Survey of expert opinion on intelligence: Intelligence research, experts' background, controversial issues, and the media

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A B S T R A C T

Experts (N_{max} = 102 answering) on intelligence completed a survey about IQ research, controversies, and the media. The survey was conducted in 2013 and 2014 using the Internet-based Expert Questionnaire on Cognitive Ability (EQCA). In the current study, we examined the background of the experts (e.g., nationality, gender, religion, and political orientation) and their positions on intelligence research, controversial issues, and the media. Most experts were male (83%) and from Western countries (90%). Political affiliations ranged from the left (liberal, 54%) to the right (conservative, 24%), with more extreme responses within the left-liberal spectrum. Experts rated the media and public debates as far below adequate. Experts with a left (liberal, progressive) political orientation were more likely to have positive views of the media (around $r = |.30|$). In contrast, compared to female and left (liberal) experts, male and right (conservative) experts were more likely to endorse the validity of IQ testing (correlations with gender, politics: $r = .55, .41$), the g factor theory of intelligence ($r = .18, .34$), and the impact of genes on US Black-White differences ($r = .50, .48$). The paper compares the results to those of prior expert surveys and discusses the role of experts' backgrounds, with a focus on political orientation and gender. An underrepresentation of viewpoints associated with experts' background characteristics (i.e., political views, gender) may distort research findings and should be addressed in higher education policy.

1. Introduction

Intelligence research examines questions about the nature, causes, and consequences of cognitive ability: What are the basic processes of intelligence (e.g., mental speed and working memory); what are the key dimensions of intelligence; and how do people solve cognitive tasks? Such questions may involve dry technical arguments ignored by the public and the media. However, questions about group differences (e.g., males vs. females, natives vs. immigrants, Whites vs. Blacks, rich vs. poor), the causes of the differences (e.g., nature vs. nurture), and the consequences of intelligence for work, life, and society have spawned controversies in science and the media.

A famous case of public controversy concerned Arthur Jensen's (1969) research on intelligence differences between Americans of European and sub-Saharan descent and whether such differences were influenced by genetic factors (e.g., Segerstråle, 2000). Since Jensen's (1969) research, public controversy has continued with debates over intelligence research by Richard Herrnstein, Charles Murray, Philippe

Rushton, Helmuth Nyborg, Richard Lynn, and many others (e.g., Gould, 1981; Nyborg, 2003).

The controversies created tensions between scientists, the media, and the public. The tensions were partly attributable to differences between expert opinions and media representations of intelligence research. These differences were probed in Snyderman and Rothman's (1987, 1988) classic "IQ Controversy Study" (IQCS). In the IQCS, experts on intelligence were asked to evaluate media accuracy on intelligence. The mean rating of experts was 4.18 (Snyderman & Rothman, 1988, p. 246) on a 1 (very inaccurate) to 7 (very accurate) scale, indicating the experts viewed the media as moderately accurate. Differences between experts and journalists were observed in opinions about group differences and political positions (see Table A1 of the Appendix), namely that media representatives were much closer to the zeitgeist opinion: Compared to experts, Snyderman and Rothman (1988) found that journalists were more likely to favor non-genetic explanations, endorse test bias, and identify with the political left. The political differences increased for popular science magazine editors.

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76% of science magazine editors identified as extremely or very liberal (left; responses 1 and 2 on a 1 to 7 scale from liberal to conservative), compared to 45% and 32% of journalists and intelligence experts, respectively (Snyderman & Rothman, 1988, p. 287).

However, intelligence research is no monolithic block. Different researchers come to different conclusions. Intelligence researchers vary in demographic factors (e.g., nationality, ethnicity, gender, age), research area (e.g., cognitive, biological, educational), productivity (e.g., articles published, citation rates), and departmental affiliation (e.g., psychology, education, sociology, medicine). Such differences may affect opinions on intelligence. In addition, the political climate has changed since Snyderman and Rothman's (1988) study 30 years ago, and new research findings may have altered expert opinions. In the current study, we examined contemporary opinions of intelligence researchers. The study provided an update to Snyderman and Rothman's (1988) survey, with special attention to media representations of intelligence research.

From 2013 to 2014, we conducted an expert survey on intelligence research. Our *Expert Questionnaire on Cognitive Ability* (EQCA) was similar to the one used by Snyderman and Rothman (1988) but included additional questions about the nature, causes, and consequences of intelligence; historical and national differences in intelligence; and the relationship between intelligence research and the media. Our principal aims were to examine whether expert opinions had changed since Snyderman and Rothman's (1988) study and whether the opinions were linked to background factors such as gender, religion, and political orientations.

These aims are important in light of socio-demographic changes in research and academia over the past decades. Such changes are notable in psychology, which tilts toward the political left and is disproportionately female (about 93% left-liberal and 57% women; APA Center for Workforce Studies, 2015; Duarte et al., 2015; Inbar & Lammers, 2012). To examine current expert opinions, we analyzed questions from the EQCA on the media and controversial issues such as group differences in IQ, media accuracy in describing intelligence research, and the use of IQ tests in immigration policy.

2. Method

The advantages, validity, and limits of expert surveys were discussed in prior reports of EQCA results (Rindermann, Becker, & Coyle, 2016, 2017), which examined the FLynn effect and cross-national differences in cognitive ability. As noted in the earlier articles (Rindermann et al., 2016, 2017), expert surveys can provide informed opinions on controversial topics (e.g., race and ethnic differences) and yield accurate estimates of empirical matters. Surveys can also provide anonymity to respondents, which reduces socially desirable responses and increases the likelihood of obtaining honest opinions on controversial topics. On the other hand, expert surveys can have low response rates (for lack of time) and suffer from self-selection. Such factors may yield less representative or reliable results but increase the likelihood of obtaining *informed* opinions, which is the purpose of an expert survey.

2.1. Expert Questionnaire on Cognitive Ability (EQCA)

The EQCA was an online survey administered from May 2013 to March 2014. The survey was sent to authors who published at least one article after 2010 in journals covering cognitive ability. The journals included *Intelligence*, *Cognitive Psychology*, *Contemporary Educational Psychology*, *New Ideas in Psychology*, and *Learning and Individual Differences*. In addition, members of the *International Society for Intelligence Research* (ISIR) were invited (from December 2013 to January 2014) to complete the EQCA, and an announcement was published on the website of the *International Society for the Study of Individual Differences* (ISSID). By the survey deadline of March 2014, a

total of 265 responses were received, which produced a response rate of 19.71%. Because participants could skip items, the response rate varied from case to case. The total EQCA consisted of 62 multiple choice and multiple response questions, some with sub-questions and comment sections.

The current study examined responses for 38 questions in six content-based categories: (1) socio-demographic background, (2) academic work and expertise, (3) worldviews, (4) opinions about key issues in intelligence research (e.g., test bias and heritability), (5) intelligence in the media and public debates, and (6) reflections on intelligence research. The questions are summarized in Table A2 (Appendix). The online supplement presents all items on the EQCA.

Socio-demographic questions probed experts' background characteristics (e.g., age, gender, ethnicity). Academic work and expertise (e.g., published articles) and worldviews (e.g., religious and political views) were correlated with positions on key issues (e.g., heritability and test bias). Political views were examined using a general left-liberal versus right-conservative scale and indirectly using indicators such as "Western economic exploitation has contributed to third world poverty" or "Strong affirmative action measures should be used in job hiring to assure representation of immigrants." Respondents answered on a scale ranging from 1 (strongly disagree) to 9 (strongly agree).

Analyses focused on questions about important or controversial issues, which often receive attention by the media and the public. The issues included the heritability of US Black-White IQ differences and the connection between intelligence and socioeconomic status (SES).

To address media issues, experts were asked questions about journalists, the media, and the relationship between the media and science. Experts were also asked questions about their insider-perspective on allegations of discriminatory intent and unfair treatment such as "Do you see in intelligence research any hidden intention to discriminate unfairly among different groups of people?"

2.2. Analyses

Descriptive statistics (means and frequencies) summarized results; Pearson correlations (rs) or correlations derived from eta-squared examined relationships between expert opinions and diverse criteria (e.g., gender and political views); and, finally, regressions examined the relative influence of different predictors on expert opinions, with effects reported as comparable standardized coefficients (β).

3. Results

3.1. Descriptive statistics

Respondents were 60 males (83%) and 12 females (17%). Mean age was 49.45 years ($N = 77$ answers, $SD = 14.87$), based on categories starting with " < 25 years" and ending with "75 + years" (see Fig. 1 and Table A3 of the Appendix). Fig. 1 shows that respondents are nearly equally distributed on both sides of the mean age (~50 years), with a relatively large group around age 32 years.

The majority of experts were from Western nations and countries. Their childhood family incomes were rated slightly above average. The above-average incomes are consistent with research indicating that scientists have parents with relatively high educational and ability levels, which are linked and lead to above-average family incomes (e.g., Rindermann & Ceci, 2018; Zuckerman, 1996/1977, p. 64 f.).

Most experts studied psychology (85%; Table 1), with a minority studying something other than psychology (~10%). All of the experts identified themselves as scientists (i.e., no journalists) and 87% held PhDs. 81% of the experts worked in psychology departments, 8% worked in education departments, and about two-thirds had tenure. As a group, the experts authored an average of 107 journal articles, book chapters, and books. The average h-indexes based on Scopus and Harzing/Google Scholar were 16.56 and 22.44, respectively. Scopus
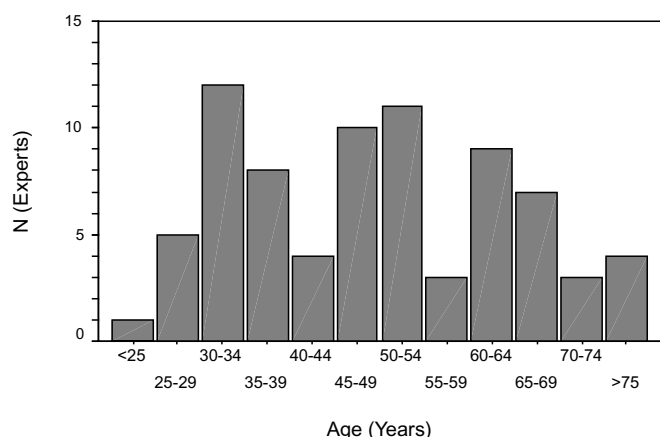
Fig. 1. Age distribution of respondents ($M = 49.45$ years, $SD = 14.87$, $N = 77$).

Table 1
Questions on academic background and expertise.

Item	M or %	SD	N
Field of study (42)[a]			
a Psychology	84.48%	–	49
b Intelligence and related	39.66%	–	23
c Genetics	6.90%	–	4
d Unrelated to psychology	10.34%	–	6
PhD (43)	87%	–	78
Scientist (1) or journalist (0) (44)	1.00	–	67
Department (45)			
a Psychology	80.65%	–	50
b Education	8.07%	–	5
c Sociology	1.61%	–	1
d Biology	4.84%	–	3
e Physical Anthropology	1.61%	–	1
f Economics	3.23%	–	2
Principal professional position (46)			
a Tenured faculty member at a university	66.67%	–	52
a1 Professor	60.26%	–	47
a2 Not professor	6.41%	–	5
b Non-tenured faculty member at a university	20.51%	–	16
c Student	6.41%	–	5
d Thematically interested person (academic)	2.56%	–	2
e Interested layperson	3.85%	–	3
Written articles (51)[b]			
a Total research	106.84	113.09	64
a1 Academic/.professional	94.69	101.38	65
a2 General Audience	17.21	24.84	42
b Intelligence/cognitive ability	54.14	90.67	70
b1 Academic/professional	47.16	84.80	69
b2 General Audience	10.51	18.22	51
h-index (53)			
a Scopus mean (median in parentheses)	16.56 (11)	13.02	36
b Harzing mean (median in parentheses)	22.44 (17)	18.33	18
Scientific publishing (52)			
a Editor or author of a journal on CA and testing	43%	–	70
b Editor or author of a book on CA and testing	29%	–	69
Speeches, panel discussion etc. in past 10 years (47)			
a To scientists in your discipline (number)	8.07	5.17	71
b In other scientific groups (number)	5.56	5.15	70
c To general college audiences (number)	6.40	5.51	68
d To business or industry groups (number)	2.54	3.99	70
e At a public meeting or demonstration (number)	2.28	4.06	69
f In or for public interest groups (number)	2.56	4.02	67

Notes:
[a] Percentages are reported independently for each item, so the sum of all items is > 100%
[b] Options overlap, so the calculation of the mean is not useful; one outlier with 3000 general audience publications was eliminated (the next highest value was 100).

Table 2
Questions on religion and political orientations.

Item	M or %	SD	N
Childhood religion (61a)	100.00%		68
a Catholic	32.35%		22
b Protestant	30.88%		21
c Jewish	5.88%		4
d None	27.94%		19
e Other	2.94%		2
Current religion (61b)	100.00%		68
a Catholic	7.35%		5
b Protestant	16.18%		11
c Jewish	2.94%		2
d Buddhist	1.47%		1
e None	66.18%		45
f Other	5.88%		4
General political perspective (left 1, mean 5, right 9) (57)	4.19	2.09	67
Categorization of general political perspective:			
1–4 (left)	53.70%		
5 (mean)	22.40%		
6–9 (right)	23.90%		
Specific political perspectives 1–9 (56)	5.11	1.84	70
Scale mean			
a Western economic exploitation has contributed to third world poverty. (high = no/right)	5.16	2.75	67
b Western countries should be open for immigrants. (high = no/right)	4.78	2.57	68
c Strong affirmative action measures should be used in job hiring to assure minority representation. (high = no/right)	6.69	2.41	71
d Strong affirmative action measures should be used in job hiring to assure representation of immigrants. (high = no/right)	6.99	2.13	69
e The United States would be better if it moved toward more social democratic policies. (high = no/right)	4.54	2.90	63
f The United States would be better if it moved toward more economic liberty. (high = yes/right)	4.90	2.58	63
g Homosexual people (gay & lesbian people) should have the same marriage rights including all legal benefits of marriage as heterosexual people. (high = no/right)	2.20	2.10	64

Notes: "General political perspective" was rated on a scale from 1 (very liberal/left) to 9 (very conservative/right); "Specific political perspectives" was rated on a scale from 1 (strongly disagree) to 9 (strongly agree); 6 of 7 items in "specific political perspectives" (i.e., items a to g) were transformed to a 1 (liberal/left) to 9 (conservative/right) scale similar to the scale for general political perspective (details in text). The scale mean (average, minimum number of answered items 3) of the 7 items has a Cronbach-α of 0.84.

counts publications and citations for selected peer reviewed journals, whereas Google also counts books, book chapters, and other publications (e.g., technical reports and conference presentations). The h-indexes might appear to be low compared to the publication counts. However, the h-index is based on citation rates and number of publications (i.e., h publications cited a maximum of h-times) rather than publication counts alone, which explains the discrepancy. (Further, it should be noted that only about half of the experts who provided publication counts also provided an h-index.) Experts also frequently gave presentations at scientific conferences and participated in panel discussions (Table 1).

The religious and political orientations of the experts are presented in Table 2. Religious affiliations changed from childhood to adulthood. Most experts were Christians in childhood (sum about 63%), with 32.35% ($N = 22$) Catholic and 30.88% ($N = 21$) Protestant. However, most experts 66.18% ($N = 45$) reported being non-religious in their adulthood. The change from religious to non-religious represents a decrease of about (relative) -77% for Catholics and -48% for Protestants; a similar decrease was observed for experts with Jewish backgrounds (-50%). In contrast, non-religious respondents increased by $+137\%$.

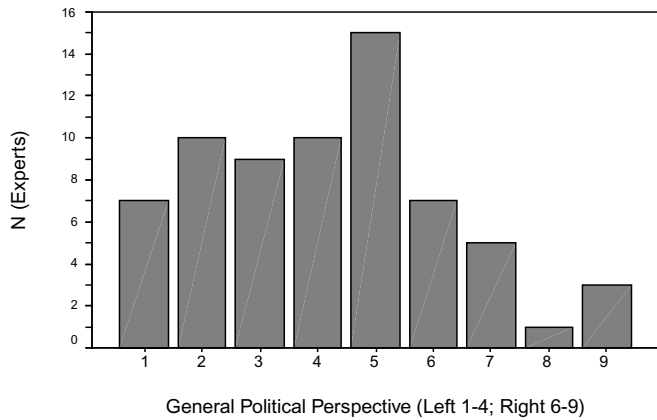The mean political perspective was 4.19 on a 1–9 left-right political

Fig. 2. Distribution of general political position of respondents ($M = 4.19$; $N = 67$; $SD = 2.09$). Lower values represent a more left/liberal position; higher values represent a more right/conservative position.

scale ($N = 67$; $SD = 2.09$), which represents a slight left (progressive, liberal) tilt. As shown in Fig. 2, about half of the experts (47.76%, $N = 32$) were positioned around the center (from 4 to 6, around the scale average 5). 38.70% of experts ($N = 26$; scale points: 1, 2, 3) were positioned at the left (liberal) side of the scale, whereas 13.43% ($N = 9$; scale points: 7, 8, 9) were positioned at the right (conservative) side. The far-right position was observed for only 4.48% ($N = 3$) of experts compared to 10.45% ($N = 7$) for the far-left position. The left tilt was more pronounced using a left-versus-right side categorization (1–4 left, 5 mean, 6–9 right), with more than double the percentage of experts on the left (54%) than on the right (24%).

When asked about specific political issues, the average position of the experts was near the center ($M = 5.11$). Slightly more liberal/left positions were observed for open immigration policies (yes, $M = 4.78$), social democratic policies (yes, $M = 4.54$), and marriage rights for homosexuals (yes, $M = 2.20$). The position on marriage rights was the most striking (86% endorsed same rights for homosexual couples) and showed the lowest variability of all items. The experts showed a fairly centrist position on economic liberties (yes, $M = 4.90$). A more conservative/right perspective rejected the views that western economies contributed to third world poverty (no, $M = 5.16$) and that affirmative action was needed in hiring to ensure representation of immigrants (no, $M = 6.69$) and minorities (no, $M = 6.99$). Compared to experts in Snyderman and Rothman's (1988, pp. 254, 287) IQCS survey experts in the current study were more skeptical toward affirmative action (Table 2).

Table 3 shows expert opinions on general intelligence, group differences, and biases in intelligence measurement. Experts favored a g factor perspective (mean = 6.84, 1–9 scale). Using a rating of "5" as the scale midpoint, 16% of experts favored a specific abilities perspective (1–4), whereas 76% favored a general factor perspective (6–9; 8% scale average 5). There was little to no support for separate subgroup norms for different racial, ethnic, or social groups or for people with different nationalities (natives vs. immigrants), with the percentage of experts favoring separate norms below 25%.

There was no clear position among experts regarding environmental and genetic factors in the US Black-White difference in intelligence. However, experts attributed nearly half of the Black-White difference to genetic factors, with 51% attributing the difference to environmental factors and 49% to genetic factors. As shown in Fig. 3, 40% of the experts favored a more environmental perspective, 43% favored a more genetic perspective, and 17% of the experts assumed an equal influence of genes and environment (i.e., 50–50). Nevertheless, the mean preference among experts was slightly in favor of the environmental perspective (51% of the differences can be explained by environmental factors vs. 49% by genetic). This propensity can be attributed to 16% of

Table 3

Expert opinions on the g factor, group differences, and test bias.

| Item	M or %	SD	N
g factor, 1 = specific, 9 = general (6)	6.84	2.30	98
Separate test norms for subgroups (9), answer "no"			
a Blacks and Whites in the US	87%		85
b Ethnic-racial groups in general	86%		86
c Ethnic groups in general	81%		88
d Social groups in general	84%		90
e Natives and immigrants	76%		87
f Richer and poorer	89%		90
Heritability of the US Black-White difference in IQ (10)			
percentage environmental	51.16	31.34	86
percentage genetic	48.84	31.34	86
IQ as cause of SES in Western societies (11)			
percentage by IQ	44.85	21.15	101
percentage by non-IQ factors	55.15	21.15	101
Bias in IQ testing, 1 = no biasing effect, 9 = large (12)			
a Race/ethnicity of the examiner	2.65	2.00	98
b Language or dialect of the examiner	3.45	2.33	98
c Attitude of the examiner toward the group in question	3.89	2.50	98
d Test taker anxiety	4.75	2.35	102
e Test taker motivation	5.38	2.47	102
Racial/ethnic content bias in testing (13)			95
a Insignificant amount of content bias	43%		
b Some content bias	34%		
c Moderate amount of content bias	20%		
d Large amount of content bias	3%		
Cognitive ability in immigration policy, 1 = no, never, 9 = yes, always (34)	4.83	3.21	80
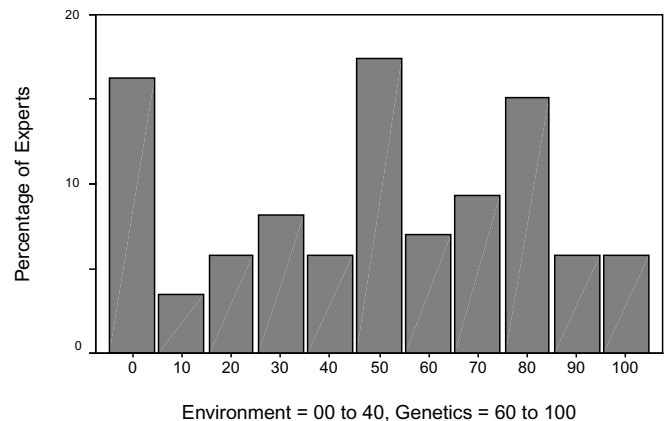
Fig. 3. Distribution of ratings of the environmental vs. genetic determinants of the US Black-White difference in IQ.

experts favoring a 100% environmental explanation and 6% of experts favoring a 100% genetic explanation. Thus, the extreme "environmental" position was observed more frequently than the extreme "genetic" position.

Experts believed 45% of SES variance was explained by intelligence and 55% by non-IQ factors (Table 3). 51% of experts believed that the contribution of intelligence (to SES) was below 50%, 38% above 50%, and 12% had a 50–50 opinion. Similar to the question about subgroup test norms, experts generally reported little bias in IQ testing (scale points 6–9; race of the examiner: 15%, language of the examiner: 24%, attitudes of the examiner: 34%, test anxiety of the tested person: 40%). An exception concerned the motivation of the examinee, which was rated as important by 55% of experts. 43% of experts reported an insignificant amount of bias in test content, with 23% reporting a moderate or large amount of bias (scale points 6–9). 46% of the experts argued against the use of IQ in immigration policy (scale points 1–4), whereas 48% argued in favor of its use (scale points 6–9). However, because experts against the use of IQ generally held more extreme

Table 4
Expert opinions on intelligence in the media and public debates.

Item	M or %	SD	N
Accuracy of media, scale 1 (inaccurate) to 9 (accurate) (19)			
a State-owned television networks	3.31	1.80	61
b Commercial television networks	2.67	1.49	70
c National Public Radio	3.53	2.03	62
d New York Times	3.81	2.19	58
e Newsweek	3.50	1.92	44
f Time	3.55	1.90	44
g Wall Street Journal	4.20	1.90	49
h Washington Post	3.54	1.98	41
i Economist	4.21	1.91	43
j Guardian	3.57	2.04	37
k Times	4.30	2.23	30
l Daily Telegraph	3.70	2.04	27
m Steve Sailer blog	7.38	2.25	26
n Anatoly Karlin blog	6.10	2.75	10
o El Pais (Spanish)	3.83	2.37	12
p El Mundo (Spanish)	3.46	1.98	13
q Le Monde (Spanish)	3.88	2.70	8
r Le Figaro (French)	3.63	2.45	8
s Süddeutsche Zeitung (German)	4.42	2.43	19
t Frankfurter Allgemeine Zeitung (German)	4.89	2.63	18
u Die Welt (German)	4.67	2.16	15
v Tageszeitung (taz) (German)	3.60	2.32	15
w Neue Zürcher Zeitung (NZZ) (German)	4.54	2.50	13
x Der Spiegel (German)	3.84	2.04	19
y Die Zeit (German)	5.10	2.57	20
z Focus (German)	3.71	2.26	17
Treatment of intelligence by media, scale 1 (negative) to 9 (positive) (21, 22)			
a Science is correctly reported	3.11	1.70	83
b Competent experts are chosen	3.20	1.59	83
c Reporting is rational	3.07	1.63	82
d Important topics are chosen	3.65	1.91	82
e Treatment of researchers	3.29	1.59	80
Hesitation in opinion expression (20)	59.30%	–	86
Problems with media, percentage "yes" (23)	29%		82
Speaking about certain topics becoming easier or more difficult, 1 = more difficult, 5 stable, 9 = easier (29)			
a Intelligence	5.24	2.25	75
b Genes (incl. heritability)	5.67	2.32	75
c Relationship between intelligence and genes	5.17	2.41	75
Opinion about public debates, arguments more based on ideology (1) or on science (9) (30)	2.97	1.81	78
Ideology exploitation and abuse of the topic intelligence and genes, 1 = not, 9 = strongly (31)			
a in politics abused	6.45	2.48	69
b in science abused	4.38	2.47	73
Working with media in the past 10 years (48)			
a Served as a source (frequency)	4.60	5.21	72
b Declined to serve as a source (frequency)	1.49	3.19	69
c Written letters (frequency)	1.80	3.30	70

positions ("never": 28%) than experts favoring the use of IQ ("always": 19%), the mean was slightly tilted against the use of IQ in immigration policy (4.83 on scale from 1 [no, never] to 9 [yes, always]).

Experts were skeptical of the quality of media reports on intelligence research (Table 4). In general, mean expert ratings of media accuracy were around 3–4, on a scale of 1 (very inaccurate) to 9 (very accurate). Only two media outlets received positive ratings, the blogs of Steve Sailer (*M* = 7.38, *N* = 26 ratings) and Anatoly Karlin (6.10, *N* = 10 ratings). Unfortunately, the survey did not consider James Thompson's blog *Psychological Comments*, which was just beginning when the survey was administered. All three blogs are currently hosted by *The Unz Review*. Among traditional publications (newspapers, radio, television), only the German newspaper *Die Zeit* received a positive rating (*M* = 5.10, *N* = 20 ratings). (It should be noted that different experts rated newspapers from different countries, written in English, Spanish, French, or German.) Experts were generally critical of state-owned or private television networks and radio networks (means around 2.5–3.5, *N* = 60–70 ratings), with low variability for the ratings

(around *SD* = 1.5–2.0). The results suggest broad agreement among experts that television and radio do not provide accurate information about intelligence research.

Apart from specific publications, experts viewed the media's treatment of intelligence and related topics quite critically (Table 4), noting that scientific results were often not correctly reported (*M* = 3.11 on a scale from 1 [not correctly, strongly disagree] to 9 [correctly, strongly agree], *N* = 83 ratings). Moreover, experts thought the media generally used incompetent sources (*M* = 3.20, *N* = 83), was not rational in reporting (*M* = 3.07, *N* = 82), and reported on marginal (rather than important) topics (*M* = 3.65, *N* = 82). In general, experts viewed the treatment of intelligence as inaccurate and unfair (*M* = 3.29, *N* = 80).

Over half of the experts hesitated to express their opinion through the media (59%, *N* = 86), but only a minority reported problems with media (29%, *N* = 82). Experts thought that speaking about intelligence (*M* = 5.24), genes (*M* = 5.67), and the relationship between them (*M* = 5.17; always *N* = 75 ratings) became easier in the past few years (1 difficult, 9 easier). Furthermore, experts believed that public debates were based more on ideology than on science (*M* = 2.97, *SD* = 1.81, *N* = 78) and that ideology had a stronger impact on political debates about intelligence and genes than it did on scientific research (*M* = 6.45 vs. *M* = 4.38). However, experts also viewed science as being influenced by ideology (scale 1–9, *M* = 4.38), with 75% (scale points 6–9) of the experts noting ideological influences in politics and 34% in science.

Experts served an average of five times (over 10 years) as a source of information for the media on intelligence and related topics (Table 4). However, the standard deviation in the frequency of experts' service is high (*SD* = 5.21), with many of them never (39%) or only once or twice (14%) assisting the media. A small number of experts declined to work with the media (*M* = 1.49 times over 10 years) or wrote letters about intelligence (*M* = 1.80 times over 10 years).

A minority of experts reported problems publishing intelligence research (Tables 5, 23%, *N* = 77). Separately, experts reported little concern about inclinations of discrimination or group related hostility (including racism) in intelligence research, with 82% or 78% (questions 32, 33) noting no such tendency and 14% (3% neutral) and 17% (5% neutral) noting inclinations of discrimination. A trade-off between

Table 5
Expert opinions on publishing intelligence research, allegations of discriminatory intent and unfair treatment, and prominent figures in intelligence research.

Item	M or %	SD	N
Problems publishing research on intelligence (yes/no) (24)	23%		77
Hidden intention to discrimination in intelligence research, scale 1 (no intentions) to 9 (strong intentions) (32)	2.61 82% no	2.21	77
Inclination for group related hostility (incl. racism), scale 1 (no inclination) to 9 (strong inclination) (33)	2.77 78% no	2.23	78
Freedom of research on genes of group differences in intelligence vs. social peace (38)			78
Research and publication be limited for social peace	5%		
No, intensive education of society, how to deal with it	41%		
No, freedom of research should not be restricted	54%		
Author rating (25)			
a Top 3 in quality, trustworthiness and correctness			
John B. Carroll	8.37	1.04	62
Thomas J. Bouchard	8.17	1.04	60
Ian J. Deary	8.06	0.94	66
b Top 3 in innovativeness, creativity, new ideas & stimulating			
Arthur Jensen	7.79	1.88	57
Robert Plomin	7.71	1.41	52
Thomas J. Bouchard	7.42	1.59	52
c Top 3 in relevance of contribution & importance of oeuvre			
John B. Carroll	8.26	1.43	54
Arthur Jensen	8.24	1.45	55
Thomas J. Bouchard	8.16	1.17	51

research and social peace was observed for the question (item 38), "If genes were found to cause differences in intelligence between groups (e.g., races, ethnicities, nations or classes), should research on these genes, and the publication of research results, be limited in favor of social peace?" In response to the question, 5% of experts endorsed restrictions on science ("Yes, the results could be misused"). In contrast, 41% of experts rejected restrictions and favored educating society ("No, but there must be an intensive education of society, how to deal with it") and 54% favored academic freedom ("No, freedom of research should not be restricted").

Experts were surveyed about the most important intelligence researchers in three different ways (Table 5):

a) Highest in quality, trustworthiness, and correctness;
b) Highest in innovativeness, creativity, development of new ideas, and stimulating research; and
c) Person with the largest impact in contributions and importance of oeuvre.

John B. Carroll, Thomas J. Bouchard, and Ian J. Deary received the highest quality ratings; Arthur Jensen, Robert Plomin, and Thomas J. Bouchard received the highest innovativeness ratings; and John B. Carroll, Arthur Jensen, and Thomas J. Bouchard received the highest ratings for importance of oeuvre. The ratings for all criteria were relatively homogeneous ($SD = 1.0–1.8$), with Arthur Jensen's ratings showing the most heterogeneity.

Another analysis examined intelligence researchers who are *controversial*, defined by heterogeneity of ratings (based on relatively large SDs). The heterogeneity indicates that experts had split opinions on the researchers, with some experts viewing them as high in quality, innovativeness, and importance but others having divergent opinions. For quality, heterogeneity was observed for Richard Lynn (2.84), followed by Robert Sternberg (2.57) and Satoshi Kanazawa (2.52). For innovativeness, variability was observed for Robert Sternberg (2.83), Howard Gardner (2.81), and Satoshi Kanazawa (2.60). Finally, for importance of oeuvre, heterogeneity was observed for Richard Lynn (2.85), Howard Gardner (2.83), and Robert Sternberg (2.82). Across all criteria, expert opinions were lowest for Stephen J. Gould (quality: $M = 2.33$, $SD = 1.99$, $N = 60$; innovativeness: $M = 3.17$, $SD = 2.36$, $N = 48$; importance of oeuvre: $M = 2.96$, $SD = 2.55$, $N = 47$).[1]

3.2. Expert opinions and background factors: means and correlations

Another analysis examined expert opinions by gender, nationality, and expertise (e.g., holding PhD or not). Nations were grouped into five "national groups": (1) United States ($N = 27$, 38%); (2) Germany ($N = 12$, 17%); (3) UK, Australia, New Zealand, and Canada (English speaking/culture countries, former colonies but not the US, $N = 13$, 18%); (4) other Europe (North, West, Central, South, East, $N = 16$, 23%); and (5) other World (Latin America, Africa, Arab-Muslim world, East Asia, $N = 3$, 4%).

Compared to males, females ($N = 12$, 17%, vs. male $N = 60$, 83%) were somewhat more likely to have a "progressive" or "left" perspective (Table 6), favoring a specific abilities view rather than a g factor view ($r = .19$, $d = 0.52$).[2] Females were also more likely than males to favor

separate test norms for different ethnic, racial, national, and social groups ($rs = −.12$ to $−.37$),[3] and to endorse an environmental (rather than genetic) view of US White-Black IQ differences ($r = .48$, $d = 1.29$; males 61% heritability vs. females 23%). Finally, females were more likely to assume bias in cognitive testing ($rs = −.21$ to $−.49$) and less likely to favor cognitive testing in immigration decisions ($r = .43$, $d = 1.14$; on a scale from 1 to 9, males $M_M = 5.67$, $SD_M = 3.14$, and females $M_F = 2.00$, $SD_F = 1.34$). Female experts were younger than male experts ($r = .29$, $M_M = 50.90$ years, $SD_M = 14.86$, and $M_F = 39.50$, $SD_F = 9.89$).

Regarding nationality, experts from non-US countries with predominantly English speaking culture (UK, Australia, New Zealand, Canada, $N = 13$) were more likely than US experts to have a "progressive" or "left" perspective, although the pattern was less stable than the male-female pattern: For instance, compared to US experts, experts from non-US but English speaking countries were more likely to favor cognitive testing in immigration policy (1–9 scale: $M_{US} = 4.56$, $SD_{US} = 3.03$, and $M_{non-US} = 5.69$, $SD_{non-US} = 3.01$). Separately, experts from Germany had a more "conservative-burgher" or "right" perspective, with some exceptions (e.g., more "left" leaning regarding "racial/ethnic bias in testing"). It should be noted that the sample sizes for different national groups were relatively small (see note of Table 6).

Finally, experts with PhDs differed only slightly from experts without PhDs: Experts with PhDs were more likely to be older ($r = .30$, $M_{PhD} = 50.66$ years, $SD_{PhD} = 14.26$, $M_{noPhD} = 37.50$ years, $SD_{noPhD} = 14.24$) and to favor a more environmental view of genetics and intelligence (e.g., $r = −.25$, for the heritability of the US Black-White difference in cognitive ability).

Regarding the media (see Table 7), female experts were more likely than male experts to have a positive opinion about speaking on controversial topics ($r = −.10$ to $−.19$) and public debates ($r = −.18$) but a more critical opinion about the impact of ideology in politics and in science ($r = −.17$ to $−.26$). Males more frequently served as experts for the media ($r = .23$; 62% vs. 50% at least once; 27% vs. 8% 11 times or more), as did experts with PhDs ($r = .18$). Experts from the US were more likely than experts from other countries to be skeptical about the media, but differences were typically small.

Compared to males, female experts reported more hidden intentions to discriminate and more inclination for group related hostility ($r = −.21$ and $− .29$; see Table 8), a pattern consistent with the gender differences in the impact of ideology on science ($r = −.16$; Table 7). However, reports of political bias in intelligence research were generally low for both genders (item 32: $M_M = 0.24$, $SD_M = 0.63$, and $M_F = 0.64$, $SD_F = 0.92$; item 33: $M_M = 0.29$, $SD_M = 0.70$, and $M_F = 0.90$, $SD_F = 0.88$; both on a 0–2 scale; Table 8). Male experts were more likely to endorse freedom of research and the publication of research results ($r = .15$; Table 8). Although neither gender endorsed limits on research, females were more likely to favor "education of the public for a proper understanding of controversial research outcomes" ($N = 2$ males and $N = 1$ female favored limits; $N = 6$ females favored education and $N = 5$ females were against restrictions; $N = 21$ males favored education and $N = 35$ males were against restrictions).

Experts in the US and with PhDs were less likely (than experts outside the US and with no PhDs) to report problems publishing research (88% vs. 63–73% for experts from all other nations; Table 8). Experts from developing and emerging countries ($N = 3$) were more likely than experts from other countries to report ideological biases in

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[1] For German researchers, the highest in quality was Detlef Rost ($M = 7.85$, $SD = 1.28$, $N = 13$, note limited ratings; Aljoscha Neubauer was second with $N = 30$ ratings); highest in innovativeness was Heiner Rindermann ($M = 6.93$, $SD = 1.92$, $N = 41$); and most important in oeuvre was Gerhard Meisenberg ($M = 6.76$, $SD = 2.33$, $N = 25$). Expert ratings were less variable for Aljoscha Neubauer, but more variable for Volkmar Weiss.

[2] Although females were more likely than males to favor a specific abilities view, both sexes endorsed a g factor view over a specific abilities view. On a scale of 1 (specific) to 9 (general), the means were $M_M = 7.23$ ($SD_M = 1.99$, 81% pro g factor) and $M_F = 6.64$ ($SD_F = 2.50$, 64% pro g factor). It should be

(*footnote continued*)

noted that a specific abilities view is "progressive" and "left" only in the current political climate. It has also been endorsed by National Socialist scientists (e.g., Friedrich Becker, 1938, as documented by Rindermann, 2018, p. 61).

[3] Females also rejected the use of separate norms for all racial and ethnic groups except for immigrants ($M_F = 0.27$ to 0.36 vs. 0.58 for immigrants, with all items on a 0 to 1 scale).

Table 6
Differences according to gender, nationality, and PhD status for questions about the *g* factor, intelligence testing, and controversial issues.

Item	Gender (1 = female, 2 = male)	Nationality	PhD (0 = no, 1 = PhD)
g factor (or specific abilities) (6) (from 0, specific, to 1, general)	Males more *g*	Germans high	Similar
	r = .19	*r* = .28	*r* = .03
	d = 0.52		*d* = 0.09
Separate test norms for subgroups (9)	Females more	Commonwealth more	PhD less sep. norms
a Blacks and Whites in the US	*r* = −.17	*r* = .23	*r* = −.12
b Racial groups in general	*r* = −.17	*r* = .23	*r* = −.20
c Ethnic groups in general	*r* = −.12	*r* = .16	*r* = −.16
d Social groups in general	*r* = −.26	*r* = .32	*r* = −.15
e Natives and immigrants	*r* = −.37	*r* = .13	*r* = −.05
f Rich and poor	*r* = −.29	*r* = .37	*r* = .02
Heritability of the US Black-White diff. in IQ (10)	Males more	Germ. more	PhD less
% genetic	*r* = .48	*r* = .20	*r* = −.25
	d = 1.29		*d* = −0.73
IQ as cause of SES in Western societies (11)	Males more	Commonwealth less	PhD more
% by IQ	*r* = .05	*r* = .21	*r* = .03
	d = 0.12		*d* = 0.06
Bias in cognitive ability testing (12)	Females more	Commonwealth more	Varying
a Race/Ethnicity of the examiner	*r* = −.42	*r* = .30	*r* = .03
b Language or dialect of the examiner	*r* = −.35	*r* = .47	*r* = −.15
c Attitude of the examiner toward the group	*r* = −.49	*r* = .25	*r* = .08
d Test taker anxiety	*r* = −.23	*r* = .19	*r* = .12
e Test taker motivation	*r* = −.32	*r* = .23	*r* = .08
Racial/ethnic content bias in testing (13)	Females more	Germans more	PhD more
	r = −.21	*r* = .28	*r* = .12
	d = 0.56		*d* = 0.35
Cognitive ability in immigration policy (34)	Males more	Other world against	PhD less
	r = .43	*r* = .30	*r* = −.15
	d = 1.14		*d* = −0.47

Notes: Positive correlations for "Gender" indicate higher values for males (*N* = 60, 83%) and lower values for females; correlations for "Nationality" are based on the root of η^2 derived from analysis of variance (US: *N* = 27, 38%; Germany: *N* = 12, 17%; UK, Australia, New Zealand, Canada (Commonwealth Nations): *N* = 13, 18%; other Europe: *N* = 16, 23%; other World: *N* = 3, 4%); positive correlations for "PhD" indicate higher values for PhD (*N* = 68, 87%); "Separate test norms for subgroups" indicate that researchers from UK-affiliated nations (Australia, New Zealand, and Canada) were more likely to favor separate norms than researchers from the US, Germany, and other parts of Europe; *d*-effect sizes are based on the standard deviation of the full expert sample. Some continuous variables (e.g., question 34) were rescaled to categorical variables (e.g., 0, 0.5, and 1) to assess mean differences between groups (e.g., for or against a position). However, all correlations were based on continuous variables.

Table 7
Differences according to gender, nationality, and PhD status for questions about intelligence research, the media, and public debates.

Item	Gender (1 = female, 2 = male)	Nationality	PhD (0 = no, 1 = PhD)
Hesitation in expression of opinion (20)	Equal	Germany less	Equal
	r = −.02	*r* = .20	*r* = −.01
	d = −0.06		*d* = −0.03
Treatment of intelligence by media (21, 22)	Equal	Commonwealth positive	Varying
a In general	*r* = .17	*r* = .33	*r* = −.15
b Science is correctly reported	*r* = −.08	*r* = .28	*r* = −.13
c Competent experts are chosen	*r* = .07	*r* = .33	*r* = −.05
d Reporting is rational	*r* = .07	*r* = .28	*r* = .08
e Important topics are chosen	*r* = .01	*r* = .25	*r* = .20
Problems with media (23)	Equal	US, Europe more	equal
	r = .01	*r* = .38	*r* = .04
	d = 0.02		*d* = 0.12
Speaking about certain topics become easier (29)	Females positive	Germans negative	PhD more positive
a Intelligence	*r* = −.19	*r* = .15	*r* = .12
b Genes (incl. heritability)	*r* = −.10	*r* = .11	*r* = −.09
c Relationship between intelligence and genes	*r* = −.12	*r* = .14	*r* = .14
Opinion about public debates (30)	Females positive	US negative	Equal
Arguments more based on science than ideology	*r* = −.18	*r* = .43	*r* = .05
	d = −0.48		*d* = 0.14
Ideology exploitation and abuse of the topic (31)	Females critical	US critical	PhD more positive
a In politics	*r* = −.17	*r* = .36	*r* = −.06
b In science	*r* = −.26	*r* = .25	*r* = −.16
Working with media in the past 10 years (48)	Males more	Other Europe more	PhD more
a Served as a source	*r* = .23	*r* = .24	*r* = .18
b Declined to serve as a source	*r* = .10	*r* = .47	*r* = −.08
c Written letters	*r* = .03	*r* = .32	*r* = −.13

Notes: see Table 6 for a description of statistical procedures used to analyze data.

Table 8

Differences according to gender, nationality, and PhD for questions about publishing intelligence research, allegations of political bias, and worldviews.

Item	Gender (1 = female, 2 = male)	Nationality	PhD (0 = no, 1 = PhD)
Problems with publishing research (24)	Equal $r = .04$ $d = 0.10$	US fewest problems $r = .23$	PhD fewer problems $r = -.13$ $d = 0.49$
Hidden intention to discrimination (32)	Females more $r = -.21$ $d = 0.57$	Other world highest $r = .14$	Equal $r = .04$ $d = 0.11$
Inclination for group related hostility (incl. racism) (33)	Females more $r = -.29$ $d = 0.82$	Other world highest $r = .20$	Equal $r = -.05$ $d = -0.12$
Freedom of research vs. social peace (38)	Males more freedom $r = .15$ $d = 0.40$	Other Europe highest $r = .20$	No PhD more freedom $r = -.23$ $d = -0.71$

Notes: see Table 6.

intelligence research (33%, or $N = 1$ vs. 7–17% for other nations). However, the comparison is not generalizable due to the small number of experts from developing countries. European experts (excluding those from the UK and Germany) and experts with no PhDs tended to endorse a freedom of research perspective.

3.3. Expert opinions and background factors: regression analyses

Gender, PhD, age, childhood family income, written articles, and the general political perspective were used as predictors in the regression analyses. Correlations between attributes of experts are reported in Table A4 of the Appendix.[4] Male experts were older, more prolific, and more conservative ($rs = .18–.26$). Experts with PhDs were (understandably) older ($r = .30$, $N = 77$). A negative correlation was found between the age of experts and family income in childhood ($r = -.33$, $N = 75$). A rather strong and positive correlation was found between the age of experts and the number of articles written ($r = .45$, $N = 68$). Older experts leaned right-conservative in political perspective ($r = .18$, $N = 66$), and right-conservative experts tended to have higher childhood family incomes ($r = .23$, $N = 65$). No significant correlations were found between the number of written articles and childhood family income ($r = -.02$; $N = 68$) or general political perspective ($r = .09$, $N = 60$).

Correlations and standardized regression coefficients are reported for the following predictors: experts' gender, academic degree (PhD), age, childhood family income, published articles, and general political perspective (Tables 9–11). The variance explained by the predictors varied between 10 and 50%. More politicized topics (e.g., immigration policy and race differences) were more strongly associated with experts' background variables, notably general political perspective (left to right), which explained considerable variance in expert opinions. For example, for "IQ as cause of SES" (item 11), only 12% of the expert variance was explained, and the impact of general political perspective was $\beta = .20$ ($r = .22$). However, for "use of cognitive ability in immigration policy" (item 34), 45% of the expert variance was explained, and the impact of political perspective was $\beta = .56$ ($r = .58$). Not surprisingly, experts with a left-progressive perspective showed what might be called a "left tilt" on issues. Compared to right-conservative experts, left-progressive experts favored a specific abilities perspective, favored environmental explanations for Black-White IQ gaps, assumed more bias in testing, and were against IQ in immigration policies. In contrast, experts with a right-conservative perspective showed a "right tilt," which was associated with the opposite pattern (i.e., favoring the *g* factor, favoring genetic explanations for Black-White IQ gaps, assuming

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[4] The analyses excluded nationality because it included five categories (US, Germany, UK and affiliates, other Europe, and other world) with small, unsystematic, and uninterpretable effects.

less bias in testing, favoring IQ in immigration policies).

The second most important predictor was gender (sex, 1 = female, 2 = male). Compared to males, female experts had a more left (progressive) attitude (see Table 9). The effects of academic qualification (having a PhD) were small and not systematic, as were the effects of age and published articles. Formal and informal expertise (PhD, age, articles) explained less within-expert-group heterogeneity than political attitudes and gender. Finally, childhood income had a more "leftist" impact. Experts with higher childhood incomes were more likely to endorse the specific abilities view (rather than the *g* factor view), assume environmental effects on Black-White IQ gaps, assume test bias, and be against IQ in immigration policies.

The analysis of answers on questions regarding the media and public partially corroborate the pattern found for general questions on intelligence research (Table 10): Political orientation was linked to expert opinions on the media. More progressive (left) experts had more favorable opinions of the media, whereas more conservative (right) experts were skeptical of the media. For example, progressive experts reported more accurate and fair treatment of intelligence by media ($\beta = -.33$, $r = -.26$) and had more positive experiences in speaking with the media ($\beta = -.34$, $r = -.35$). In contrast, number of publications (rather than gender) was more important for other items. Experts with more publications were more likely to be sought by the media ($\beta = .23$, $r = .26$) and had more problems with the media ($\beta = .28$, $r = .21$). More prolific experts felt less hesitant in expressing opinions to the media ($\beta = -.22$, $r = -.25$) and reported more correct and fair treatment of intelligence research ($\beta = .41$, $r = .30$). Older experts were more skeptical than younger ones (βs and $r s$ around $|.15|$).

Political orientation was also found to be important in a final analysis of intelligence research and politically charged issues (e.g., group hostility, discrimination, gene-IQ research) (Table 11). Conservative (right) experts were more likely than progressive (left) experts to report problems in publishing research ($\beta = .32$, $r = .19$). However, publication history was also influenced by childhood income, gender, and PhD status. Experts with higher childhood incomes reported fewer problems publishing ($\beta = -.32$, $r = -.17$). They also reported more latent discrimination and hostility in intelligence research but, consistent with the ratings of other experts, their level of concern was low (item 32 on discrimination: $M = 3.03$, $SD = 2.44$; item 33 on hostility: $M = 3.08$, $SD = 2.39$; both items were rated on a scale from 1 [no intentions/low] to 9 [strong intentions/high]). Separately, female experts were more likely than males to have a more critical (or progressive, left) view of intelligence research (βs and $r s$ around $|.30|$). Experts with PhDs reported fewer problems publishing ($\beta = -.18$, $r = -.16$) and were less critical of intelligence research (βs and $r s$ around $|.15|$), but were less likely to endorse freedom of gene-IQ research ($\beta = -.26$, $r = -.22$).

In sum, the political orientation and gender of experts were the most important factors in explaining the observed (but not always large) heterogeneity among expert opinions on intelligence research. Other

Table 9
Standardized beta coefficients (correlations in parentheses) for questions about the g factor, intelligence testing, and controversial issues.

Item	Gender (1 = female, 2 = male)	PhD	Age	Child income	Articles	Political	R^2
g factor (6) (high 9 = general)	.13 (.18)	.08 (12)	−.12 (.20)	−.29 (−.17)	.23 (.25)	.34 (.34)	.24
Separate test norms for subgroups (9)	−.36 (−.35)	−.19 (−.17)	−.24 (−.27)	.02 (.03)	.28 (.08)	.04 (−.14)	.24
Heritability Black-White IQ gap (10)	.36 (.50)	−.33 (−.26)	−.09 (.19)	−.26 (−.11)	.11 (.16)	.49 (.48)	.53
IQ as cause of SES, percentage (11)	.08 (.15)	.01 (.06)	.26 (.05)	−.18 (−.19)	−.06 (.05)	.20 (.22)	.12
Bias in IQ testing, 1 = no, 9 = large (12)	−.47 (−.55)	.06 (.02)	−.13 (−.44)	.30 (.27)	.03 (−.16)	−.28 (−.41)	.51
Racial/ethnic content bias in testing (13)	−.20 (−.23)	.12 (.11)	.09 (−.13)	.32 (.23)	−.04 (−.08)	−.28 (−.26)	.19
Cognitive ability in immigration (34)	.24 (.39)	−.16 (−.08)	.04 (.25)	−.16 (−.08)	−.01 (.11)	.56 (.58)	.45

Notes: Standardized betas are based on regression analyses (listwise deletion). N = 51 (question 6), 47 (9), 46 (10), 51 (11), 51 (12), 52 (34). "Separate test norms for subgroups" was based on the mean of 6 subgroup comparisons: US Whites and Blacks; US Whites (Gentiles), Blacks, Hispanics, Jews, and East-Asians; generally different ethnic groups; different social groups; natives and immigrants; and poorer and richer (Cronbach-α = .91). "Bias in IQ testing" was based on the mean of 5 items: race of examiner, language of examiner, attitude of examiner, test anxiety, and test motivation (Cronbach-α = .90). Only continuous scales were used as dependent variables.

Table 10
Standardized beta coefficients (correlations in parentheses) for questions about intelligence research, the media, and public debates.

Item	Gender (1 = female, 2 = male)	PhD	Age	Child income	Articles	Political	R^2
Hesitation in opinion expression (20)	.13 (.07)	.07 (.01)	−.11 (−.21)	.12 (.18)	−.22 (−.25)	−.06 (−.05)	.11
Treatment IQ research by media (21, 22)	.10 (.07)	−.01 (−.05)	−.19 (−.15)	.25 (.27)	.41 (.30)	−.33 (−.26)	.32
Ever had problems with media (23)	−.11 (−.06)	−.09 (−.05)	−.10 (−.02)	.00 (.03)	.28 (.21)	.12 (.08)	.08
Speaking becoming difficult (29)	.10 (−.06)	.12 (.03)	−.16 (−.11)	−.19 (−.15)	.01 (−.06)	−.34 (−.35)	.16
Public debates based on science (30)	−.18 (−.28)	.05 (.00)	−.16 (−.22)	−.01 (.00)	.10 (−.03)	−.27 (−.33)	.17
Ideology and abuse (31)	−.30 (−.24)	−.18 (−.14)	.08 (−.14)	.12 (.07)	−.13 (−.16)	.12 (.02)	.12
Working with media in past 10 years (48)	.13 (.20)	.01 (.06)	−.01 (.16)	−.02 (.00)	.23 (.26)	.13 (.18)	.11

Notes: Standardized betas are based on regression analyses (listwise deletion). N = 50 (20), 52 (21, 22), 51 (23), 48 (29), 51 (30), 50 (31), 52 (48). Items 20 and 23 were dichotomous. "Treatment of IQ research by media" was based on the mean of 5 items: science is correctly reported, competent experts are chosen, reporting is rational, important topics are chosen, and treatment of researchers (Cronbach-α = .92). "Speaking becoming difficult" was based on the mean of 3 items: intelligence, genes (including heritability), and relationship between intelligence and genes (Cronbach-α = .95). "Ideology and abuse" was based on the mean of 2 items: abused in politics and abused in science (Cronbach-α = .61). "Working with media in past 10 years" was based on the mean of 3 items: served as a source, declined to serve as a source, and wrote letters (Cronbach-α = .58).

Table 11
Standardized beta coefficients (correlations in parentheses) for questions about publishing intelligence research and allegations of political bias.

Item	Gender (1 = female, 2 = male)	PhD	Age	Child income	Articles	Political	R^2
Problems publishing on intelligence (24)	−.02 (−.02)	−.18 (−.16)	−.24 (−.03)	−.32 (−.17)	.15 (.07)	.31 (.19)	.16
Discrimination in IQ research (32)	−.28 (−.21)	−.15 (−.11)	.10 (−.18)	.43 (.34)	.04 (−.02)	−.08 (−.09)	.21
Inclination for group hostility (racism) (33)	−.34 (−.34)	−.15 (−.16)	.05 (−.28)	.31 (.23)	−.12 (−.21)	−.12 (−.20)	.25
Freedom of gene-IQ research (38)	.25 (.33)	−.26 (−.22)	.10 (.26)	−.17 (−.18)	.13 (.20)	.12 (.15)	.24

Notes: Standardized betas are based on regression analyses (listwise deletion). N = 48 (24), 51 (32), 51 (33), 52 (38). Item 24 was dichotomous (and was analyzed using regular regressions, for comparison with other criteria). Item 38 had three response categories (abridged descriptions follow): Research and publication should be limited for social peace (1); No limit but intensive education of society (2); and No limit and freedom of research should not be restricted (3).

background variables (e.g., PhD, publications, age) had varying effects, with younger experts and those with no PhD having more problems publishing. Experts with higher childhood incomes tended to have more progressive (left) opinions; however, an explanation of this pattern was not clear.

A reviewer suggested that we examine whether different distributions of political orientations (liberal or conservative) would influence the results. We examined this issue in supplemental analyses using two different weighting schemes. The first weighted each political orientation equally on a scale from 1 to 9, and the second assumed a normal distribution with centrist positions weighted more heavily and left and right orientations being less frequent but equally distributed (see Table A5). The results were similar to the original unweighted results. Although there was a minor change toward a more conservative orientation (due to the simulated correction), the original results did not diverge appreciably from the weighted results, which were assumed to reflect a more balanced and politically representative sample.

4. Discussion

The current study examined expert opinions on intelligence research, controversial issues, and the media using the Expert Questionnaire on Cognitive Ability (EQCA). Below we compare the results to those of Snyderman and Rothman's (1988) survey, discuss the opinions and background characteristics of the experts (e.g., political affiliation, gender, age), and discuss the implications of the survey for research in intelligence and academia in general.

4.1. Socio-demographic background of the experts

EQCA participants had a mean age of 49 years. The age of the EQCA experts was similar to the age of US scientists in 2008 (48–50 years; see Blau & Weinberg, 2017, their fig. SI1) but below the age of American Psychological Association (APA) members, which was around 56 years in 2014 (APA Center for Workforce Studies, 2015).

The EQCA sample included more males (83%) than females (17%). The percentage of females is relatively low for universities and research occupations, with UNESCO (2015) reporting a 28% share of women in

research around the world. The EQCA gender distribution differs markedly from APA membership, which includes 66% women for associate members, 58% for members, 32% for fellows, and 57% for all members (APA Center for Workforce Studies, 2015). In contrast, the EQCA gender distribution is more similar to that reported in the expert survey by Snyderman and Rothman (1988, p. 167; 28% women) and in the expert survey among industrial and organizational psychologists by Murphy, Cronin, and Tam (2003; 29% women).

Male and female experts showed a different pattern of responses to several questions (Tables 6–11). In the left-right political frame, females generally showed a somewhat more progressive-left pattern, whereas males showed a somewhat more conservative-right pattern. The political differences were associated with opinions on the heritability of US White-Black IQ differences, bias in cognitive testing (which corroborated Snyderman & Rothman, 1988, p. 167), cognitive testing in immigration policy, and discrimination in IQ research. While trends were generally similar for both genders (e.g., both genders endorsed a *g* factor view, but males endorsed it more), gender differences were pronounced for opinions on the heritability of US White-Black IQ differences (males 61% heritability vs. females 23%).

The differences in frequencies between males and females extend beyond the EQCA survey. The membership of the International Society for Intelligence Research (ISIR), the largest scientific society for intelligence research, is about 30% female (Revelle, 2019). (ISIR members include students and interested persons who have not published on intelligence and would not meet the inclusion criteria for the EQCA.) The percentage of females on the editorial board of the journal *Intelligence* over the past 15 years was 14% in March 2019, 7% in January 2013, and 5% in January 2005. By comparison, 17% of experts in the EQCA sample were female. Based on the editorial board composition and ISIR membership (30% female), the EQCA sample may be considered representative or slightly under-representative of female experts in intelligence research.

Intelligence research shows clear empirical results for many research questions, such as the positive impact of cognitive ability for educational and occupational success (e.g., Jones, 2016; Kuncel & Hezlett, 2010). In the current study, questions with clear empirical results (in the scientific literature) generally yielded similar answers for males and females, whose opinions were consistent with the scientific literature (e.g., few reports of IQ test bias). In contrast, intelligence research yields more ambiguous results for other research questions, which have no clear answers in the scientific literature (e.g., group differences in heritability). Such questions generally showed more variability in EQCA responses, including differences between males and females on the heritability of US White-Black IQ differences. A more representative sample of males and females (compared to societal or science norms) could broaden perspectives on ambiguous or open questions, which could influence the selection of research topics, the interpretation of results, and the communication of research to the public.

4.2. Academic work and expertise

About 80% of all EQCA experts worked in psychology (Table 1). A direct comparison with the sample used in Snyderman and Rothman's (1988) IQ Controversy Survey (IQCS) was not possible because the IQCS only reported subfields for experts who were invited to participate but not for experts who actually participated. Compared to the reported IQCS sample (Snyderman & Rothman, 1988, p. 47), the EQCA sample included more researchers from psychology (80% vs. 64%). Other EQCA experts (*N* = 20) worked in related fields (e.g., educational science, biology, economics, sociology, anthropology). Compared to IQCS experts, EQCA experts included more university faculty members (67%, Table 1, vs. 53%, Snyderman & Rothman, 1988, p. 49). Of the 67% of EQCA faculty members, 60% were (tenured) professors and 6% were tenured faculty members; an additional 21% of EQCA experts were non-

tenured faculty members (e.g., assistant professors).

The average number of published papers per academic of various fields was calculated by Harzing and Alakangas (2016, p. 795). The results were 21 (Scopus) and 93 (Google Scholar) for the humanities; 34 (Scopus) and 115 (Google Scholar) for the social sciences; and 101 (Scopus) and 149 (Google Scholar) for the sciences. The EQCA sample reported an average of 95–107 publications across all categories (Table 1). Compared to the social science averages (34–115 publications), the average number of papers published by the EQCA experts is at the high end of the distribution.[5]

Whereas number of publications measures productivity, the *h*-index measures both productivity and scientific impact. The *h*-index is based on the highest number of publications (*h*) with *h* or more citations, which indicates publication impact. In the current study, the *h*-index used Scopus and Harzing based on Google Scholar. Databases such as Scopus can produce more comprehensive and systematic analyses of publication impact (in a field), compared to publication counts based on manual web searches or inspection of a scientist's vita.

Consistent with publication counts, the *h*-index revealed that EQCA experts were productive and impactful. Compared to German psychology professors (Tost & Rindermann, 2016, 2017), EQCA experts were more productive (EQCA *M* = 107 publications of intelligence researchers vs. *M* = 81 publications of German psychology professors) and had higher citation rates (Scopus *h*-index = 17 vs. 11, Harzing *h*-index = 22 vs. 17). A comparison with the social sciences revealed a similar pattern. According to Harzing and Alakangas (2016, p. 797), the mean *h*-index for the social sciences (based on 2015 data from Scopus) was 12.0 (*h*-index = 4.3 for humanities), which was lower than the mean *h*-index for EQCA experts (Scopus *h* = 17).

4.3. Worldviews (religious and political orientations)

Two thirds of EQCA experts did not belong to a religion (Table 2). Of those who did, 16% were Protestants, 7% were Catholics, and 3% were Jewish. EQCA experts were less likely to belong to a religion compared to the general public in the US and Europe (e.g., Christians: 71% in US [Pew Research Center, 2018a]; 42% in Netherlands, 80% in Italy [Pew Research Center, 2018b]). In contrast, two thirds of the EQCA sample identified with Christianity in childhood. The decline in Christianity from childhood to adulthood in the EQCA sample (mean age ≈ 50 years) may reflect a historical trend; however, low levels of religiosity are not unusual for people with high levels of intelligence (e.g., Lynn, Harvey, & Nyborg, 2009). It should be noted that the current study reported no IQ test results for the EQCA sample. However, people with PhDs, productive research records (notably, in intelligence research), and university professorships (i.e., most EQCA experts) would be expected to have above-average ability levels (e.g., Schmidt & Hunter, 2004, p. 164).

EQCA experts had a slightly left political orientation (*M* = 4.19) on a left (1) to center (5) to right (9) scale (Table 2, Fig. 2). The EQCA results are similar to those reported by Snyderman and Rothman (1988, p. 133) for their IQCS survey, which used a 1–7 scale (*M* = 3.19). (A mean of 3.19 on a 1–7 scale yields a mean of about 4.05 on a 1–9 scale.) The similar results suggest that the EQCA sample is representative of cognitive ability experts (at least for political affiliation).

The EQCA sample differed from the sample of social and personality psychologists in Inbar and Lammers's (2012) study, which reported a strong left (progressive, liberal) majority in psychology. Transforming

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[5] The average number of publications may be distorted by a small number of researchers with large publication counts. In contrast, the median number of publications would be less influenced by outliers. In the EQCA sample, the median number of publications was *Mdn* = 75 (*M* = 106.84), and the median *h*-index was *Mdn* = 11 (Scopus, *M* = 16.56) and *Mdn* = 17 (Harzing/Google Scholar, *M* = 22.44). Harzing and Alakangas (2016) did not provide medians.

their 1–7 scale to the EQCA 1–9 scale, the average political orientation of their sample would be around $M = 3.40$ (their 1–7 scale yielded a mean of 2.70, based on three political orientation items; Inbar & Lammers, 2012, p. 499). It should be noted that 80% of Inbar and Lammers's (2012, p. 498) sample was from the US, whereas 38% of the EQCA sample was from the US, a difference that may partly account for the results.

In the EQCA sample, political orientation was the most important variable to explain variability among experts. Its statistical impact was larger than that for gender, with correlations about |.10| to |.20| higher. For example, left (liberal) experts were more likely than right (conservative) experts to endorse a specific abilities view of intelligence, assume environmental effects for Black-White IQ gaps, assume bias in IQ testing, and be against IQ testing in immigration policies. In contrast, right (conservative) experts were more likely to endorse a g factor view of intelligence, assume genetic effects for Black-White IQ gaps, assume less bias in IQ testing, and favor IQ testing in immigration policies (Tables 9–11). In addition, left experts were more likely to report positive experiences with the media and in public debates, while right experts were more likely to report problems in publishing research.

Nevertheless, the higher correlations for political orientation did not always produce different majorities. For example, the g factor was endorsed by a majority of experts on both the left (58%) and the right (93%). Although the left's endorsement of g was less pronounced, it was still a majority. In contrast, 67% of the left opposed IQ testing in immigration, whereas 80% of the right recommended it. Similar to the EQCA, the IQCS found that "political perspective" was the most important background variable (correlations up to $r = .38$, on average $r = .23$ vs. $r = .18$ for gender, $r = .15$ for age, and $r = .04$ for childhood income; Snyderman & Rothman, 1988, p. 167), and had stronger effects compared to gender or expertise.

The imbalance of males and females in the EQCA sample (favoring males) and the correlations of gender with answers on scientific questions suggest that attention should be paid to background characteristics of intelligence researchers. Despite having a left (liberal) orientation, the EQCA sample showed more diversity in political orientation compared to psychology in general. The left orientation of the EQCA sample was more pronounced using a post-hoc categorization (1–4 for the left; 5 for the center; 6–9 for the right). Using this scheme, more than the double the number of experts identified with the left than with the right (54% vs. 24%). Political diversity is rarely observed for psychology, the social sciences, the humanities, or science in general (e.g., Duarte et al., 2015). Moreover, psychologists and professors have the most extreme left orientation of any profession (Bonica, 2010). Compared to professions with a right-conservative orientation and auto dealers, who have the most extreme right orientation of all, psychologists are more extreme in their left-liberal orientation (-1.5 vs. $+1.2$ on a scale from -2 to $+2$) than their counterparts in the extreme right. Similarly in the EQCA sample, experts with a left-liberal orientation were more likely than those with a right-conservative orientation to show a more extreme pattern, as indicated by the following results:

(1) Experts with a left orientation were more likely than those with a right orientation to be extreme in general political perspective. 25% of experts were very liberal/left (scale points 1 and 2), whereas 6% were very conservative/right (scale points 8 and 9) (Fig. 2).
(2) Experts who favored an environmental perspective for the US Black-White gap were more extreme than those who favored of a genetic perspective for the gap. 16% of experts reported a 100% environmental explanation, whereas 6% reported a 100% genetic explanation.
(3) Finally, experts against IQ testing in immigration policy were (to a certain degree) more extreme than those in favor of testing. 11.2% of experts strongly rejected the use of intelligence in immigration (scale points 1 and 2), whereas 8.6% strongly endorsed the use of intelligence in immigration (scale points 8 and 9).

According to Duarte et al. (2015, their Fig. 1), the leftward tilt in psychology emerged over the last three decades, leading to a 14:1 ratio of left (progressive, democratic) to right (conservative, republican) psychology faculty. More recent data show an even larger disparity (16.8:1, Langbert, 2018). The leftward drift is reinforced by a liberal bias among journalists (e.g., Groseclose & Milyo, 2005; Kuypers, 2002; Lichter, Rothman, & Lichter, 1986) and in Wikipedia (e.g., Greenstein & Zhu, 2012, 2018). In addition, there have been increasing disruptions and attacks against scientists with a perceived right orientation at university talks (e.g., Duarte et al., 2015; HXA Executive Team et al., 2018; Inbar & Lammers, 2012; Jussim, 2018). Student groups have interrupted lectures, courses, and invited talks, and in some cases violently attacked scientists and scholars with a perceived right orientation (e.g., Charles Murray; Arm, 2016; Beinart, 2017). Finally, these events parallel a growing political divide between progressive and conservative factions in the US and other countries (Pew Research Center, 2017, p. 7 f.). In the Pew survey, the gap between Democrats and Republicans in the US grew (in 10 political domains) from an average of 14.9% in 1994 to 35.8% in 2017, an increase of 20.9%. 20.8% of this increase (or 99.5% of the growth) was due to a shift to the left by Democrats, whereas 0.1% was due to a shift to the right by Republicans.

It could be argued that science should be oriented toward epistemic rationality, i.e., toward reasonable and well-founded methods and truth, and that other issues such as political orientation or gender representation are not important. However, as noted by Duarte et al. (2015), the current imbalance of political orientations in psychology can undermine the quality of psychological research. Possible consequences comprise political bias in all stages of research. Examples are given by Buss and von Hippel (2018), Ceci and Williams (2020), Jussim (2012), and Stevens et al. (2018): Political bias impacts selection of research topics, decisions by Institutional Review Boards (IRBs) to perform studies, funding of studies, interpretation of research, publication of research, reception and citation of studies, and promotion of researchers, all of which distorts the scientific process and perceptions about science. Jussim described such bias for the specific example of research on stereotypes resulting in limited support for research on stereotype accuracy, which usually confirms the accuracy of stereotypes about group differences. Despite receiving limited attention in science and the media, stereotype accuracy has been replicated in independent studies, reported in preregistered studies, and published in diverse outlets (e.g., Ashton & Esses, 1999; Johnson & Wilson, 2019; Jussim, 2012; Kirkegaard & Bjerrekær, 2016).

In addition, as argued by Sokal (2008) and Lindsay, Boghossian, and Pluckrose (2018), political bias in support of the *zeitgeist* in academia may have contributed to the publication of nonsense, either intentionally to expose a biased review process (Lindsay et al., 2018; Sokal, 2008), or unintentionally as faulty science (e.g., Muller et al., 2005; see critique by Hunt, 2011, p. 399)[6] or even fraud (LaCour & Green, 2014; Stapel & Lindenberg, 2011).[7]

Compared to social science and psychology in general, the more balanced political profile of the intelligence research field (see EQCA and IQCS samples) may have helped intelligence research avoid the publication of intended or non-intended nonsense, and fraud (e.g., Pinker, 2015) and reduce other research-related problems (e.g., the

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[6] E.g. one by research (e.g., Robertson, Smeets, Lubinski & Benbow, 2010) frequently disproved statement: "There is little evidence that those scoring at the very top of the range in standardized tests are likely to have more successful careers in the sciences." (Muller et al., 2005, p. 1043, in *Science*) Further fallacious polemics against ability tests in *Science*, e.g. Rotberg (1995).

[7] The studies of Stapel and Lindenberg (2011) and LaCour and Green (2014) concerned discrimination and were published in *Science*. LaCour and Green's (2014) publication was downloaded thousands of times in 2014 and 2015 ("Article Metrics", 2019) and received wide media attention, including in the *New York Times* (Benedict, 2014). Princeton University, a member of the prestigious Ivy League, had offered Michael LaCour a professorship (Oh, 2015).

replication crisis).[8] In contrast, less balanced (i.e., more skewed) political profiles may produce dogma and unquestioned ideology, which can lead to myopic viewpoints and less diversity of ideas in science.

Two early, alleged cases of fraud in intelligence research deserve mention as possible counterexamples. One is the Cyril Burt affair of the 1970s. The case concerned Burt's research on the heritability of IQ and social mobility, published in the 1960s (Gillie, 1976). Historical research on Burt's studies failed to substantiate the surmised fraud, and later studies using similar methods (e.g., twin methods for heritability) yielded similar results (e.g., Joynson, 1989; Tredoux, 2015).

The second case is the Milwaukee Project of the 1960s, which claimed to boost intelligence in children (about 10–40 IQ points) who received early childcare interventions (Heber, Garber, Harrington, Hoffmann, & Falender, 1972). The findings of the project were marred by later developments (e.g., Reynolds & Fletcher-Janzen, 2002, pp. 635–636; Sommer & Sommer, 1983), including the conviction of three project researchers for abuse of funding, problems in obtaining data to validate results, and the possibility that the study was not conducted. Despite these problems, other early intervention studies (e.g., Abecedarian and Perry Preschool Program) have shown at least short-term boosts in intelligence for low-IQ children who received early childcare interventions (Barnett, 1995; Ramey, Sparling, & Ramey, 2012).

4.4. Opinions about the g factor, intelligence testing, and controversial issues

76% of EQCA experts favored a *g* factor model of intelligence (rather than a specific abilities model). In contrast, 58% of the earlier IQCS sample from Snyderman and Rothman (1988, p. 71) favored a *g* factor model. The difference represents an increase of 18% for *g* models. A *g* factor model was also more controversial in a survey of industrial and organizational psychologists (Murphy et al., 2003, p. 668, "*g*-ocentric attitudes turned out to be more controversial"). The increase in endorsement from the earlier IQCS survey to the current EQCA survey may reflect the success of hierarchical models of intelligence, which assume that narrow abilities and a general factor can explain the correlations among specific abilities (e.g., Carroll, 2003). In contrast, models of multiple intelligences lack empirical support (Waterhouse, 2006).

The preference for a *g* factor model is consistent with results of keyword searches in the journal *Intelligence* using the Science Direct database and the journal/book title "intelligence." A web search conducted on November 20, 2018 (by David Becker) yielded 478 hits for "general factor" and 903 for "general intelligence," but only 68 for "multiple intelligences," equivalent to ratios of 88–12% or 93–7%, respectively. In addition, Pesta, Fuerst, and Kirkegaard (2018) conducted a keyword search and found the most hits for "*g* factor" compared to the 37 analyzed keywords (15.4% in 916 articles published in 2000–2016 in *Intelligence*). Separately, Reeve and Charles (2008) examined expert and non-expert opinions on the practical utility of a *g* factor and found that both experts and non-experts assumed a strong impact of the *g* factor for work, training, and organizational effectiveness. (Means on a scale of 1–5 ranged from 3.8 to 4.3 in the expert sample, and 3.2–3.4 in the non-expert sample.)

The use of separate test norms for subgroups was endorsed by a small minority of EQCA experts (between 11% and 24%; Table 3). Similar to IQCS experts (Snyderman & Rothman, 1988, pp. 73 f.), EQCA experts reported rather small test bias for examiner attributes (e.g., race, ethnicity, culture) ($M = 2.65$–3.89 on a scale from 1 to 9; Table 3). In contrast, EQCA experts attributed the most test bias to anxiety and motivation of test takers ($M = 4.75$ and $M = 5.38$, on a

scale from 1 to 9; Table 3). Murphy et al.'s (2003) survey of industrial and organizational psychologists also showed a rather positive assessment of the quality and usefulness of cognitive ability tests.

According to empirical studies, the effect of test anxiety on cognitive performance appears to be greater on more difficult (rather than easier) tasks ($r = -.45$ vs. $-.07$; Sommer & Arendasy, 2014). Such findings have been replicated and may reflect (understandably) higher levels of anxiety experienced by lower ability people, who struggle with difficult tasks (e.g., Reeve & Bonaccio, 2008; Sommer & Arendasy, 2014). Research on motivation and attitudes typically shows small correlations with cognitive performance, with correlations between motivation and school achievement based on PISA results around $r = .20$ (Täht, Must, Peets, & Kattel, 2014, p. 265). Similarly, growth mindsets and incremental beliefs about intelligence correlate with academic achievement only around $r = .10$ (Sisk, Burgoyne, Sun, Butler, & Macnamara, 2018). However, under low-stakes conditions where test results are unimportant, incentives can increase test performance (probably by increasing motivation) ($d = 0.64$; Duckworth, Quinn, Lynam, Loeber, & Stouthamer-Loeber, 2011). Such findings suggest that incentives can increase test takers' motivation, which may increase performance, at least under low-stakes conditions.

In sum, experts in the EQCA and IQCS surveys generally did not endorse a position of strong test bias for examiner attributes (e.g., race, ethnicity, culture) or test content (EQCA Table 3: average below 3 on a scale from 1 to 9, 43% no test content bias, 34% some content bias; IQCS: average below 2 on a scale from 1 to 4, Snyderman & Rothman, 1988, p. 121). International student assessments (TIMSS, PISA, PIRLS) and US scholastic aptitude tests (SAT, ACT, NAEP) carefully screen for item bias during scale development. Test bias is scant for misunderstood items, inaccurate translations, or group differences in predictive validity (Jensen, 1980; Wu, 2009). Larger effects may be attributable to non-representative samples or retest effects ($d = 0.33$, equivalent to 5 IQ points; Scharfen, Peters, & Holling, 2018). It is worth noting that gaps on achievement and IQ tests have been narrowing over the last few decades. For example, the gap between US White and Black students in NAEP was around 16 IQ points (favoring Whites) in the early 1970s and declined to 10 IQ points in the late 1980s (Rindermann & Thompson, 2013; Rushton & Jensen, 2010, their Fig. 3). Similar declines in the black-white gap have been observed on psychometric IQ tests such as the WAIS (Dickens & Flynn, 2006). Gap declines have been also observed on student assessment tests (PISA, TIMSS, PIRLS) between developed and developing countries (Meisenberg & Woodley, 2013).

A controversial topic is the cause of past and current US Black-White differences in IQ test results. In the IQSC survey (Snyderman & Rothman, 1988), a plurality (45%) of experts noted the influence of both genetic and environmental factors. In contrast, monocausal positions (i.e., genetic or environmental) were rare but were much more likely to be environmental (15%) than genetic (1%; Snyderman & Rothman, 1988, p. 128). In the current study, EQCA experts were asked what percentage of the US Black-White differences in IQ is, in their view, due to environment or genes. In general, EQCA experts gave a 50–50 (50% genes, 50% environment) response with a slight tilt to the environmental position (51% vs. 49%; Table 3). When EQCA experts were classified into discrete categories (genetic, environmental, or 50–50), 40% favored an environmental position, 43% a genetic position, and 17% assumed 50–50. The difference in the average versus discrete results may seem contradictory (average results tilted to the environment and discrete categories tilted to genes), except when extreme positions are considered. 16% of experts who favored an environmental perspective assumed a 100% environmental position, whereas only 6% of experts who favored a genetic perspective assumed a 100% genetic position (Fig. 3). That is, the opinion of "environmentalists" was more extreme than the opinion of "geneticists."

EQCA experts showed a balanced view of the causes of SES differences in Western societies (45% due to IQ, 55% due to non-IQ factors; Table 3). The positive effects of intelligence on SES were implicated in a

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[8] For example, Steven Pinker (2015) tweeted, "Irony: Replicability crisis in psych DOESN'T apply to IQ: huge n's, replicable results. But people hate the message."

meta-analysis of longitudinal studies (Strenze, 2007, p. 412), which indicated that intelligence was a stronger predictor of later income ($r = .21$) compared to parental education ($r = .15$), parental income ($r = .16$), and parental SES ($r = .15$). Similar results were found in a reanalysis of US NLSY data, which showed that cognitive ability measured at age 14–22 years had a stronger impact on later income at age 28–37 years ($\beta_{CA \rightarrow In37} = .29$) compared to parental income ($\beta_{In \rightarrow In37} = .16$; Rindermann & Ceci, 2018, Fig. A1).

4.5. Opinions about intelligence in the media and public debates

A loss of trust in traditional media outlets, such as the major US cable, newspaper, and broadcast companies (e.g., *CNN* and *New York Times*) has been observed over the last few decades (e.g., Pauwels & Picone, 2012; Swift, 2016). The trend may be related to the emergence of new media outlets on the Internet, which compete with traditional outlets, provide similar content for free, and present diverse views and commentary. These new media outlets include *The Conversation, Quillette, Vox,* and *Areo,* as well as blogs, videos (e.g. *YouTube*), and Twitter. Although the Internet is full of questionable sources, some blogs are maintained by scientists such as Lee Jussim's *Rabble Rouser* on *Psychology Today* and Peter Frost's *Evo and Proud.* Intelligence and related subjects are featured on blogs by Roberto Colom (*Roberto Colom,* in Spanish), Ronald Henss (*Blog Splitter1,* in German), James Thompson (*Psychological Comments*), and Jonathan Wai (*Finding the Next Einstein*). Blogs and other new media outlets are providing viewpoints that differ from those of traditional media outlets, which have lost their monopoly on information and opinion.

The loss of trust in traditional media is a worldwide phenomenon. Americans' trust in the media declined about 20% from 1997 to 2016 (Swift, 2016). In the UK, "The press" showed a drop from 53% to 27% between 1983 and 2012 in "the perception of how well major institutions are run," with only "Banks" showing a larger drop (Park, Bryson, Clery, Curtice, & Phillips, 2013, p. XV). In 2018, a Germany survey reported that a quarter of respondents rated confidence in the media as "low" or "very low," and a third noted a loss in confidence in the media over the last 2 years surveyed (PwC, 2018).

A similar loss of trust in the media can be found in experts on cognitive ability. The EQCA experts negatively rated all traditional media, including newspapers such as the *New York Times* or *El Pais* and state-owned or private broadcast and radio networks. (An exception was the German newspaper *Die Zeit,* which was possibly influenced by articles and books on intelligence of Dieter Zimmer, a retired journalist.) The ratings of the experts were between $M = 2.7$ and 4.9 on a scale from 1 to 9. In general, experts disagreed that the media accurately reports research, that competent experts are chosen, that reporting is rational, that important topics are selected, and that researchers are well treated (all answers below a score of 4 on a scale from 1 to 9; Table 4). In addition, experts saw public debates on intelligence research as based more on ideology than on science ($M = 2.97$ on a scale from 1, based on ideology, to 9, based on science; Table 4). In contrast, experts rated two Internet outlets (in 2013), the blogs of Steve Sailer and Anatoly Karlin, as accurately reporting issues on intelligence research ($M = 7.4$ and 6.1).

EQCA experts viewed the media much more negatively than the former IQCS experts (Snyderman & Rothman, 1988, p. 246). In the 1980s, IQCS experts rated the *New York Times* at $M = 4.62$ on a scale of 1 (very inaccurate) to 7 (very accurate). The IQCS ratings equate to $M = 5.9$ on our 1–9 scale, suggesting a modest positive perception. In contrast, EQCA experts rated the *New York Times* at $M = 3.81$ (1 [very inaccurate] to 9 [very accurate]), suggesting a negative perception. Similarly, IQCS experts rated television networks at $M = 3.09$ (IQCS 1–7 scale, equivalent to $M = 4.0$ on a 1–9 scale), whereas EQCA experts rated commercial television networks at $M = 2.67$ (1–9 scale). Even the *Wall Street Journal,* which published the *Mainstream Science on Intelligence* editorial (Gottfredson, 1994), lost trust among intelligence

researchers over the last few decades, declining from $M = 4.40$ in the IQCS survey (1–7 scale, equivalent to $M = 5.6$ on 1–9 scale) to 4.20 in the EQCA survey (1–9 scale). The declines in confidence between the IQCS survey (Snyderman & Rothman, 1988, p. 246; rescaled to 1–9) and the EQCA survey were significant for several media sources.[9]

The majority of experts still served as a source of information for the media (61%), with half of them engaging with the media several times (47% in the last 10 years; Table 4). The contact of experts with the media suggests that their negative impressions may be based (in part) on personal experience. Furthermore, the negative impressions might explain why so many intelligence researchers today use blogs, tweets, or new Internet newspapers (e.g., *The Conversation* or *Quillette*) to transmit their message and control their content.

4.6. Opinions about ideological bias in intelligence research

EQCA experts were also critical of their own research. For example, 34% of experts viewed the topic of intelligence and genes (including heritability) as ideologically exploited and abused in science ($M = 4.38$, on a scale from 1 to 9; Table 4). However, an even greater percentage viewed intelligence research as abused in politics (75%, $M = 6.45$). Unfortunately, the EQCA survey did not ask for sources of ideological bias. Some hints can be inferred from questions about hidden intentions to discriminate and inclination for group related hostility (including racism, items 32 and 33; Table 5). The means for these questions were $M = 2.61$ and 2.77, on a scale from 1 (low, no) to 9 (high, strong), with 82% and 78% of the sample, respectively, not seeing any intention to discriminate. These results contrast with published allegations of discriminatory intent and unfair treatment against intelligence research (e.g., Blinkhorn, 1982; Gould, 1981; Tengely-Evans, 2018; Woodley of Menie et al., 2018). Perhaps more convincing than estimates of ideological impact by experts in the field are analyses of people from outside the field, which may be less influenced by intradisciplinary viewpoint (cf. Segerstråle, 2000).

4.7. Expert opinions and biographical background variables

The nationality of experts generally correlated weakly and unreliably with criteria. One exception concerned the few experts from developing countries ($N = 3$), who were against the use of cognitive testing in immigration ($M = 1.67$, on a scale from 1 [no, never] to 9 [yes, always] versus all other national groups between $M = 4.56$ and 6.17; Table 6). A systematic pattern was observed for problems publishing research, with US experts reporting fewer problems than non-US experts (88% vs. 63–73% for experts from all other nations; Table 8). The lower rate of problems for US experts may be attributed to their mastery of high-level English, tacit knowledge of writing, and greater academic experience (PhD vs. not). The PhD rate was somewhat higher for US experts (89%) than for non-US experts (average 81%), and fewer experts with PhDs had problems publishing research ($r = -.13$; Table 8).

Experts with PhDs showed a slightly more "progressive" tendency, favoring environmental factors for the White-Black IQ-gap and rejecting the use of IQ tests in immigration. However, experts with PhDs were generally against the use of separate subgroup norms (Table 6) and were more likely to engage with the media ($r = .18$; Table 7). Older experts showed a more "progressive" tendency on some issues (relatively more were against *g* factor; Table 9), and a more "conservative" tendency on other issues (relatively more viewed IQ as a factor for SES;

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[9] Significant declines in confidence were observed for commercial television networks ($t = -1.795$; $p = .037$), National Public Radio ($t = -2.555$; $p = .006$) and the New York Times ($t = -2.420$; $p = .009$), but not for Newsweek, Time, the Wall Street Journal or Washington Post ($p > .050$). Other media sources were not evaluated by the IQCS.

Table 9). Similar to experts with PhDs, older experts had fewer problems publishing research ($\beta = -.24$; Table 11). However, age of experts showed no clear or strong pattern for other criteria (Tables 9–11). Separately, childhood income correlated unexpectedly with certain criteria (e.g., relatively against the *g* factor, $r = -.29$; Table 9). In particular, while childhood income correlated positively with conservative views in politics ($r = .23$), it showed a "progressive" tendency on other research issues (e.g., seeing more bias in IQ testing; seeing more discrimination in IQ research; being relatively against a *g* factor; Tables 9–11). In short, the pattern for age and childhood income varied across criteria and was difficult to neatly characterize.

The effects of gender can be interpreted in the context of egalitarian norms and equality (of outcomes), which differentiate males and females (e.g., Fehr, Glätzle-Rützler, & Sutter, 2013). Females were more likely than males to identify as politically liberal ($r = |.26|$). In particular, females tended to favor separate subgroup norms, favor environmental factors, assume bias in IQ testing, reject the use of IQ in immigration, and assume more discrimination in testing (Tables 6–11). However, the gender differences were relative, not absolute. The responses of males and females were usually in the same direction. For example, 86% of males and 64% of females did not report any hidden intention to unfairly discriminate among groups (Table 8), and both genders (81% of males, 64% of females) endorsed a *g* factor (Table 6). Nevertheless, on political issues, males and females sometimes had opposite views. For example, 60% of males endorsed the use of cognitive tests in immigration policies, whereas 92% of females were against it. All biographical variables together revealed a smaller impact on experts' answers than political orientations.

5. Limitations and outlook

A total of 265 experts responded to the EQCA survey, yielding a response rate of 20% of all invitations. The response rate of the EQCA survey is much lower than the one reported in the IQCS survey (65%; Snyderman & Rothman, 1988), but more similar to the one reported in the survey of the Society for Industrial and Organizational Psychology (32%; Murphy et al., 2003) and in a prior survey of ISIR members (38%; Reeve & Charles, 2008). The current study focused on questions answered by around 60–100 respondents. The low response rates may reflect a paucity of experts who study cognitive ability, with even fewer studying controversial issues (e.g., group differences in IQ), which were a focus of the current study. Although the EQCA sample was relatively small, our recruitment criteria (e.g., publications on intelligence) most likely excluded people with only tangential knowledge of the subject matter, which can distort answers. In addition, the low response rates may be partly attributable to self-selection by the experts, who would be well-informed and well-qualified to respond to the EQCA (for similar arguments, see Rindermann et al., 2016, 2017). Finally, we have no evidence of political bias in participation rates, and we personally know as many people from the "right" as from the "left" who refused to participate.

The EQCA sample reflects the demographics of intelligence researchers in 2013–2014. Future research could periodically sample (perhaps every decade or two) expert opinions on key issues and examine whether the opinions track changes in demographic factors such as political views, gender, and other variables (e.g., religion, ethnicity, and nationality). For a broader perspective, such studies could be done by researchers from outside the field of intelligence research (cf. Segerstråle, 2000; Snyderman & Rothman, 1988).

6. Conclusion: a more balanced background is needed

In the current study, the EQCA sample leaned slightly to the left (54%, Table 2). The left tilt of the EQCA sample was small compared to the left tilt observed for psychologists overall, who overwhelmingly identify as left-liberal (90% or higher, Duarte et al., 2015). Researchers, academics, and journalists lean strongly to the left on a traditional left-liberal versus right-conservative scale. This left tilt can lead to ideological bias in universities and scientific research. It can also bias the selection of research questions and the interpretation of results, which can distort findings and reinforce ideology and the current political climate in academia. In addition, the EQCA sample was predominantly male (83%), far exceeding the male share of APA membership, which is mostly female (57%, APA Center for Workforce Studies, 2015).

The EQCA experts' political orientation (left-right) and gender were associated with positions on controversial issues (e.g., race differences and immigration), perceptions of political bias in the media, and even models of intelligence (e.g., *g* factor vs. specific abilities). The relations among political views, gender, and other background factors (e.g., nationality, age, income) highlight the need to attract talented people with diverse backgrounds and viewpoints. Research would benefit from balance and pluralism in science, which can broaden perspectives and increase viewpoint diversity.

Acknowledgements

Online supplement

An online supplement presents the Expert Questionnaire on Cognitive Ability (EQCA).

Appendix

Table A1
Opinions of journalists, science magazine editors and intelligence experts from Snyderman and Rothman (1988, pp. 285, 287).

Question	Respondents	Percentages
IQ-differences of American Whites at least partly due to genetic differences? (% strongly agree and agree)	Journalists	67%
	Editors	74%
	Experts	94%[a]
Opinion of the source of Black-White differences in IQ (% entirely environmental)	Journalists	34%
	Editors	47%
	Experts	17%
Tests biased against American Blacks (% moderately and extremely biased)	Journalists	42%
	Editors	47%
	Experts	28%

(continued on next page)

Table A1 (*continued*)

Question	Respondents	Percentages
Political ideology (% most liberal 1 and 2 on a 1–7 liberal to conservative scale)	Journalists	45%
	Editors	76%
	Experts	32%

Notes: Popular science magazines (e.g., *Scientific American*); "percentages" refer to the mean percentage of respondents who selected each option; original scales are converted to a 0–100 scale.

[a] No numerical results are reported in their Table E1 but their text reported that 94% of experts agreed (Snyderman & Rothman, 1988, p. 284).

Table A2

Questions from the EQCA reported in this study.

Category	Question (number in EQCA)	Scale level
(1) Socio-demographic background	Sex/Gender (54)[a]	dichotomous (m/f)
	Age (55)[a]	metric (years)
	Ethnic or nationality group, e.g. Irish (58)[a]	nominal
	Current nationality, e.g. USA (59)	nominal
	Childhood family income compared to average (60)[a]	below 1–9 above
(2) Academic work and expertise	Field of study (42)	nominal
	PhD (43)	dichotomous (Y/N)
	Scientist or journalist (44)	dichotomous (s/j)
	Department, e.g. psychology or education (45)	nominal
	Principal professional position, e.g. tenured (46)[a]	nominal
	Number of written articles (51)[a]	nominal/metric
	Scientific publishing and/or editor (52)[a]	dichotomous (Y/N)
	Speeches, panel discussion etc. in past 10 years (47)[a]	metric (times)
	h-index (53)	metric (*h*-index)
(3) Worldviews	Childhood religion, e.g. Catholic (61)[a]	nominal
	Current religion, e.g. Protestant (61)[a]	nominal
	General political perspective (57)[a]	left 1–9 right
	Specific political, e.g. affirmative action (56)[a]	left 1–9 right (inverted)
(4) Opinions toward key issues in intelligence research and policy	Perspective toward the *g* factor (6)[a]	specific 1–9 general
	Separate test norms for subgroups (9)	dichotomous (Y/N)
	Heritability of US Black-White IQ differences (10)[a]	metric (%)
	IQ as cause of SES in Western societies (11)[a]	metric (%)
	Bias in cognitive ability testing (12)[a]	low 1–9 large
	Racial/ethnic content bias in testing (13)[a]	low 1–4 large
	Cognitive ability in immigration policy (34)	never 1–9 always
(5) Intelligence research in media and public	Accuracy of media, e.g. New York Times (19)[a]	inacc. 1–9 accurate
	Hesitation in opinion expression (20)[a]	dichotomous (Y/N)
	Treatment of intelligence in media (21; 22)	low 1–9 high
	Problems with media (23)	dichotomous (Y/N)
	Speaking about certain topics become easier (29)	difficult 1–9 easier
	Public debates: ideology vs. science (30)	ideology 1–9 science
	IQ and genes: ideologically exploited (31)	no 1–9 strongly
	Working with media in the past 10 years (48)[a]	metric (times)
(6) Reflections about intelligence research	Problems publishing IQ research (24)	dichotomous (Y/N)
	Hidden discrimination in IQ research (32)	no, low 1–9 yes, high
	Group-focused hostility in IQ research (33)	no, low 1–9 yes, high
	Freedom of gene-IQ research vs. social peace (38)	dichotomous (Y/N)
	Innovativity and relevance rating of scientists (25)[a]	low 1–9 high

Notes: Questions are abbreviated; question numbers are reported in parentheses (column 2); additional details (e.g., coding) are described in the analyses section.

[a] Marks questions based on those used by Snyderman and Rothman (1988).

Table A3

Questions on socio-demographic background.

Item	M or %	*SD*	*N*
Sex/Gender (54)	83% male	–	72
	17% female		
Age (55)	49.45y	14.87	77
Ethnic or nationality ancestry (58)[a]	(175.41%)	–	
English, Scottish, Welsh	40.05%	38.16	41
German	39.60%	38.60	43
Scandinavian	28.19%	39.84	26
Jewish[b]	23.19%	26.65	28
Irish	10.07%	14.62	30
Other (< 10%)	34.31%	24.76	29
Current nationality (59)	(100%)	–	

(*continued on next page*)

Table A3 (*continued*)

Item	M or %	SD	N
USA	38.03%	–	27
Germany	16.90%	–	12
Scandinavia	8.45%	–	6
UK	7.04%	–	5
Spain	7.04%	–	5
Canada	5.63%	–	4
Australia/New Zealand	5.63%	–	4
Italy	2.82%	–	2
South America	2.82%	–	2
Other nationalities	5.60%	–	4
Childhood family income, 5 = average, 1–9 (60)	5.55	2.04	76

Notes: Question numbers are reported in parentheses.

[a] Percentages are reported independently for each item, so the sum of all items is > 100%; "Other" for "ethnic or nationality ancestry": African American (1.00%), Central or South American (2.40%), Dutch (4.82%), French (7.67%), Italian (7.24%), Native American (0.50%), Polish (5.52%), Turkish-Arabic (0.86%); "Other nationalities" for "current nationality": Arabian-Muslim countries, Austria, China, Eastern Europe, France, Greece, Ireland, Israel, Japan, Netherlands, Portugal, Russia, sub-Sahara Africa, Switzerland, unspecified.

[b] Summed from replies to options "Jewish, Eastern European" and "Jewish, German or Austrian".

Table A4

Correlations between attributes of experts.

Items	Gender	PhD	Age	Childhood family income	Written articles	General political perspective
Gender (sex, 54, 1 = female, 2 = male)		−.06	.29	.06	.18	.26
PhD (43, 0 = no, 1 = PhD)	$p = .64$		.30	.00	.12	.16
Age (55)	$p = .01$	$p = .008$		−.33	.45	.18
Childhood family income (60)	$p = .59$	$p = .996$	$p = .004$		−.02	.23
Written articles (51)	$p = .16$	$p = .32$	$p < .001$	.848		.09
General political perspective (57)	$p = .046$	$p = .19$	$p = .144$	.068	.511	

Notes: General political perspective ranged from 1 (left) to 9 (right). Correlations are reported above the diagonal and *p*-values are below the diagonal (pairwise deletion, N = 60–77); Item 60 (childhood income) is based on within-country comparisons: "Compared to other families in your country at the time, how would you characterize your childhood family income? Please mark one from 1 (well below average) to 9 (well above average) or no answer."

Table A5

Means of answers for balanced and normally distributed political perspectives (simulation study).

Item	M or % (given sample)	M or % (equal)	M or % (normal)	N
g factor, 1 = specific, 9 = general (6)	6.82	7.16	7.20	62
Separate test norms for subgroups (9), answer "no"				
a. Blacks and Whites in the US	84%	87%	84%	55
b. Ethnic-racial groups in general	82%	85%	84%	56
c. Ethnic groups in general	79%	81%	79%	56
d. Social groups in general	81%	83%	82%	57
e. Natives and immigrants	70%	76%	72%	58
f. Richer and poorer	86%	89%	88%	58
Heritability of the US Black-White difference in IQ (10)				
Percentage environmental	49.31	46.62	44.56	58
Percentage genetic	50.69	53.38	55.44	58
IQ as cause of SES in Western societies (11)				
Percentage by IQ	45.54	48.31	49.57	65
Percentage by non-IQ factors	54.46	51.69	50.43	65
Bias in IQ testing, 1 = no biasing effect, 9 = large (12)				
a. Race/ethnicity of the examiner	2.46	2.22	2.15	63
b. Language or dialect of the examiner	3.49	3.28	3.12	63
c. Attitude of the examiner toward the group in question	3.90	3.55	3.42	62
d. Test taker anxiety	4.59	4.17	4.21	64
e. Test taker motivation	5.30	4.89	5.01	64
Racial/ethnic content bias in testing (13)	1.76	1.69	1.68	63
Cognitive ability in immigration policy, 1 = no, never, 9 = yes, always (34)	4.71	5.50	5.37	65
Treatment of intelligence by media, scale 1 (negative) to 9 (positive) (21, 22)				
a. Science is correctly reported	3.57	3.36	3.45	60
b. Competent experts are chosen	3.43	3.21	3.22	63
c. Reporting is rational	3.46	3.15	3.25	63
d. Important topics are chosen	3.32	3.05	3.18	62
e. Treatment of researchers	3.90	3.64	3.73	62
Hesitation in opinion expression (20)	50%	55%	51%	52
Problems with media, percentage "yes" (23)	27%	25%	23%	52

Table A5 (*continued*)

Item	M or % (given sample)	M or % (equal)	M or % (normal)	N
Speaking about certain topics becoming easier or more difficult, 1 = more difficult, 5 stable, 9 = easier (29)				
a. Intelligence	5.30	4.69	5.05	60
b. Genes (incl. heritability)	5.72	5.15	5.45	60
c. Relationship between intelligence and genes	5.27	4.70	4.96	60
Opinion about public debates, arguments more based on ideology (1) or on science (9) (30)	3.11	2.70	2.82	63
Ideology exploitation and abuse of the topic intelligence and genes, 1 = not, 9 = strongly (31)				
a. In politics abused	6.27	6.45	5.99	56
b. In science abused	4.24	3.98	4.04	59
Working with media in the past 10 years (48)				
a. Served as a source (frequency)	3.98	3.91	3.88	61
b. Declined to serve as a source (frequency)	1.48	1.13	1.37	59
c. Written letters (frequency)	1.62	2.38	3.07	60
Problems publishing research on intelligence (yes/no) (24)	.19	.20	.15	47
Hidden intention to discrimination in intelligence research, scale 1 (no intentions) to 9 (strong intentions) (32)	2.60	2.31	2.54	62
Inclination for group related hostility (incl. racism), scale 1 (no inclination) to 9 (strong inclination) (33)	2.78	2.39	2.60	63
Freedom of research on genes of group differences in intelligence vs. social peace, 0 = no, 0.5 = only with cautiousness, 1 = yes (6) (38)	.75	.81	.77	63

Notes: Analyses examined only participants with responses; "given sample" reports results for the empirical sample; "equal distribution" reports results assuming equal representation of all political perspectives (1–9); "normal" reports results assuming a normal distribution with centrist categories represented more frequently (1 and 9 weighted 1; 2 and 8 weighted 2; 3 and 7 weighted 4; 4 and 6 weighted 6; and 5 weighted 7).

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