-item measures of identification included in the USS and CS are relatively crude and prohibit conclusions about which facets of identification are driving these effects. Social identification is known to consist of several facets (e.g., Leach et al., 2008), and it is possible that the different aspects have distinct effects. For example, given that education is perceived to be the result of personal achievement, affective identification, that is, satisfaction with one's educational group membership, could play a special role. Less educated people might struggle to find satisfaction in their
relatively low level of education, and this is likely to affect self-esteem. Indeed, manipulations that devalue one’s ingroup have been shown to most strongly affect the satisfaction aspect of identification (Leach, Mosquera, Vliek, & Hirt, 2010).

Affective identification thus reflects the value that is attached to group belonging, whereas other identification aspects reflect a more traditional view of identification: the importance of the group to the individual.

There is evidence that different identification aspects play different roles for the unemployed, a group that has a similar societal stigma attached to it as the less educated. Affective identification with being unemployed (e.g., “I feel good in the group of unemployed people”) is positively related to self-esteem and perceived health, whereas a more cognitive identification dimension (e.g., “I identify with unemployed people”) shows a negative relation with self-esteem and perceived health (Herman, Bourguignon, Stinglhamber, & Jourdan, 2007). It may be, therefore, that dimensions of identification that focus on the affective satisfaction that is derived from group memberships are universally beneficial for self-esteem, well-being, and social attitudes. However, identification without this satisfaction element reflects a more cognitive awareness of the group and its importance to one’s identity. It may be that this non-affect identification could have negative consequences for members of stigmatised groups as their low status becomes internalised (Crabtree et al., 2010).

We therefore conducted two further studies to investigate which aspects of identification are central to the effects found in Study 1. Study 2 investigates the relation between education and identification in a UK sample; Study 3 does the same with a US sample and in addition investigates the relation between different facets of identification and a wide range of outcome variables known to be related to education.
Study 2

In Study 2 we investigated whether identification with one’s educational group is different for people with or without a university degree, but we used a multidimensional measure of identification rather than the single-item measures available in Study 1.

Method

Participants. Initially 208 participants were recruited through a research assistant’s social network (this was the maximum that could be achieved within the available timeframe). Thirty-seven participants who did not provide information about their educational level or did not answer the identification questions were excluded from analyses. Three participants who were 15/16 years old and still in secondary education were also excluded; 168 remained (age $M = 24.5, SD = 5.7$; 65 male, 97 female, 6 gender unknown). In view of the promising results (the effect of education on identification already being significant) and the relatively small sample, we decided to recruit additional participants. A further 314 participants were recruited through an online loyalty program (www.maximiles.co.uk); by way of compensation, they received points that could be exchanged for consumer purchases. Forty participants who did not provide information about their educational level or did not answer the identification questions were excluded from analyses. One participant was excluded because he responded ‘1’ to 42 consecutive questions; 273 participants remained. Thus in total there were 441 participants (293 female, 129 male, 19 gender unknown; age $M = 32.78; SD = 11.50$). Participants completed an online questionnaire.

Education. Participants were asked to indicate the highest educational level they had achieved and responses were again recoded into two categories: No
university degree (n = 210) and University degree (n = 231). Because we had a young sample and 19.3% were still in full-time education, we categorized those who were currently students as holding the degree or certificate for which they were studying.

Identification. Identification was assessed immediately after the question about participants’ level of education. We used 10 items from Leach et al.’s (2008) multidimensional identification scale, two items for each subscale (e.g., “I feel a bond with people who have had the same education as me”). Scores for solidarity (r = .79), satisfaction (r = .85), centrality (r = .87), self-stereotyping (r = .63), and homogeneity (r = .80) were computed by averaging the items.

Results and Discussion

As expected, in a multiple regression analysis controlling for gender and age and with education represented as a dummy variable, identification with one’s educational group was higher among those with a university degree (see Table 4). The strength of the relation between education and identification differed substantially between the identification dimensions; the change in $R^2$ due to the education variable varied from .004 to .124. The largest effect size was for satisfaction, followed by centrality; the smallest was for in-group homogeneity. Satisfaction is an affective dimension of identification that is closely related to private collective self-esteem (Luhtanen & Crocker, 1992) and measures how happy and satisfied people are to have a particular level of education. In other words, lower educated people do not feel good about their level of education. We interpret this as evidence that low levels of education form a basis for social stigma and status. In Study 3 we investigate whether this stigma is related to a series of outcomes central to the education effect.
Study 3

We found that less educated people identify much less with their educational level than higher educated people do, especially for an affective dimension of identification. We now investigate how education-based identification relates to a series of outcomes central to the education effect. Study 3 is therefore similar to Study 1 but now we used a multidimensional measure of identification.

We also included a manipulation of the salience of people’s educational level because we wanted to investigate experimentally the effects of a contextual cue for the importance of education. People are often confronted with reminders of their education level, such as completing forms that ask about educational qualifications. Educational salience is expected to have two, related effects. First, it could strengthen the relation between identification and the outcome variables, simply because making education salient focuses respondents’ attention on this aspect of their identity. Second, the education salience manipulation could have direct, experimental effects on the outcome variables. Such effects should corroborate the relations between identification and the outcome variables and are a complementary way of investigating the importance of education-based social identity. Identification and education salience are person-related and situation-related indicators of the importance of social identity, respectively. Both personal and situational factors are known to play a role in social identity effects, and they frequently interact with each other, with situational importance often amplifying the effect of personal importance (see Spears, Doosje, & Ellemers, 1999). For example, if high education-based identification is related to greater well-being, it is to be expected that making education salient will increase well-being, especially for those who identify highly with their educational group. Finding effects of both identification and education
salience would therefore provide strong support for the role of education-based identity in well-being and societal attitudes.

We measured participants’ educational level and their identification with their educational group as predictor variables, and manipulated the salience of people’s educational level. As dependent variables, we included a wide range of variables known to be related to education. Having no basis to estimate effect sizes, we initially recruited a sample of about the same size as Study 2. Several of the three-way interactions reported below were already significant so we ran another, equally large study to obtain more robust results. For analytic purposes we pooled the data from these two studies (Studies 3a and 3b). Unless indicated otherwise, all questions were identical across the two studies.

**Analytic strategy and overview.** We first report the education main effects (not controlling for identification), to test whether well-established education effects are replicated. Then, we address the issue of identification and how best to conceptualize and operationalize this. Specifically, we argue that making a distinction between esteem related and non-esteem related identification sheds important light on the role of identification. In Study 2 we already found that the effect of education was strongest for esteem-related aspects of identification.

Our main analyses focus on (1) how identification (both group esteem and non-esteem identification) related to the outcome variables, and (2) whether the outcome variables were affected by the education salience manipulation. We therefore investigate both person-related (identification) and situation-related (education salience) indicators of the importance of social identity, and this is the main purpose of Study 3.
Method

In Study 3a, 420 MTurk workers (157 female, $M_{\text{age}} = 30.7$, $SD_{\text{age}} = 11.1$) completed an online questionnaire. Nineteen participants did not answer “Agree strongly” to the question “Please select the ‘Agree strongly’ answer” and a further 18 did not disagree with the item “I am an elephant and I live in Africa.” These 37 inattentive participants were excluded from all analyses (383 remained).

In Study 3b, 532 MTurk workers (340 female, $M_{\text{age}} = 34.7$, $SD_{\text{age}} = 12.4$) completed an online questionnaire. Forty participants failed the same attention check items as those used in Study 3a, and were excluded from all analyses (492 remained).

Salience of education. Participants were randomly assigned to the “Education salient” or the “Education not salient” condition. Questions about the education of respondents were answered either before (Education salient) or after (Education not salient) the dependent variables. The education questions were about respondents’ highest educational level, the field of their highest qualification, and also included all identification items, and the “importance of education” item used in Study 1. We assume that education would have been salient for participants who had answered the education questions before they responded to the dependent variables.

Education. Participants’ highest educational level was recoded into two categories: No 4-year college degree ($n = 422$) and At least a 4-year college degree ($n = 453$).

Identification. We used the same multidimensional identification scale as used in Study 2 (Leach et al., 2008), but now included all 14 items. We added three items intended to measure public collective self-esteem (e.g., “In general, others respect people with my level of education,” adapted from Luhtanen & Crocker, 1992). Scores for solidarity ($\alpha = .89$), satisfaction ($\alpha = .92$), centrality ($\alpha = .81$), self-
stereotyping ($r = .70$), homogeneity ($r = .72$), and public collective self-esteem ($\alpha = .82$) were computed by averaging responses to the relevant items.

**Outcome variables.** Rather than focus on one particular variable, we included constructs reflecting the wide range of education effects found in the literature. In addition to life satisfaction, we included measures of social attitudes such as political attitudes and attitudes towards minorities. We used formulations and response options identical to those in representative surveys in order to be able to relate the results of Study 3 to the education effects found in previous research (including Study 1).

**Life satisfaction.** We asked participants “In general, how satisfied would you say you are with your life?”

**Political attitudes.** To measure interest in politics, we asked “How much interest do you generally have in what is going on in politics?” Higher scores reflected greater interest in politics. Political cynicism was measured with two items ($r = .34$), for example “Generally speaking those we elect as members of Congress lose touch with people pretty quickly.”

**Intergroup attitudes.** Three items ($\alpha = .83$) measured negative attitudes towards immigrants, for example “Immigrants are generally good for the US economy” (reverse-scored). Two items ($r = .62$) measured symbolic racism (Henry & Sears, 2002), for example “Irish, Italians, Jews and many other minorities overcame prejudice and worked their way up. Blacks should do the same without any special favors.”

**Results**

Means, standard deviations, and correlations for all variables are shown in Table 5. As explained above, we first report the education main effects. Then we
investigate the operationalization of identification and its relation with education. Finally, our main analyses concern the effects of identification and education salience on the outcome variables (i.e., well-being and social attitudes).

**Education main effects.** As expected, higher education (controlling for age, gender, and education salience, but not for identification) was related to marginally greater life satisfaction, $B = .14$, SE = .074, $p = .06$, 95% CI [.273, .421], greater interest in politics, $B = .18$, SE = .068, $p = .009$, 95% CI [.044, .311], less negative attitudes towards immigrants, $B = -.48$, SE = .124, $p < .001$, 95% CI [-.727, -.241], and less symbolic racism, 95% CI [.273, .421], $B = -.45$, SE = .142, $p = .002$, compared to those without a 4-year college degree. The effect of education on political cynicism was in the expected direction, but not significant, $B = -.11$, SE = .080, $p = .16$, 95% CI [-.726, -.168].

**Identification.** Identification with one’s educational group was again higher among the more highly educated (see Table 6). Consistent with the findings of Study 2, the largest effects were for public collective self-esteem and satisfaction. It is clear that facets of identification related to group esteem show the strongest relation with education. In other words, the lower educated do not find it pleasant to belong to their group and do not think that others have a favorable opinion of it. The two esteem-related dimensions, satisfaction and public collective self-esteem, also correlate strongly ($r = .76$). For the analyses of the relations between identification and well-being/social attitudes we therefore separated esteem-related from non-esteem related aspects of identification. Satisfaction and public collective self-esteem items were combined into a single scale of group esteem ($\alpha = .92$). The remaining identification dimensions were also highly related ($rs$ between .40 and .71). In order to prevent multicollinearity we combined the solidarity, centrality, individual self-
stereotyping and in-group homogeneity items into a measure of non-esteem identification \( (\alpha = .91) \). This measures how subjectively important the educational group is, without reference to the hedonic value of the group.

**Effects of identification and salience of education.** We use multiple regression models including age, gender, educational level, salience of education, group esteem, non-esteem identification as predictors. We also included all two-way and three-way interactions between education, salience, and group esteem and non-esteem identification, but no interactions including both group esteem and non-esteem identification at the same time.

**Life satisfaction.** There was a main effect of group esteem, \( B = .35, SE = .038, p < .001, 95\% CI [.273, .421] \), showing that, overall, higher group esteem was related to higher life satisfaction. It is worth noting that the education main effect changed from positive to negative, \( B = -.36, SE = .081, p < .001, 95\% CI [-.520, -.202] \), when group esteem was added to the model (see Figure 3); we return to this point in the Discussion. The main effect for non-esteem identification was not significant, \( B = .03, SE = .038, p = .46, 95\% CI [-.047, .103] \), suggesting that the effect found in Study 1 might have been due mainly to esteem-related aspects of identification.

There were also three-way interactions between education level, education salience, and both group esteem and non-esteem identification (\( B = -.36, SE = .16, p = .03, 95\% CI [-.669, -.041] \) and \( B = .35, SE = .15, p = .02, 95\% CI [.046, .646] \), respectively). We discuss these in turn, starting with group esteem. As can be seen in Figure 3, all relations between group esteem and life satisfaction were positive. When education had been made salient, the relation between group esteem and life satisfaction was stronger for those without a 4-year college degree, \( B = .47, SE = \)
Education-based identification

.067, \( p < .001 \), 95% CI [.338, .604], than for those with such a degree, \( B = .28 \), \( SE = .101 \), \( p = .007 \), 95% CI [.078, .477]. Thus, group esteem is beneficial for the life satisfaction of all respondents, but is especially beneficial for those with lower levels of education.

Turning to the effects of educational salience, we decomposed the three-way interaction in a different way to examine the simple effects of education salience. Only one simple effect was significant. This showed that the lower educated who reported low levels of group esteem had significantly lower life satisfaction when education had been made salient (\( M = 2.32 \)) compared to when it had not been made salient (\( M = 2.88 \)), 95% CI for difference [.246, .866], \( F(1,862) = 12.39, p < .001, \eta^2_p = .014 \). In other words, the lower educated who are low in group esteem reported lower life satisfaction after their own educational level had been made salient.

Turning to the three-way interaction with non-esteem identification, Figure 4 shows that when education had been made salient, non-esteem identification positively predicted life satisfaction for those with a 4-year degree, \( B = .21 \), \( SE = .086 \), \( p = .02 \), 95% CI [.036, .376], but negatively for those without, \( B = -.12 \), \( SE = .072 \), \( p = .10 \), 95% CI [-.260, .022]. Although the latter relation is not statistically significant, it contrasts markedly with the positive relation observed for the higher educated.

We again decomposed the interaction to examine the simple effects of education salience. This confirmed the negative role of non-esteem identification for the less educated. Indeed, less educated respondents high in non-esteem identification reported lower life satisfaction when education had been made salient (\( M = 2.78 \)) compared to when it had not been made salient (\( M = 3.27 \)), 95% CI for difference.

\(^1\) All simple effects reported here were calculated at 1 SD above or below the mean of respondents with or without a 4-year college degree, rather than 1 SD above or below the sample mean.
[.184, .798], F(1,862) = 9.84, p = .002, $\eta_p^2 = .011$. No other simple effects of education salience were significant.

In summary, when education had been made salient, both low group esteem and high non-esteem identification were associated with lower life satisfaction for participants without a 4-year college degree, compared to those with a 4-year degree.

**Interest in politics and political cynicism.** There were no significant main effects of group esteem, $B = .01, SE = .037, p = .88, 95\% CI [-.068, .078]$, or non-esteem identification, $B = .06, SE = .038, p = .10, 95\% CI [-.012, .135]$. Group esteem was not involved in any significant interaction effects. However, non-esteem identification interacted with education, $B = .18, SE = .08, p = .02, 95\% CI [.034, .331]$: Figure 5 shows that non-esteem identification was related to greater interest in politics among people with a 4-year college degree, $B = .14, SE = .057, p = .02, 95\% CI [.025, .250]$, but not among those without a degree, $B = -.03, SE = .050, p = .61, 95\% CI [-.124, .073]$. No other effects of identification were significant. There were no interactions between identification and education salience, so we did not examine education salience simple effects. Results for political cynicism were very similar to those for interest in politics. For the sake of brevity they are not reported here but details can be found in the online Supplemental Materials.

In summary, higher non-esteem identification was related to more positive attitudes towards politics for the higher educated, but not for the less educated.

**Negative attitudes towards immigrants.** For these analyses we selected participants who self-identified as European Americans, were born in the US, and whose parents were both born in the US ($N = 553$). There were no main effects of group esteem, $B = -.08, SE = .067, p = .22, 95\% CI [-.213, .048]$, or non-esteem identification, $B = -.03, SE = .069, p = .68, 95\% CI [-.164, .107]$. Group esteem
interacted with education salience, $B = .27, SE = .134, p = .04, 95\% CI [.009, .536]$. Unexpectedly, group esteem was related to less negative attitudes towards immigrants when education had not been made salient, $B = -.20, SE = .093, p = .03, 95\% CI [-.384, -.017]$, but not when education had been made salient, $B = .07, SE = .095, p = .47, 95\% CI [-.119, .256]$.

More interestingly, there was a three-way interaction between non-esteem identification, education, and education salience, $B = -.68, SE = .279, p = .01, 95\% CI [-1.232, -0.136]$. Regarding the relation between non-esteem identification and negative attitudes towards immigrants, Figure 6 shows that when education was salient, non-esteem identification was related to less negative attitudes towards immigrants for those with a 4-year college degree, $B = -.41, SE = .139, p = .004, 95\% CI [-.687, -.138]$, but not for those without a degree, $B = .01, SE = .125, p = .92, 95\% CI [-.235, 0.260]$.

Thus, higher non-esteem identification played a more positive role (assuming that positive attitudes to immigrants are desirable) for those with a college degree than for those without a degree.

When we decomposed this interaction to examine the simple effects of education salience, we again found evidence of the positive role of non-esteem identification for the higher educated. Among the higher educated participants, those for whom education had been made salient reported attitudes towards immigrants that were less negative when they were high in non-esteem identification ($M = -1.08$ versus $-.43, 95\% CI$ for difference $[.090, 1.228]$), $F(1,541) = 5.18$, $p = .02$, $\eta^2_p = .009$, but more negative when they were low in non-esteem identification ($M = -.17$ versus $-.87, 95\% CI$ for difference $[.127, 1.261]$), $F(1,541) = 5.78$, $p = .02$, $\eta^2_p = .011$.

---

2 The simple effect of non-esteem identification for the higher educated was also not significant when education was not salient, $B = .22, p = .18$. 
In sum, both the correlational and the experimental evidence point to the same conclusion: Higher non-esteem identification leads the higher educated, but not the less educated, to report less negative attitudes towards immigrants.

**Symbolic racism.** For these analyses we again selected the subset of 553 participants who self-identified as European Americans, were born in the US, and whose parents were both born in the US. There were no main effects of group esteem, \( B = .004, \text{SE} = .077, p = .96, 95\% \text{ CI} [-.146, .155], \) or non-esteem identification, \( B = .02, \text{SE} = .079, p = .78, 95\% \text{ CI} [-.133, .178]. \)

Group esteem also did not have any interaction effects. However, there was a three-way interaction between non-esteem identification, education, and education salience, \( B = -.76, \text{SE} = .324, p = .02, 95\% \text{ CI} [-.401, -.128] \) (see Figure S2 in the Supplemental Material). None of the simple effects of non-esteem identification were significant (all \( p > .13 \)) but when we decomposed this interaction by salience condition, the two-way interaction between education and non-esteem identification was marginally significant when education was salient (\( B = -.42, \text{SE} = .217, p = .054, 95\% \text{ CI} [-.846, .007] \)) but not when it was not salient (\( B = .36, \text{SE} = .243, p = .14, 95\% \text{ CI} [-.115, .841] \)). This reflects the fact that when education had been made salient, higher non-esteem identification was associated with less symbolic racism among the higher educated, \( B = -.21, \text{SE} = .164, p = .20, 95\% \text{ CI} [-.538, .111], \) and with more symbolic racism among the less educated, \( B = .17, \text{SE} = .144, p = .23, 95\% \text{ CI} [-.112, .459], \) although the simple slopes were non-significant.

Decomposing the interaction differently in order to examine the simple effects of education salience, there was a corresponding effect of education salience: For the higher educated who reported high levels of non-esteem identification, making education salient resulted in marginally less racism (\( M = -.15 \)) than when education
had not been made salient (M = .45), 95% CI for difference [-.055, 1.270], F(1,541) = 3.25, p = .07, $\eta_p^2 = .006$.

Although these effects on symbolic racism were less strong than those for other outcome variables, the pattern is clearly similar: Non-esteem identification was more strongly related to harmonious social attitudes for those with a college degree than for those without one, especially when education had been made salient.

**Discussion**

Non-esteem identification had more positive consequences for the well-being and social attitudes of higher educated people than for those of lower educated people. This was the case for interest in politics and political cynicism, and when education had been made salient it was also true for life satisfaction, anti-immigrant attitudes, and symbolic racism. Importantly, these correlational findings were echoed by the experimental effects of making education salient. For the less educated who were high in non-esteem identification, making education salient led to lower life satisfaction. In contrast, for the higher educated who were high in non-esteem identification, education salience led to less symbolic racism and less negative attitudes towards immigrants. Thus education-based identity only had positive effects for the higher educated.

This is an important finding because it shows that identification, when analyzed separately from esteem-related aspects of identification, is a not a positive factor for people with lower levels of formal education. The identity content of having lower levels of education is sufficiently negative that incorporating it into the self-concept does not have any beneficial effect. This runs counter to established findings regarding the beneficial effects of group membership and identification (Crabtree, Haslam, Postmes, & Haslam, 2010; Jetten et al., 2012; Schmitt &
Branscombe, 2002). However, our results are in line with work showing negative effects of identification with being unemployed (Herman et al., 2007), which implies that there are inherently negative consequences of defining the self on a consensually devalued dimension.

In contrast to non-esteem identification, the positive relation between group esteem and life satisfaction was stronger for people with lower rather than higher levels of education when education had been made salient. High group esteem means that people value the group highly and think that others do so, too, and this seems to foster a rejection of the negativity of being less educated. Less educated people who are high in group esteem apparently have sufficient resources to challenge the negative identity of being less educated. Also, both group esteem and life satisfaction reflect positivity towards the self, further explaining their relation. This interpretation is consistent with the fact that people who identify with the less educated perceive the less educated to be warmer and more competent than the higher educated (Spruyt & Kuppens, 2014). This appears to be an example of the classic way in which identification buffers against negative social identity (Schmitt & Branscombe, 2002), although in the present case this only occurred for esteem-related identification.

Indeed, the less educated had higher life satisfaction than the higher educated, once group esteem was controlled for. It is important to add, however, that this coping mechanism of increasing group esteem is not available to many in the lower educated group, because they have much lower group esteem than do the more highly educated in the first place. In Study 3, for example, 70% of those with a 4-year college degree scored above the sample median for group esteem, whereas only 25% of those without a 4-year college degree did so. Thus, in addition to the lack of a positive role
of non-esteem identification for the less educated, the beneficial effects of group esteem are likely to be limited.

In contrast to Study 1, we found that the effect of identification differed between people with or without a university degree. This difference between Study 1 and Study 3 seems to be due to the identification measure used. The one used in Study 3 was multi-item and multi-dimensional. Consistent with this argument, when we analyzed the Study 3 data using the same identification measure as in Study 1 (which had also been included in Study 3), the results were consistent with those found in Study 1 (details are available in the Supplemental Materials), thereby arguing against an alternative explanation that differences in the findings of Studies 1 and 3 reflect differences in the nationality or representativeness of the samples.

**General Discussion**

We investigated education-based social identity, and how it is related to well-being and social attitudes. Overall, our results suggest that education-based social identity plays a role in a wide range of outcomes associated with low education, such as low well-being and political and intergroup attitudes that indicate threats to social cohesion.

We found strong support for the hypothesis that education-based identification is lower among those with lower levels of education. This was the case in all three studies, one of which was based on representative samples of the population. Moreover, the relation between education and identification was especially strong for aspects of identification related to group esteem, possibly reflecting social reality constraints: It is easier to be positive about higher qualifications. In addition to the obviously negative connotations of having a lack of education, educational attainment is frequently regarded as a legitimate reflection of individual merit. Given these
constraints, it is difficult for the less educated to have high group esteem. Theoretically, esteem-related aspects of identification have sometimes been conceptualized as distinct from identification. For example, Correll and Park (2005) called this the perceived value of the group, a factor they separate from identification.

Study 3 confirmed that group esteem and non-esteem identification had different relations with outcome variables, especially when education was made salient. Unlike non-esteem identification, group esteem had a positive relation with life satisfaction for the less educated. This shows that resisting the negative aspects of their education-based identity pays off for the less educated. However the corollary is that low group esteem had negative effects, especially when education was salient. It should also be borne in mind that in absolute terms group esteem was generally low among the less educated, meaning that its beneficial effects are likely to be limited. Setting aside these esteem-related aspects, identification itself was related to higher life satisfaction and more positive political and intergroup attitudes for the more highly educated, but not for the less educated.

The fact that the results for education-based identity were consistent for a wide range of outcomes relating to well-being and social attitudes is an important strength of our research. A common underlying explanation opens up the prospect of reducing these diverse negative effects through a single intervention. At the same time it is worth acknowledging that each outcome variable is likely to have a particular relation with education, and that the pathways from education to these outcomes may vary to some extent from one outcome to another. For example, the exact mediators could differ between the outcome variables. Education-based identification nevertheless offers a good starting-point for investigating these relations.
Do people really identify with education-based groups, and are their responses to the identification items meaningful? These are important questions because education-based identification has rarely been studied. Several pieces of evidence from the current research suggest that an education-based identity is a meaningful concept. In Study 1 respondents indicated that their level of education was as important to their sense of who they are as their gender or nationality, and more important than their ethnicity. Furthermore, endorsement of stereotypes about education-based groups depends to some extent on group identification (Spruyt & Kuppens, 2014). All this evidence supports the idea that people’s level of education can be a basis for social identity.

The current work advances knowledge in several ways. First, it qualifies previous research showing the beneficial effects of identification. For some groups, identification—at least when its esteem-related aspects have been removed—does not have a beneficial effect. Similar evidence has been reported in the case of the unemployed (Herman et al., 2007). Future research should clarify whether esteem-related and non-esteeem-related aspects of identification also play different roles in other disadvantaged groups, and the conditions under which this occurs. Second, we have studied a group with a very particular negative social identity that may be difficult to cope with because it is associated with high personal responsibility. In this respect, low education is similar to obesity (Klaczyński, Goold, & Mudry, 2004). Having a low level of education is seen not only as inherently negative but also as a legitimate reflection of individual merit, thereby rendering traditional coping strategies problematic.

Future research on education as a source of social identity could build on our conclusion that the negative effects of being less educated result from holding a
Education-based identification by employing self-affirmation manipulations to attenuate these education effects (Harackiewicz et al., 2014). Other research could investigate how the less educated view their level of education and their position in society. Their identification is low, but how do they explain and deal with this low status? A research question that has been discussed in sociology is whether the education divide has the potential to be a basis of societal conflict (see Spruyt & Kuppens, 2014). Should we expect collective action on the part of the less educated, and if so in what form? Or does their lack of identification imply acceptance and even self-exclusion? Given the current importance of education as a structural factor in society, such research is surely timely.

In conclusion, a key message of our research is that despite having been neglected as a research topic in psychology, education provides a basis for a social identity. Our research shows that education-based identity is associated with positive outcomes, especially for the higher educated. However, the merit-based ideology infusing this particular identity undermines these positive effects for the less educated, with clear negative consequences, both for the individual and for society.

Acknowledgements

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Table 1: Sample size by highest educational qualification in the Understanding Society Survey (USS) and the Citizenship Survey (CS)

<table>
<thead>
<tr>
<th>Qualification</th>
<th>USS</th>
<th>CS</th>
</tr>
</thead>
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<td>2598</td>
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<tr>
<td>GCSE</td>
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<td>2690</td>
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</tr>
<tr>
<td><strong>Total</strong></td>
<td>27467</td>
<td>11737</td>
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</table>

Note. GCSE = General Certificate of Secondary Education; exam usually taken around age 16, at the end of compulsory, full-time secondary education. A level = qualification that marks the end of secondary education, usually taken around age 18. Higher vocational = Non-university post-secondary education, mainly aimed at practical and/or technical skills.
Table 2: Estimates associated with the university degree dummy and identification variables from hierarchical regression analyses of the USS data (Study 1).

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<tr>
<th></th>
<th>N</th>
<th>ΔR^2</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>p</th>
<th>95% CI</th>
<th>Estimate</th>
<th>SE</th>
<th>95% CI</th>
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**GHQ12** 27,184

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|        |                   | .095 | .023 | [0.051, 0.137] |
Table 3: Estimates associated with the university degree dummy and identification variables from hierarchical regression analyses of the CS data (Study 1).

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<th>B</th>
<th>β</th>
<th>p</th>
<th>95% CIs</th>
<th>Estimate</th>
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<tr>
<td>University Degree</td>
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<td>.286</td>
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<td>[0.254, 0.318]</td>
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<td>Trust institutions</td>
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<tr>
<td>University Degree</td>
<td></td>
<td>.110</td>
<td>.014</td>
<td>.080</td>
<td>&lt;.001</td>
<td>[0.083, 0.137]</td>
<td>.013</td>
<td>.002</td>
<td>[0.008, 0.018]</td>
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<tr>
<td>Identification</td>
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<td>.008</td>
<td>.054</td>
<td>&lt;.001</td>
<td>[0.029, 0.059]</td>
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</table>
### Life satisfaction

<table>
<thead>
<tr>
<th>Step</th>
<th>11,734</th>
<th>University Degree</th>
<th>.064</th>
<th>.018</th>
<th>.036</th>
<th>&lt;.001</th>
<th>[0.030, 0.099]</th>
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</thead>
<tbody>
<tr>
<td>Step 2</td>
<td>.001</td>
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<td>.078</td>
<td>.010</td>
<td>.073</td>
<td>&lt;.001</td>
<td>[0.059, 0.098]</td>
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</table>

### Self-reported health

<table>
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<tr>
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<th>11,736</th>
<th>University Degree</th>
<th>.155</th>
<th>.018</th>
<th>.080</th>
<th>&lt;.001</th>
<th>[0.012, 0.191]</th>
</tr>
</thead>
<tbody>
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<td>.005</td>
<td>Identification</td>
<td>.063</td>
<td>.010</td>
<td>.054</td>
<td>&lt;.001</td>
<td>[0.043, 0.083]</td>
</tr>
</tbody>
</table>

### Immigration change attitudes

<p>| Step | 10,875 | University Degree | .415 | .022 | .186 | &lt;.001 | [0.371, 0.458] |</p>
<table>
<thead>
<tr>
<th>Step 3</th>
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<tbody>
<tr>
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<td>.402</td>
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<td>Identification</td>
<td>.043</td>
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Table 4: Relation between education and identification with education group (Study 2)

<table>
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<th></th>
<th>95% CI for difference in means</th>
<th>R squared change</th>
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<tbody>
<tr>
<td>No university degree</td>
<td>University degree</td>
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<tr>
<td>Solidarity</td>
<td>3.94</td>
<td>4.40 [0.17, 0.74]</td>
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<tr>
<td>Satisfaction</td>
<td>4.91</td>
<td>5.95 [0.78, 1.29]</td>
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<tr>
<td>Centrality</td>
<td>4.30</td>
<td>5.30 [0.71, 1.29]</td>
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<tr>
<td>Individual self-stereotyping</td>
<td>3.89</td>
<td>4.44 [0.28, 0.80]</td>
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<tr>
<td>In-group homogeneity</td>
<td>3.77</td>
<td>3.95 [-0.10, 0.47]</td>
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</table>

Note. ** p < .01. *** p < .001.
Table 5: Descriptive statistics for Study 3

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<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>endpoints</th>
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<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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</thead>
<tbody>
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<td>1</td>
<td>Non-esteem identification</td>
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<td>0.236</td>
<td>1.195</td>
<td>-3, 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Group esteem</td>
<td>875</td>
<td>0.702</td>
<td>1.342</td>
<td>-3, 3</td>
<td>.64***</td>
<td></td>
<td></td>
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<tr>
<td>3</td>
<td>Life satisfaction</td>
<td>874</td>
<td>3.180</td>
<td>1.100</td>
<td>1, 5</td>
<td>.25***</td>
<td>.35***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Interest in politics</td>
<td>875</td>
<td>3.274</td>
<td>1.028</td>
<td>1, 5</td>
<td>.07*</td>
<td>.08*</td>
<td>.08*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Political cynicism</td>
<td>875</td>
<td>1.412</td>
<td>1.179</td>
<td>-3, 3</td>
<td>-.09*</td>
<td>-.08*</td>
<td>-.07*</td>
<td>.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Negative attitudes towards immigrants</td>
<td>875</td>
<td>-0.537</td>
<td>1.429</td>
<td>-3, 3</td>
<td>-.12***</td>
<td>-.14***</td>
<td>-.04</td>
<td>-.10**</td>
<td>.05</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Symbolic racism</td>
<td>875</td>
<td>-0.091</td>
<td>1.594</td>
<td>-3, 3</td>
<td>-.06</td>
<td>-.08*</td>
<td>.05</td>
<td>-.07*</td>
<td>.10**</td>
<td>.53***</td>
</tr>
</tbody>
</table>

Note. * p < .05. ** p < .01. *** p < .001.
Table 6: Relation between education and identification with education group (Study 3)

<table>
<thead>
<tr>
<th></th>
<th>4-year college degree</th>
<th>4-year college degree</th>
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<th>R squared change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solidarity</td>
<td>-.25</td>
<td>.54</td>
<td>[0.61, 0.98]</td>
<td>.075**</td>
</tr>
<tr>
<td>Centrality</td>
<td>-.05</td>
<td>.90</td>
<td>[0.76, 1.14]</td>
<td>.098***</td>
</tr>
<tr>
<td>Individual self-stereotyping</td>
<td>.04</td>
<td>.44</td>
<td>[0.22, 0.58]</td>
<td>.022***</td>
</tr>
<tr>
<td>In-group homogeneity</td>
<td>-.19</td>
<td>.23</td>
<td>[0.24, 0.61]</td>
<td>.023***</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>.09</td>
<td>1.40</td>
<td>[1.14, 1.48]</td>
<td>.215***</td>
</tr>
<tr>
<td>Public collective self-esteem</td>
<td>-.18</td>
<td>1.34</td>
<td>[1.36, 1.69]</td>
<td>.274***</td>
</tr>
</tbody>
</table>

Note. ** p < .01. *** p < .001.
Figure 1: Violin plots of identification with different social categories from the Understanding Society Survey. The white dots represent the median scores, the thick black lines represent the inner quartiles, and the thin black lines represent the outer quartiles. The grey areas show the distributions of responses.
Figure 2: Violin plots of identification with different social categories from the Citizenship Survey. The white dots represent the median scores, the thick black lines represents the inner quartiles, and the thin black lines represent the outer quartiles. The grey areas show the distributions of responses.
Figure 3: Group esteem and life satisfaction, by participant education and Education salience. Group esteem consists of satisfaction and public collective self-esteem.
Figure 4: Non-esteem identification and life satisfaction, by participant education and Education salience. Non-esteem identification consists of centrality, solidarity, individual self-stereotyping, and in-group homogeneity.
Figure 5: Non-esteem identification and interest in politics, by participant education.

Non-esteem identification consists of centrality, solidarity, individual self-stereotyping, and in-group homogeneity.
Figure 6: Non-esteem identification and anti-immigrant attitudes, by participant education and Education salience. Non-esteem identification consists of centrality, solidarity, individual self-stereotyping, and in-group homogeneity.
This is the Supplemental Material accompanying:

**Full regression analyses results for Study 3**

Below are the tables containing the unstandardized regression coefficients and standard errors for the regression models including all interactions from Study 3. Please note that the main effects or two-way interactions reported in the paper are not based on these tables because main effects are estimated in models without interaction terms and two-way interactions are estimated in models without three-way interaction terms. In models with correlated predictors (as is the case here), main effects are best estimated in a model without interaction terms. Even if all predictors are centered, the ‘main effect’ in a model that includes interaction terms is not the actual main effect but rather the simple effect when all other variables are at their mean level.

Therefore, main effects and two-way interactions reported in the paper differ from the numbers that can be found in the tables below. The tables below each contain information on one model only, that is, the model containing all variables and interactions.
Table S1: Life satisfaction predicted by education, education salience, and identification (unstandardized regression coefficients, Study 3)

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.002</td>
<td>(.003)</td>
<td>.539</td>
</tr>
<tr>
<td>Gender</td>
<td>-0.053</td>
<td>(.071)</td>
<td>.458</td>
</tr>
<tr>
<td>Education</td>
<td>-0.366</td>
<td>(.082)</td>
<td>.000</td>
</tr>
<tr>
<td>Education salience</td>
<td>-0.099</td>
<td>(.083)</td>
<td>.233</td>
</tr>
<tr>
<td>Non-esteem identification</td>
<td>0.028</td>
<td>(.039)</td>
<td>.469</td>
</tr>
<tr>
<td>Group esteem</td>
<td>0.351</td>
<td>(.040)</td>
<td>.000</td>
</tr>
<tr>
<td>Education*Education salience</td>
<td>0.219</td>
<td>(.165)</td>
<td>.184</td>
</tr>
<tr>
<td>Education*Non-esteem identification</td>
<td>0.127</td>
<td>(.077)</td>
<td>.100</td>
</tr>
<tr>
<td>Education*Group esteem</td>
<td>-0.020</td>
<td>(.080)</td>
<td>.802</td>
</tr>
<tr>
<td>Education salience*Non-esteem identification</td>
<td>0.016</td>
<td>(.077)</td>
<td>.831</td>
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<tr>
<td>Education salience*Group esteem</td>
<td>0.015</td>
<td>(.081)</td>
<td>.856</td>
</tr>
<tr>
<td>Education<em>Education salience</em>Non-esteem identification</td>
<td>0.346</td>
<td>(.153)</td>
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<tr>
<td>Education<em>Education salience</em>Group esteem</td>
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<td>(.160)</td>
<td>.027</td>
</tr>
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</table>

Note: The 95% confidence intervals can be obtained by adding and subtracting 1.9627 times the standard error.
Table S2: Interest in politics predicted by education, education salience, and identification (unstandardized regression coefficients, Study 3)

<table>
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<td>.000</td>
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<tr>
<td>Gender</td>
<td>.126</td>
<td>(.070)</td>
<td>.070</td>
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<tr>
<td>Education</td>
<td>.136</td>
<td>(.081)</td>
<td>.092</td>
</tr>
<tr>
<td>SES salience</td>
<td>.075</td>
<td>(.081)</td>
<td>.358</td>
</tr>
<tr>
<td>Non-esteem identification</td>
<td>.068</td>
<td>(.038)</td>
<td>.078</td>
</tr>
<tr>
<td>Group esteem</td>
<td>.003</td>
<td>(.040)</td>
<td>.935</td>
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<td>Education*Education salience</td>
<td>-.468</td>
<td>(.160)</td>
<td>.004</td>
</tr>
<tr>
<td>Education*Non-esteem identification</td>
<td>.190</td>
<td>(.076)</td>
<td>.013</td>
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<tr>
<td>Education*Group esteem</td>
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<td>(.079)</td>
<td>.619</td>
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<td>Education salience*Non-esteem identification</td>
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</table>

Note: The 95% confidence intervals can be obtained by adding and subtracting 1.9627 times the standard error.
Table S3: Negative attitudes towards immigrants predicted by education, education salience, and identification (unstandardized regression coefficients, Study 3)

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<tr>
<td>Age</td>
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<td>.005</td>
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<td>Gender</td>
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<td>.126</td>
<td>.231</td>
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<td>Education</td>
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<td>.148</td>
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<td>SES salience</td>
<td>.139</td>
<td>.149</td>
<td>.352</td>
</tr>
<tr>
<td>Non-esteem identification</td>
<td>-.021</td>
<td>.072</td>
<td>.767</td>
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<td>Group esteem</td>
<td>-.063</td>
<td>.072</td>
<td>.382</td>
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<td>Education*Education salience</td>
<td>-.187</td>
<td>.298</td>
<td>.530</td>
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<td>-.053</td>
<td>.142</td>
<td>.708</td>
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<td>.142</td>
<td>.164</td>
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<td>.141</td>
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<tr>
<td>education*Non-esteem identifi</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>education*Group esteem</td>
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</table>

Note: The 95% confidence intervals can be obtained by adding and subtracting 1.9643 times the standard error.
Table S4: Symbolic racism predicted by education, education salience, and identification (unstandardized regression coefficients and associated statistics, Study 3)

<table>
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<td>Gender</td>
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<td>(.147)</td>
<td>.009</td>
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<tr>
<td>Education</td>
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<td>(.172)</td>
<td>.009</td>
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<td>Non-esteem identification</td>
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<td>(.084)</td>
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<td>Group esteem</td>
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<td>(.084)</td>
<td>.860</td>
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<td>Education*Education salience</td>
<td>.107</td>
<td>(.346)</td>
<td>.758</td>
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<td>.018</td>
<td>(.165)</td>
<td>.913</td>
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<td>(.165)</td>
<td>.418</td>
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<td>(.164)</td>
<td>.474</td>
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<td>Education<em>Education salience</em>Group esteem</td>
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</table>

Note: The 95% confidence intervals can be obtained by adding and subtracting 1.9643 times the standard error.
Results for political cynicism (Study 3)

Due to space constraints, the results for political cynicism were not discussed in the main text. Results are very similar to those for interest in politics, which are discussed in the main text. Although results were similar, it is worth noting there was no correlation between both ($r = .03$), showing that these are distinct concepts.

Political cynicism (Marsh, 1990) was measured with two items ($r = .34$), for example “Generally speaking those we elect as members of Congress lose touch with people pretty quickly.”

Results for political cynicism (see Table S5) were similar to those for interest in politics (reported in the main text). There were non-significant main effects of group esteem, $B = -.03$, $SE = .043$, $p = .48$, or non-esteeem identification, $B = -.07$, $SE = .044$, $p = .09$. Group esteem did not have any interaction effects. Non-esteeem identification, however, interacted with education:

Figure S1 shows that it was related to less political cynicism among people with a 4-year college degree, $B = -.16$, $SE = .068$, $p = .02$, but not among people without a degree, $B = .01$, $SE = .058$, $p = .92$. There also was a marginally significant interaction between group esteem and education: Group esteem was marginally related to less political cynicism among people without a 4-year college degree, $B = -.09$, $SE = .052$, $p = .08$, but not among people with a degree, $B = .07$, $SE = .076$, $p = .33$. 
Table S5: Political cynicism predicted by education, education salience, and identification (unstandardized regression coefficients and associated statistics, Study 3)

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
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<td>(.003)</td>
<td>.101</td>
</tr>
<tr>
<td>Gender</td>
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<td>(.081)</td>
<td>.411</td>
</tr>
<tr>
<td>Education</td>
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<td>(.094)</td>
<td>.702</td>
</tr>
<tr>
<td>SES salience</td>
<td>.170</td>
<td>(.095)</td>
<td>.074</td>
</tr>
<tr>
<td>Non-esteem identification</td>
<td>-.094</td>
<td>(.045)</td>
<td>.037</td>
</tr>
<tr>
<td>Group esteem</td>
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<td>(.047)</td>
<td>.960</td>
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<td>Education*Education salience</td>
<td>.199</td>
<td>(.190)</td>
<td>.295</td>
</tr>
<tr>
<td>Education*Non-esteem ident</td>
<td>-.179</td>
<td>(.089)</td>
<td>.044</td>
</tr>
<tr>
<td>Education*Group esteem</td>
<td>.174</td>
<td>(.092)</td>
<td>.059</td>
</tr>
<tr>
<td>Education salience*Non-esteem identification</td>
<td>.095</td>
<td>(.089)</td>
<td>.286</td>
</tr>
<tr>
<td>Education salience*Group esteem</td>
<td>.087</td>
<td>(.093)</td>
<td>.352</td>
</tr>
<tr>
<td>Education<em>Education salience</em>Non-esteem ident</td>
<td>-.155</td>
<td>(.176)</td>
<td>.378</td>
</tr>
<tr>
<td>Education<em>Education salience</em>Group esteem</td>
<td>.105</td>
<td>(.184)</td>
<td>.569</td>
</tr>
</tbody>
</table>

Note: 95% confidence intervals for the estimates can be obtained by adding and subtracting 1.9627 times the standard error.
Figure S1: Non-esteem identification and political cynicism, by participant education

![Diagram showing the relationship between non-estee identification and political cynicism for participants with and without a 4-year degree. The graph indicates a negative correlation, with higher non-esteem identification associated with lower political cynicism for those with a 4-year degree, compared to those without.](image-url)
Figure S2: Non-esteem identification and symbolic racism, by participant education and Education salience. Non-esteem identification consists of centrality, solidarity, individual self-stereotyping, and in-group homogeneity.
Comparison between Study 1 and Study 3 with the Study 1 identification measure

Identification had different effects in Study 1 versus Study 3. In Study 1 there were no interactions between identification and respondents’ education level. In Study 3, however, there were such interactions for many outcome variables. In order to rule out that the difference between the results for both studies is due to differences in the representativeness of the sample or the country in which it was carried out, we present a direct comparison between Study 1 and Study 3 for those cases where outcome variables are similar. For this comparison, we use the same single-item identification measure for Study 3 as the one that was available in Study 1. This means that the results for Study 3 presented below are not comparable to those reported in the main text, because in the main text we use a more fine-grained identification measure. The identification measure was identical to the one in Study 1 and had a mean of 2.71 (SD = .86) on a scale from 1 to 4, with higher scores indicating higher identification.

The clearest overlap in outcome variables between Study 1 and Study 3 is for life satisfaction and self-reported health. For both of these variables, Study 1 found positive main effects of identification (see Tables 2 and 3 in main text), but no interaction between identification and education level. In Study 3, when using the Study 1 identification measure, results were the same (see Table S6).

Negative attitudes towards immigrants were measured in Study 1 by asking respondents whether the number of immigrants coming to Britain should be increased or reduced. In Study 3, negative attitudes towards immigrants were measured with three items that asked whether government spends too much money assisting immigrants, and whether immigrants had positive effects on the economy and on
cultural life. The measures were thus somewhat different between Studies 1 and 3, but we still present a comparison. In Study 1, there was no main or interaction effect of identification (see Table 3 in the main text). In Study 3, however, identification did have a main effect, \( B = -0.25, SE = 0.08, p = .001 \), and a three-way interaction with education level and education salience (see Table S6). Decomposing this interaction by education salience, the education level by identification interaction was significant when education had been made salient, \( B = -0.73, SE = 0.21, p < .001 \), but not significant when education had not been made salient, \( B = 0.18, SE = 0.21, p = .39 \).

When education was salient, the relation between identification and negative attitudes towards immigrants was significant for the higher educated, \( B = -0.64, SE = 0.16, p < .001 \), but not for the less educated, \( B = 0.04, SE = 0.16, p = .82 \). Is this inconsistent with Study 1? No, because in Study 1 education was not salient as the education and identification questions were placed at the end of the survey. In Study 3, when education was not salient, the main effect of education level was marginally significant, \( B = -0.21, SE = 0.11, p = .052 \). Given that the measures of negative attitudes towards immigrants were different between Studies 1 and 3, this cannot be seen as a strong inconsistency.
Table S6: Unstandardized regression coefficients (standard errors in parentheses) for education, education salience, and identification predicting life satisfaction, perceived health, and negative attitude towards immigrants (Study 3)

<table>
<thead>
<tr>
<th></th>
<th>Life satisfaction</th>
<th>Perceived health</th>
<th>Negative attitude towards immigrants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>.001 (.003)</td>
<td>-.012 (.004)</td>
<td>.006 (.005)</td>
</tr>
<tr>
<td>Gender</td>
<td>-.080 (.076)</td>
<td>.121 (.091)</td>
<td>-.192 (.126)</td>
</tr>
<tr>
<td>Education</td>
<td>.070 (.078)</td>
<td>.135 (.095)</td>
<td>-.353 (.129)</td>
</tr>
<tr>
<td>Education salience</td>
<td>-.098 (.078)</td>
<td>.047 (.096)</td>
<td>.131 (.129)</td>
</tr>
<tr>
<td>Identification</td>
<td>.146 (.046)</td>
<td>.159 (.056)</td>
<td>-.256 (.077)</td>
</tr>
<tr>
<td>Education*Education salience</td>
<td>.309 (.156)</td>
<td>.080 (.192)</td>
<td>.079 (.257)</td>
</tr>
<tr>
<td>Education*Identification</td>
<td>.108 (.091)</td>
<td>.034 (.110)</td>
<td>-.224 (.152)</td>
</tr>
<tr>
<td>Education salience*Identification</td>
<td>-.086 (.091)</td>
<td>-.197 (.110)</td>
<td>-.099 (.152)</td>
</tr>
<tr>
<td>Education<em>Education salience</em>Identification</td>
<td>-.186 (.181)</td>
<td>.041 (.219)</td>
<td>-.827 (.302)</td>
</tr>
</tbody>
</table>

Note: 95% confidence intervals for the estimates can be obtained by adding and subtracting 1.963 times the standard error.
References

Study 1: Understanding Society Study (USS)

The USS is a longitudinal study of a representative sample of around 40,000 UK households. We analysed data from Wave 2, which were collected via interview and self-completion questionnaires in 2010-11. More information about the sample and methods can be found on the USS website [https://www.understandingsociety.ac.uk]. Here we only reproduce the questions that we used for analysis. The complete questionnaire is available at https://www.understandingsociety.ac.uk/documentation/mainstage/dataset-documentation/wave/2.

Education
Can you tell me the highest educational or school qualification you have obtained?

- 1 University Higher Degree (e.g. MSc, PhD)
- 2 First degree level qualification including foundation degrees, graduate membership of a professional Institute, PGCE
- 3 Diploma in higher education
- 4 Teaching qualification (excluding PGCE)
- 5 Nursing or other medical qualification not yet mentioned
- 6 A Level
- 7 Welsh Baccalaureate
- 8 International Baccalaureate
- 9 AS Level
- 10 Higher Grade/Advanced Higher (Scotland)
- 11 Certificate of sixth year studies
- 12 GCSE/O Level
- 13 CSE
- 14 Standard/Ordinary (O) Grade / Lower (Scotland)
- 15 Other school (inc. school leaving exam certificate or matriculation)
- 96 None of the above

Respondents' highest educational qualification was categorised into the following categories No qualifications, GCSE or equivalent, A-Level or equivalent, Higher
education qualification below degree level, Degree or equivalent and above. More
detailed information about the exact qualifications that fall into each category can be
found on the accompanying websites and technical documentation
[https://www.understandingsociety.ac.uk/documentation/mainstage/dataset-
documentation/wave/2/datafile/b_indresp/variable/b_hiqual_dv]

Identification
The USS self-completion questionnaires included a question assessing the extent to
which respondents incorporated different social categories into their sense of self.
The question begins with the stem "We'd like to know how important various things
are to your sense of who you are. Please think about each of the following and tick
the box that indicates whether you think it is very important, fairly important, not very
important or not at all important to your sense of who you are. Please tick one
answer on each line." Included in this list was the item "Your level of education,"
which respondents were asked to answer using a 4-point scale ranging from "Very
important to my sense of who I am" to "Not at all important to my sense of who I am."
The response scale also included an additional option of "Don't know/doesn't apply."
The other social categories included were profession, ethnic background, gender,
political beliefs, family, and age or life stage.

A self-reported health item read, "In general, would you say your health is ...?",
using a 5-point response scale ranging from 'Excellent' to 'Poor'.

A life satisfaction scale began with the stem "Here are some question about how you
feel about your life. Please tick the number which you feel best describes how
dissatisfied or satisfied you are with the following aspects of your current situation. 1
= Completely dissatisfied, 7 = Completely satisfied" and included the following
items: "Your health," "The income of your household," "The amount of leisure time
you have," "Your life overall."

The General Health Questionnaire 12 (GHQ12; Goldberg, 1992) is a well validated
measure of mental well-being that includes items assessing confidence, esteem,
vitality, and ability to cope with life, and uses a 4-point scale ranging from 1 = Not at
all through to 4 = Much more than usual.
Study 1: Citizenship Survey

The Citizenship Survey is a (discontinued) biannual survey of a regionally representative sample of around 10,000 adults in England and Wales. We analysed data collected via interviews in 2010-11. More information about the sample and methods can be found on the CS website http://webarchive.nationalarchives.gov.uk/20120919132719/www.communities.gov.uk/communities/research/citizenshipsurvey/.

Here we only reproduce the questions that we used for analysis. The complete questionnaire is available at http://web.archive.org/web/20120919132719/http://www.communities.gov.uk/publications/corporate/statistics/citizenshipsurvey201011questions

Education.

Can you tell me the highest educational or school qualification you have obtained?

- 1 University Higher Degree (e.g. MSc, PhD)
- 2 First degree level qualification including foundation degrees, graduate membership of a professional Institute, PGCE
- 3 Diploma in higher education
- 4 Teaching qualification (excluding PGCE)
- 5 Nursing or other medical qualification not yet mentioned
- 6 A Level
- 7 Welsh Baccalaureate
- 8 International Baccalaureate
- 9 AS Level
- 10 Higher Grade/Advanced Higher (Scotland)
- 11 Certificate of sixth year studies
- 12 GCSE/O Level
- 13 CSE
• 14 Standard/Ordinary (O) Grade / Lower (Scotland)
• 15 Other school (inc. school leaving exam certificate or matriculation)
• 96 None of the above

Respondents' highest educational qualification was categorised into the following categories: No qualifications, GCSE or equivalent, A-Level or equivalent, Higher education qualification below degree level, Degree or equivalent and above. More detailed information about the exact qualifications that fall into each category can be found on the accompanying websites and technical documentation [http://webarchive.nationalarchives.gov.uk/20120919132719/www.communities.gov.uk/communities/research/citizenshipsurvey/]

**Identification**

The Citizenship Survey interviews included a question assessing the extent to which respondents incorporated different social categories into their sense of self. The question begins with the stem "I'd like to know how important various things are to your sense of who you are. For each thing I mentions please tell me how important it is to your sense of who you are. Please choose an answer from this card. “Very important,” “quite important,” “not very important” or “not at all important.” Included in this list was the item "Your level of education," which respondents were asked to answer using a 4-point scale with the options "Very important," "Quite important," "Not very important” and “Not at all important.” The response scale also included an additional option of "Don't know." The other social categories included in the CS are occupation, ethnic or racial background, religion, national identity, where you live, interests, family, social class, country your family came from originally, gender, age and lifestage, and income.

**Trust in institutions** was measured with three items. The question read “Now I’d like to ask a few questions about trust. Firstly, looking at this showcard, how much do you trust…” Items were “The police,” “Parliament,” and “Your local council.” Response options were “1-a lot,” “2-a fair amount,” “3-not very much,” and “4-not at all.”
A measure of life satisfaction read, "All things considered, how satisfied are you with your life as a whole nowadays?" and used a 5-point response scale ranging from 1 = "very satisfied" to 5 = "very dissatisfied."

A measure of self-reported health item read, "How is your health in general? Would you say it is..." and used a 5-point response scale ranging from 1 = "very good" to 5 = "very bad."

Attitudes towards immigration were assessed by the item "Do you think the number of immigrants coming to Britain nowadays should be increased, reduced or should it remain the same? Do you think that the number should be increased/reduced a little or a lot?" Responses were scored on a 5-point scale from 1 = “Increased a lot” to 5 = “Reduced a lot.”
Study 2

What is your gender?
Male Female

How old are you?

To which ethnic group do you consider you belong?
- White British
- White other
- Mixed ethnicity
- Asian or Asian British
- Black or Black British
- Other ethnic group
- Prefer not to say

Which of these describes best what you have been doing for the last month?
- In paid work (or away temporarily, employee, self-employed, working for family business)
- In education (not paid by employer) even if on vacation
- Unemployed
- Permanently sick or disabled
- Retired
- In community or military service
- Doing housework, looking after children or other persons
- Other

If you are currently employed, which of these types of organisation do you work for?
- Central or local government
- Other public sector
- A state-owned enterprise
- A private firm
- Self-employed
- Other

If you are currently studying, what is your study subject?
Please write study subject below

Note: the following questions about education, education-based identification, and class were either asked at this point in the questionnaire or at the very end of the questionnaire. Participants were randomly allocated to one of the conditions.

Now we would like to ask you some general questions
What is the highest level of education your father (or the person you consider to be your father) has achieved?
- No qualifications
- GCSE / CSE / GCE O-level, or equivalent
- City and Guilds Level 1 or 2/Craft/Intermediate, or NVQ/SVQ Level 1 or 2, or GNVQ/GSVQ Foundation or Intermediate Level, or equivalent
- A-level, S-level, A2-level, AS-level or equivalent
- City and Guilds Level 3/Advanced/Final, or NVQ/SVQ Level 3, or GNVQ/GSVQ Advanced Level, or equivalent
- City and guilds Level 4/Full Technological, or NVQ/SVQ Level 4 or 5, or equivalent
- Bachelor’s degree or equivalent
- Master’s degree or equivalent
- Ph.D., D.Phil or equivalent
- I don’t have a father or a person I consider to be my father
- Other

What is the highest level of education your mother (or the person you consider to be your mother) has achieved?
- No qualifications
- GCSE / CSE / GCE O-level, or equivalent
- City and Guilds Level 1 or 2/Craft/Intermediate, or NVQ/SVQ Level 1 or 2, or
GNVQ/GSVQ Foundation or Intermediate Level, or equivalent
- A-level, S-level, A2-level, AS-level or equivalent
- City and Guilds Level 3/Advanced/Final, or NVQ/SVQ Level 3, or GNVQ/GSVQ Advanced Level, or equivalent
  - City and guilds Level 4/Full Technological, or NVQ/SVQ Level 4 or 5, or equivalent
  - Bachelor’s degree or equivalent
  - Master’s degree or equivalent
  - Ph.D., D.Phil or equivalent
  - I don’t have a mother or a person I consider to be my mother
- Other

What is the highest level of education YOU have achieved? (Please pick the option that best describes your situation)
- No qualifications
- GCSE / CSE / GCE O-level, or equivalent
- City and Guilds Level 1 or 2/Craft/Intermediate, or NVQ/SVQ Level 1 or 2, or GNVQ/GSVQ Foundation or Intermediate Level, or equivalent
- A-level, S-level, A2-level, AS-level or equivalent
- City and Guilds Level 3/Advanced/Final, or NVQ/SVQ Level 3, or GNVQ/GSVQ Advanced Level, or equivalent
- City and guilds Level 4/Full Technological, or NVQ/SVQ Level 4 or 5, or equivalent
  - Bachelor’s degree or equivalent
  - Master’s degree or equivalent
  - Ph.D., D.Phil or equivalent
  - Other

In which of these fields is your highest qualification?
- General or no specific field
- Art - fine or applied
- Humanities - languages, classics, history, theology, etc
- Technical & engineering, including architecture and planning, industry, craft,
Next we would like to know how you feel about your ‘educational group’, these are the people who share the same educational level with you. Your educational level is the one you stated in a previous question and refers to the amount and type of formal education you have received. Please tell us how much you agree or disagree with the following statements. You can answer on a scale from 1 (strongly disagree) to 7 (strongly agree).

I feel a bond with people who have had the same education as me.
I feel solidarity with others who have had the same education as me.
I am glad to have received the amount of education I have had.
It gives me a good feeling to have received the amount of education I have had.
The amount of education I have received is an important part of my identity.
The amount of education I have received is an important part of how I see myself.
I have a lot in common with people who have had the same amount of education as me.
I am similar to the average person that has received the same amount of education as me.
People who have had the same education as me have a lot in common with each other.
People who have had the same amount of education as me are very similar to each other.
Do you think of yourself as belonging to any particular social class?
Yes
No

(If you had to choose) Which social class would you say you belong to?
- Lower working class
- Working class
- Upper working class
- Lower middle class
- Middle class
- Upper middle class
- Upper class
- Don't believe in class

In this section, we want to know how people form first impressions about others on the basis of limited information. We will therefore give you some information about four individuals. Please read the profiles well, carefully consider all aspects of the individual and then provide your feelings towards them by answering the questions that follow each profile. You can answer on a scale from 1 (not at all) to 7 (very much so).

Note: there were four different versions of these profiles. We are only presenting one version here.

Mohammed Hussain is 25 years old and currently lives in London, where he works as a doctor. He lives in rented accommodation with a work colleague. People who know him would describe him as a chatty kind of character. He was born and grew up in Bournemouth, but moved to London to go to university. This is where he studied medicine and he continued to reside after completing his degree. Mohammed likes playing cricket on the weekends and his favourite hobby is walking his dog, which helps him to relax after a busy day at work.
(Questions will appear after 30 seconds - if not, please enable Javascript and reload the page)

Do you feel warmth towards this person?
Do you like this person?
How much do you feel you could trust this person?
Do you feel you are similar to this person?
To what extent do you think you could be friends with this person?
Do you think this person is similar to people within your friendship group?
How competent do you think this person is?
(All these questions were answered on a scale ranging from ‘Not at all’ (1) to ‘Very much so’ (7))

Abdul Mahmood is a 25 year old bricklayer who lives with his partner in a semi-detached house in Bristol. He is known as a caring character to his friends and family. He was born in Dorset but moved to Bristol as an adolescent and now lives there and works as a bricklayer. Abdul’s favourite sport to play is football and he plays for a local football team for fun in his spare time. When not spending time outdoors he likes to play video games on a console.
(Questions will appear after 30 seconds - if not, please enable Javascript and reload the page)

Do you feel warmth towards this person?
Do you like this person?
How much do you feel you could trust this person?
Do you feel you are similar to this person?
To what extent do you think you could be friends with this person?
Do you think this person is similar to people within your friendship group?
How competent do you think this person is?

Conrad James is a 26 year old convenience store worker. He lives in Cardiff with his
family at their family home. He is a fun loving individual and lives by the ethos ‘work hard, play hard’. He originally comes from Oxford, but moved to Cardiff with his family and then decided to work in a shop. Conrad spends most of his weekends taking part in hockey matches as part of a team. He is also a movie fanatic and collects all sorts of films.

(Questions will appear after 30 seconds - if not, please enable Javascript and reload the page)

Do you feel warmth towards this person?
Do you like this person?
How much do you feel you could trust this person?
Do you feel you are similar to this person?
To what extent do you think you could be friends with this person?
Do you think this person is similar to people within your friendship group?
How competent do you think this person is?

William King is 27 years old and works as a lawyer at a firm in Bath. He lives alone in a rented flat, but has many friends that visit him and is known to be very amusing. He originally comes from Kent, but moved to Bath to go to university. After loving his time at university he decided to settle here. William is an avid rugby fan and player and regularly plays for a local team. His favourite hobby to pursue when he has time off work is to go camping in the countryside.

(Questions will appear after 30 seconds - if not, please enable Javascript and reload the page)

Do you feel warmth towards this person?
Do you like this person?
How much do you feel you could trust this person?
Do you feel you are similar to this person?
To what extent do you think you could be friends with this person?
Do you think this person is similar to people within your friendship group?
How competent do you think this person is?
Below you will find a series of statements about the environment and about society. Please indicate for each statement to what extent you agree or disagree with it.

Humans have the right to modify the natural environment to suit their needs
The earth has plenty of natural resources if we just learn how to develop them
If things continue on their present course, we will soon experience a major ecological catastrophe
Humans are severely abusing the environment
The so-called “ecological crisis” facing humankind has been greatly exaggerated
The balance of nature is very delicate and easily upset

Government should redistribute income from the better off to those who are less well off
Big business benefits owners at the expense of workers
Ordinary working people do not get their fair share of the nation's wealth
There is one law for the rich and one for the poor
Management will always try to get the better of employees if it gets the chance

People who break the law should be given stiffer sentences
The law should always be obeyed even if a particular law is wrong
Schools should teach children to obey authority

Note: the questions about education, education-based identification, and social class would be asked here for those participants who hadn’t received those questions before.

Which of these best describes your religious beliefs?

- Christian and practising
- Christian but not practising
- Hindu
- Sikh
- Muslim
- Jewish
- Buddhist
- Atheist
- Other
- Don't know or don't care
Study 3

Q1 What is your gender?

- Female (1)
- Male (2)

Q2 How old are you? (please write the number of years in digits in the box below)

Q4 Which of the following describes best what you have been doing for the last two weeks?

- In paid work (or away temporarily, employee, self-employed, working for family business) (1)
- In education (not paid by employer) even if on vacation (2)
- Unemployed (3)
- Permanently sick or disabled (4)
- Retired (5)
- In community or military service (6)
- Doing housework, looking after children or other persons (7)
- Other (please specify) (8) ____________________

Q5 If you are currently studying, what subject(s) are you studying?

Note: the following questions about education and education-based identification were either asked at this point in the questionnaire or at the very end of the questionnaire. Participants were randomly allocated to one of the conditions.
Q6 What is the highest level of education you have achieved?
- No qualifications (1)
- Less than a high school diploma (2)
- High school diploma, or equivalent (3)
- Some college, no degree (4)
- 2 year college degree (associate degree), or equivalent (5)
- 4 year college degree (bachelor's degree), or equivalent (6)
- Post-Graduate degree (Master's, Ph.D., M.D., D.D.S., etc.), or equivalent (7)
- Other (please specify) (11) ____________________

Q7 In which of these fields is your highest qualification?
- 1. General or no specific field (1)
- 2. Art – fine or applied (2)
- 3. Humanities – languages, classics, history, theology, etc. (3)
- 4. Technical & engineering, including architecture and planning, industry, craft, building trades, etc. (4)
- 5. Agriculture & forestry (5)
- 6. Teacher training or education (6)
- 7. Science, mathematics, computing, etc. (7)
- 8. Medical, health services, nursing, etc. (8)
- 9. Economics, commerce, business administration, accountancy, etc. (9)
- 10. Social & behavioral studies, public administration, media, culture, sport and leisure studies, etc. (10)
- 11. Law and legal services (11)
- 12. Personal care services – catering, domestic science, hairdressing, etc. (12)
- 13. Public order and safety – police, army, fire services, etc. (13)
- 14. Transport and telecommunications (14)
- 15. Don’t know (15)

Q8 Next we would like to know how you feel about the people who share the same educational level as you. For example, it could be people who have a degree, or people who left school, or any other category in between. Your educational level is
the one you stated in a previous question and refers to the level of schooling or qualifications you have received.

To what extent do people who share the same educational level with you form a meaningful group for you? (Note: This question was only asked in Study 3a, not in Study 3b)

- Not at all (1)
- (2)
- (3)
- (4)
- Very much (5)

Please tell us how much you agree or disagree with the following statements about people who share the same educational level as you.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Disagree strongly -3 (-3)</th>
<th>-2 (-2)</th>
<th>-1 (-1)</th>
<th>Neither agree nor disagree0 (0)</th>
<th>+1 (1)</th>
<th>+2 (2)</th>
<th>Agree strongly+3 (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel a bond with people who have a similar level of education to my own</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>I feel solidarity with others who have a similar level of education to my own</td>
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<td>I feel committed to people who have a similar level of education to my own</td>
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<td>I am glad to belong</td>
<td>○</td>
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to the group of people who have a similar level of education to my own
I think that people with a similar level of education to my own have a lot to be proud of
It is pleasant to have the level of education that I have
Having the level of education that I have gives me a good feeling
I often think about the level of education that I have
The level of education I have is an important part of my identity
The level of education I have is an important part of how I see myself

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</tr>
</tbody>
</table>
Q67 And here are some more statements about people who share the same educational level as you.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Disagree strongly (-3)</th>
<th>-2 (-2)</th>
<th>-1 (-1)</th>
<th>Neither agree nor disagree (0)</th>
<th>+1 (1)</th>
<th>+2 (2)</th>
<th>Agree strongly +3 (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have a lot in common with the average person who has a similar level of education to my own</td>
<td>o</td>
<td></td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>I am similar to the average person who has a similar level of education to my own</td>
<td>o</td>
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<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>People who have a similar level of education to my own have a lot in common with each other</td>
<td>o</td>
<td></td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>People who have a similar level of education to my own are very similar to each other</td>
<td>o</td>
<td></td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Society values people with my level of education</td>
<td>o</td>
<td></td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>In general, others think that people with my level of education are worthy</td>
<td>o</td>
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<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>In general, others</td>
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<td>o</td>
</tr>
</tbody>
</table>
Q24 How important is your level of education to your sense of who you are?

- VERY IMPORTANT (1)
- QUITE IMPORTANT (2)
- NOT VERY IMPORTANT (3)
- NOT AT ALL IMPORTANT (4)
- DON'T KNOW (5)

Q19 In this section, we want to know how people form first impressions about others on the basis of limited information. We will therefore give you some descriptions of four individuals. Please read the descriptions carefully, considering all aspects of the individual and then report your feelings towards that individual by answering the questions that follow each description. In order to offer you enough time to read the descriptions and respond, you will only be able to advance to the next page after 25 seconds.

Note: there were four different versions of these profiles. We are only presenting one version here.

Q21 DeShawn Jefferson is 30 years old and works as a lawyer at a firm in the Northwest of the country. He lives alone in a rented apartment, but has many friends
who visit him and is known to be very amusing. He has always lived in the Northwest and after enjoying his time at college, he decided to settle there. DeShawn is an avid basketball fan and player and regularly plays for a local team. His favorite hobby to pursue when he has time off work is going camping in the countryside.

<table>
<thead>
<tr>
<th></th>
<th>Not at all 0 (1)</th>
<th>1 (2)</th>
<th>2 (3)</th>
<th>3 (4)</th>
<th>4 (5)</th>
<th>5 (6)</th>
<th>Very much so 6 (7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you feel warmth towards this person?</td>
<td>○</td>
<td>○</td>
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</tr>
<tr>
<td>How much would you like this person? (2)</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>How much do you feel you could trust this person? (3)</td>
<td>○</td>
<td>○</td>
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<td>○</td>
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<tr>
<td>How competent do you think this person is? (4)</td>
<td>○</td>
<td>○</td>
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<td>○</td>
</tr>
<tr>
<td>How hard-working do you think this person is? (5)</td>
<td>○</td>
<td>○</td>
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</tbody>
</table>
Q38  Tyrone Banks is a 29-year-old convenience store clerk. He lives in the Southeast of the country with his family at their family home. He is a fun-loving individual and lives by the ethos ‘work hard, play hard’. He moved to the Southeast with his family and then decided to work in a shop. Tyrone spends a lot of time blogging about his life and experiences on his personal webpage. He is also a movie fanatic and collects all kinds of films.

<table>
<thead>
<tr>
<th>Question</th>
<th>Not at all 0 (1)</th>
<th>1 (2)</th>
<th>2 (3)</th>
<th>3 (4)</th>
<th>4 (5)</th>
<th>5 (6)</th>
<th>Very much so 6 (7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you feel warmth towards this person? (1)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td></td>
<td>○</td>
</tr>
<tr>
<td>How much would you like this person? (2)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<td>○</td>
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<tr>
<td>How much do you feel you could trust this person? (3)</td>
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<tr>
<td>How competent do you think this person is? (4)</td>
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<tr>
<td>How hard-working do you think this person is? (5)</td>
<td>○</td>
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<td>○</td>
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<td></td>
<td>○</td>
</tr>
</tbody>
</table>
Q39  Dylan Johnson is a 28-year-old bricklayer who lives with his partner in a duplex in the Northeast of the country. He is known as being a caring character to his friends and family. He was born in the Northeast, works there as a bricklayer, and still lives there. Dylan’s favorite sport to play is baseball and he plays for a local baseball team for fun in his spare time. When not spending time outdoors he likes to play video games on a console.

<table>
<thead>
<tr>
<th>Question</th>
<th>Not at all 0 (1)</th>
<th>1 (2)</th>
<th>2 (3)</th>
<th>3 (4)</th>
<th>4 (5)</th>
<th>5 (6)</th>
<th>Very much so 6 (7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you feel warmth towards this person? (1)</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
</tr>
<tr>
<td>How much would you like this person? (2)</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
</tr>
<tr>
<td>How much do you feel you could trust this person? (3)</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
</tr>
<tr>
<td>How competent do you think this person is? (4)</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
</tr>
<tr>
<td>How hard-working do you think this person is? (5)</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
</tr>
</tbody>
</table>

Q43  Bradley Smith is 29 years old and currently lives in the Northeast of the country, where he works as a doctor. He lives in rented accommodation that he shares with a colleague from work. People who know him would describe him as a chatty kind of character. He moved to the Northeast to go to college. This is where he studied medicine and he continued to reside after completing his degree. Bradley likes to go
out for drinks with friends on the weekends and his favorite hobby is walking his dog, which helps him to relax after a busy day at work.

<table>
<thead>
<tr>
<th>Question</th>
<th>Not at all 0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Very much so 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you feel warmth towards this person? (1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How much would you like this person? (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>How much do you feel you could trust this person? (3)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How competent do you think this person is? (4)</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>How hard-working do you think this person is? (5)</td>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>

Q54 In general, how satisfied would you say you are with your life?

- Not at all satisfied (1)
- A little satisfied (2)
- Somewhat satisfied (3)
- Quite satisfied (4)
- Very satisfied (5)
Q66 In general, would you say your health is...

- Excellent (1)
- Very good (2)
- Good (3)
- Fair (4)
- Poor (5)

Q56 To what extent do you agree or disagree with each of the following statements?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Disagree strongly (-3)</th>
<th>-2 (-2)</th>
<th>-1 (-1)</th>
<th>Neither agree nor disagree (0)</th>
<th>+1 (1)</th>
<th>+2 (2)</th>
<th>Agree strongly (+3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immigrants are generally good for the US economy</td>
<td></td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Government spends too much money assisting immigrants</td>
<td></td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Please select the &quot;Agree strongly&quot; answer for this line</td>
<td></td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Immigrants improve the US society by bringing in new ideas and cultures</td>
<td></td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
Q57 How much do you trust...

<table>
<thead>
<tr>
<th></th>
<th>A lot (1)</th>
<th>A fair amount (2)</th>
<th>Not very much (3)</th>
<th>Not at all (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The police</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>US congress</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Your local town or city government</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>

Q58 How much interest do you generally have in what is going on in politics?

- A great deal (1)
- Quite a lot (2)
- Some (3)
- Not very much (4)
- None at all (5)
Q59 Please indicate to what extent you agree or disagree with the following statements

<table>
<thead>
<tr>
<th></th>
<th>Disagree strongly (-3)</th>
<th>-2 (-2)</th>
<th>-1 (-1)</th>
<th>Neither agree nor disagree (0)</th>
<th>+1 (1)</th>
<th>+2 (2)</th>
<th>Agree strongly (+3) (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irish, Italians, Jews and many other minorities overcame prejudice and worked their way up. Blacks should do the same without any special favors (Note: Symbolic racism 1) Over the past few years, Blacks have gotten less than they deserve (Note: Symbolic racism 2) It's really a matter of some people not trying hard enough; if blacks would only try harder they could be just as well off as whites (Note: this item was only used in Study 3b) Generally speaking those we elect as members of congress lose touch with people pretty quickly</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>It doesn't really matter which party is in power, in the end things go on much the same</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Schools should teach children to obey authority</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am an elephant and I live in Africa</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ordinary working people do not get their fair share of the nation's wealth</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>There is one law for the rich and one for the poor</td>
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<td></td>
</tr>
</tbody>
</table>