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Current Opinion in Psychology

An intergroup perspective on evolutionary scepticism

--Manuscript Draft--

Manuscript Number:	COPSYC-D-26-00022R1
Full Title:	An intergroup perspective on evolutionary scepticism
Article Type:	Trust in Science and Beyond (2026)
Short Title:	An intergroup perspective on evolutionary scepticism
Keywords:	Evolution; Religion; Social Identity; Group Processes
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Abstract:	This paper reviews findings of nine large representative surveys assessing people's evolutionary acceptance and whether it relates to people's (non-) religious identities. It summarises findings of two surveys conducted within the UK and Canada in 2017 and of seven surveys conducted within the UK, Canada, Australia, US, Argentina, Spain, and Germany in 2023. Findings show that evolution acceptance is high. Dissecting the findings shows that evolution rejection might be partially driven by social cognitive processes that facilitate group boundaries. Using a social identity lens and social cognitive theories such as social-projection and counter-projection when interpreting the findings, it provides novel insights into how the perception of a necessary conflict between science and religion drives public perceptions of evolution scepticism.
Author Comments:	

Table 1: Agreement with statements across 9 surveys

	UK	Canada	UK	Canada	US	Australia	Argentina	Spain	Germany
	2017	2017	2023	2023	2023	2023	2023	2023	2023
Support for Creationism	9%	15%	12%	12%	24%	14%	18%	6%	7%
Support for Human Evolution (religious participants)	62%	54%	76%	74%	65%	72%	76%	85%	75%
Evolution can Explaining Human Consciousness	46%	45%	57%	64%	54%	64%	66%	75%	63%
Evolution Identification	44%	48%	40%	53%	47%	46%	65%	61%	44%
“I know a fair bit about evolutionary theory”	NA	NA	22%	29%	47%	25%	27%	49%	22%
Media portrays Science and Religion more in conflict than I experience	66%	48%	50%	46%	48%	45%	29%	32%	29%

Supplementary Materials

1. Acceptance of Evolution – Self Categorization Measure

People have different views about the origin of species and development of life on Earth. Which of the following statements comes closest to your view about the origin and development of life on Earth?

Humans and other living things were created by God and have always existed in their current form.

Humans and other living things evolved over time, in a process guided by God.

Humans and other living things evolved over time as a result of natural selection, in which God played no part.

I have another view of the origin of species and development of life on Earth which isn't included in this list.

I don't know / I do not have a view on the origin of species and the development of life on Earth.

2. Logistic Regression Analysis: religious identification and difficulty of accepting evolutionary theory in regard to own belief as a predictor of evolution acceptance

To conduct this analysis a binary variable was created (0 = evolution rejection “*Humans and other living things were created by God and have always existed in their current form*”; 1= evolution acceptance “*Humans and other living things evolved over time, in a process guided by God & Humans and other living things evolved over time as a result of natural selection, in which God played no part*”). This binary variable was entered as dependent variable into a binary logistic regression analysis. Participants who chose the other two options were not included in the analysis. (Non-) Religious identification (1 = religious; 2= non-religious) and difficulty accepting evolutionary theory in regard to peoples own beliefs (1= very difficult; 7 = very easy) were entered as co-variables.. For both the UK and Canada, the results indicate that the overall model is significant. Moreover, for both datasets, data showed that people’s difficulty of accepting evolutionary science in reference to people’s personal beliefs was a stronger predictor for evolution acceptance than people’s (non-) religious identity – see Table 2.

Table 2 – Logistic Regression UK

Country		B	SE	Wald	Df	P	Nagelkerke R -square
UK	Religious Identification	.93	.23	17.00	1	<.001	
	Difficulty of accepting evolutionary science in reference to your personal beliefs	1.04	.07	217.01	1	<.001	
	Model						.47
Canada	Religious Identification	1.23	.17	50.31	1	<.001	
	Difficulty of accepting evolutionary science in reference to your personal beliefs	.63	.05	181.12	1	<.001	
	Model						.35

3. Interest in Science

Testing whether participants who have difficulty accepting evolutionary science in reference to their personal beliefs are interested in science by testing their response against the midpoint/neutral response for the UK and Canada - Table 3.

Table 3 – Interest in Science – UK

Country		M	SD	T	df	P
UK	Scientific discoveries	5.05	1.37	12.11	250	<.001
	Discoveries within the medical field	5.40	1.47	13.12	250	<.001
	New ideas in genetics and genomics	4.58	1.53	6.02	250	<.001
Canada	Scientific discoveries	5.46	1.38	10.98	398	<.001
	Discoveries within the medical field	5.04	1.66	12.59	398	<.001
	New ideas in genetics and genomics	4.56	1.64	6.75	398	<.001

4. Correlation Analysis social projection and counter-projection:

Table 4 - Correlation Analysis – Neutral Target – Member of the general public

	Participants Religious Identification	Correlation	p
UK	Religious	.32	<.001
	Non-religious	.33	<.001
Canada	Religious	.34	<.001
	Non-religious	.28	<.001

Table 5 – Correlation Analysis – Religious Target

	Participants Religious Identification	Correlation	p
UK	Religious	.32	<.001
	Non-religious	-.13	<.001
Canada	Religious	.29	<.001
	Non-religious	-.22	<.001

Declaration of interests

☐The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

☒The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:

Carola Leicht reports financial support was provided by Templeton Religion Trust. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Many thanks for your feedback on my manuscript.

You requested one change, to avoid double-barred titles. So what about: An intergroup perspective on evolutionary scepticism.

I changed the title of the manuscript to your suggestion:

An intergroup perspective on evolutionary scepticism.

Many thanks for your comments and feedback.

With best wishes, Carola

Credit Author Statement:

Carola Leicht : Conceptualization, Writing- Original draft preparation, Writing- Reviewing and Editing,

An intergroup perspective on evolutionary scepticism

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Wordcount (excluding references and abstract): 2190

Author note and funding

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Abstract

This paper reviews findings of nine large representative surveys assessing people's evolutionary acceptance and whether it relates to people's (non-) religious identities. It summarises findings of two surveys conducted within the UK and Canada in 2017 and of seven surveys conducted within the UK, Canada, Australia, US, Argentina, Spain, and Germany in 2023. Findings show that evolution acceptance is high. Dissecting the findings shows that evolution rejection might be partially driven by social cognitive processes that facilitate group boundaries. Using a social identity lens and social cognitive theories such as social-projection and counter-projection when interpreting the findings, it provides novel insights into how the perception of a necessary conflict between science and religion drives public perceptions of evolution scepticism.

Keywords: Evolution, Religion, Social Identity, Group Processes

“1 in 10 Britons do not believe in evolution” [1] (Fernandez, 3.9.2017)

This was the printed headline of an extremely popular daily newspaper outlet regarding the results of two large representative surveys assessing people’s evolution and their (non-)religious identities across the UK and Canada. The acceptance of evolution in relation to people’s (non-) religious identities has mainly been addressed within the US, for example by surveys conducted by Gallup [2, 3]. Whilst in 2017 there was growing social scientific expertise on how scientists perceived the relationship between evolutionary science and religion, there was only a limited understanding on how publics viewed the relationship between evolutionary science and religion especially outside the US [4,5,6]. The surveys presented here aimed to close this gap as part of a wider research projects on people’s perception of the relationship between evolution and religion.

It is striking that despite the survey results stressing the general acceptance of evolution across both countries [7], the newspaper headline focused on how many Britons rejected evolution. The aim of this article is to outline and summarise findings on public acceptance of evolution within large representative surveys over the past 10 years. This includes findings of two surveys conducted in 2017 across Canada and the UK, and findings from surveys in seven countries in 2023: UK, US, Canada, Australia, Argentina, Germany, and Spain. Results show that evolutionary scepticism is less prevalent than public narratives such as the newspaper headline make it out to be. It will also outline how theories of group processes and inter-group relations can shed light onto the process that may contribute to this overinflated perception of evolutionary scepticism.

1. Surveys Overview

The main goal of all nine surveys was to explore people’s acceptance or rejection of evolution and how it may or may not relate to people’s (non-) religious identities. The surveys were collected via YouGov, a public opinion and data company, between May and June of 2017, and between May and June 2023. Each survey collected approximately 2000 respondents, and all analysis is conducted on weighted data to ensure national representativeness. Measures were rigorously designed in 2017 [3] and in 2023, to ensure validity, translated, back translated, and cognitively tested for each non-English speaking sample [8,9].

2. Rejection of Evolution?

1 Research on evolution rejection and creationism is predominantly conducted within
2 the US, with limited research in Europe or across the globe [3,4,5,6]. As reviewed by Elsdon-
3 Baker [9], most surveys use a self-categorization measure to assess evolution acceptance.
4 Participants must choose one option which best reflects their stance on evolution,
5 representing a (a) creationist position (b) theistic evolutionary position (c) non-theistic
6 evolutionary position (d) having a different view or (e) not knowing/having no view – see
7 supplementary material.
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13 Elsdon-Baker [10] argues those self-categorization measures and the issues framing
14 around it can overinflate creationist stances. The surveys and their results summarised in this
15 article aimed to gain a more detailed reflection of evolution rejection within both the UK,
16 Canada in 2017, and across seven countries in 2023. The surveys included a number of
17 measures to investigate how the acceptance or rejection of evolution could be understood in
18 finer detail by relating it to (a) people’s (non-) religious identity, (b) people’s acceptance or
19 rejection of human evolution, (c) how easy or difficult they themselves (d) as well as
20 members of other social groups may find it to accept evolutionary science in reference to
21 their own personal beliefs and (e) the importance of evolutionary science to people’s sense of
22 self [11,12,13,14,15,16,17,18,19].
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32 As hidden within the newspaper headline in 2017, most of the UK and Canadian
33 public accepted evolution– see Table 1. Even when it comes specifically to human evolution,
34 which religious people often find most difficult to support [20,21], most religious British and
35 Canadian respondents supported the statement that “evolutionary processes explain how all
36 organisms, including humans, have developed and continue to develop”. The support for
37 creationism was similarly low across all countries in 2023 with Spain and Germany having
38 the lowest support for creationism, followed by Canada and the UK, then Australia, then
39 Argentina with the highest support within the US – see Table 1. Again, even when it comes to
40 specifically human evolution and only looking at people who identify as religious, the
41 majority within all seven countries in 2023 agreed that “evolutionary processes explain how
42 all organisms, including humans, have developed and continue to develop” - see Table 1.
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53 So far, the surveys clearly showed that there is a strong acceptance of evolution across
54 the UK, Canada, Germany, Spain, Argentina, Australia, and the US. However, one striking
55 finding was that, when asked about whether evolutionary processes can explain *human*
56 *consciousness*, both religious and non-religious respondents were less likely to agree. In
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2017, just under half of the religious respondents supported this notion. However, about one-third of non-religious respondents also had trouble supporting this notion and even 19% of UK atheists and 38% of Canadian Atheist struggled with it. Whilst the sub-sample of atheists is small (UK: N = 274 UK; Canada: N = 191) it shows that for some people it seems difficult to apply evolutionary processes to some aspects of being human [7, 9]. When asked a similar question in 2023 “Evolutionary processes can explain the existence of human consciousness” there was a slight increase of UK and Canadian respondents agreeing with the statement and the lowest agreement in the US, the highest within Spain, with Argentina, Australia, and German respondents in between. – see Table 1 [11,12,13,14,15,16,17,18,19].

3. Difficulty of acceptance of evolution in regard to people’s personal beliefs

Although most respondents, independent of their religiosity in the UK and in Canada accepted evolution, these surveys were also able to explore whether evolution rejection is related to people’s difficulty of accepting evolutionary theory in reference to their own beliefs. In 2017 only a small proportion of religious (UK: 19%; Canada:29%) and non-religious participant’s (UK: 5%; Canada: 10%) found it difficult to accept evolution in reference to their beliefs. When probed further the main reason as to why participants experienced this difficulty was because of concerns relating to human evolution [7,11].

Riley and Elsdon-Baker [8] argue that there is a tendency to focus on the religious people rejecting evolution, thereby neglecting a sizable population that rejects evolution for other reasons. To investigate this further, and to see if religious identity is the key factor of evolution rejection, I used logistic regressions to test whether (non-) religious identification or perceived difficulty of accepting evolution is more predictive of evolution acceptance. The data showed that in both countries, the difficulty of accepting evolutionary theory in regard to the participant’s own personal belief was more predictive than participants religious identification – see supplementary material. This further underpins research and theory outlining that if science threatens beliefs in general, and with that the meaning making of people’s reality, they are more likely to reject scientific facts [22]. It is additionally noteworthy that even participants who found it difficult to accept evolutionary science in relation to their own personal beliefs were still interested in scientific discoveries in general – see supplementary material.

3.1.The role of projection and counter-projection

One striking finding across the surveys was, that whilst participant's mostly find it easy to accept evolutionary science in regard to their *own* personal beliefs, when asked about how difficult *others* may find it, it depends on the target's (non-)religious identity and whether this identity is shared. If asked about a general member of the public, participants indicate that the person would find it easy to accept evolutionary science in regard to their personal beliefs – a process called social projection [23,24,25]. This is the case for both religious and non-religious participants in both countries. If religious participants are asked about a member of the public who is religious, participants socially project their own answer to the religious target, and state that it is not difficult. However, if non-religious participants are asked the same, to what extent a religious person would find it easy to reconcile information about evolutionary science with their personal beliefs, they report that the religious target would find it difficult – see Supplementary Material. This mismatch between what religious individuals actually experience, with the majority finding it easy to accept evolutionary science in relation to their beliefs, and what non-religious participants believe religious people experience (difficulty) can be explained by a process called counter-projection which helps groups to establish inter-group boundaries and negatively affect attitudes towards religious people [26,27].

4. Social Identification with Evolutionary Science

Recent research argues that science has become an important social or cultural identity [28,29]. One question all nine surveys asked was the extent participants felt that evolutionary science was important to their sense of self, with very high agreement across all surveys- see Table 1. The 2023 surveys also asked participants if they have heard of evolutionary science and how much they know about it. Within each country over 90% of respondents indicated that they had heard about evolutionary, but except for Spain only a minority of participants stated that they know “a fair bit or a lot about it” – see Table 1. This is in line with qualitative work, where participants indicated to strongly identify with evolutionary science but are less clear about the specifics of evolutionary theory [28]. Other research shows similar divergence between people's understanding of evolutionary theory and their acceptance of evolution [e.g. 30,31].

5. Evolution scepticism – an intergroup process

A common response when asking people about their acceptance of evolutionary theory is “I believe in evolution,” implying that they are at least subconsciously aware of

1 their lack of knowledge. However, believing in something is also associated with social
2 identities, which indicates a sense of belonging to a social group where everyone shares a
3 certain belief or normative understanding [32,33,34,35]. The social identity approach
4 postulates that people's identities are constructed on a continuum from people's idiosyncratic
5 characteristics and beliefs to characteristics they share with others who form part of their
6 ingroups, such as for example their gender, their nationality or their (non-) religious identity
7 [31]. In this context, the statement "I believe in evolution" may be more of a normative
8 stance that expresses people's social identity as belonging to "rational and progressive
9 thinkers" that is often equated with being non-religious [3,8]. The surveys summarised here
10 also asked participants to what extent they thought the media represents evolutionary science
11 and religion as being more in conflict than they themselves perceive them to be. Looking at
12 the data shows an interesting divide. In all native English-speaking countries, the number of
13 participants agreeing with this statement is at least around 50%, whereas in non-English
14 speaking countries agreement with this statement is closer to the 30%— see Table 1. What is
15 remarkable is that within these countries (UK, Canada, US, Australia) there are also
16 prominent (predominantly male) scientific leaders proudly stating their scientific education,
17 scientific thinking and scientific progress is part of their atheistic self-identification
18 [36,37,38]. Coupled with secularisation thesis narratives, this highlights perceptions of a link
19 between non-religious identity formation and the science versus religion conflict narrative.
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35 Research on religious individual's perceived belonging and interest in natural science
36 and wider STEM fields has shown that perceptions of a necessary conflict between science
37 and religion can negatively impact progression and career success within those fields and
38 professions [39,40,41]. Looking at the survey data, it is noteworthy that in those countries
39 where participants felt that there is less media narratives around a necessary conflict between
40 science and religion, hence less perceived normative display of a necessary conflict between
41 science and religion, identification with evolutionary science seems to be higher, rejection of
42 evolution significantly lower, and acceptance of even very difficult concepts such as
43 attributing human consciousness to evolutionary processes higher. This could indicate, that
44 evolutionary scepticism may be partially driven by inter- group process to establish group
45 boundaries and optimise inter-group distinction. It could be that within those countries
46 evolutionary acceptance is a normative claim of secular non-religious identity, as it provides a
47 clear identity marker. Whereas in those countries where there is less normative stance of a
48 necessary conflict between science and religion within the wider media narrative means that
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religious individuals do not necessarily blur inter-group boundaries by accepting evolution. Coupled with other findings reported earlier, such as the fact that it is the perceived difficulty of accepting evolutionary theory in regards to ones own personal beliefs that predicts evolution acceptance over people's (non-)religious identity, and the fact that counter-projection provides clear group boundaries for non-religious individuals, indicates that evolution scepticism may be an attitude that is driven by a number of complex social cognitive processes including those that drive inter-group distinctions.

6. Conclusion

Across nine large representative surveys it is evident that evolution acceptance is high, independent of people's (non-) religious identities. Findings show that rather than religious identity, it is people's difficulty of accepting evolutionary theory in reference to their own personal beliefs that predicts the acceptance or rejection of evolution. Moreover, processes such as social projection and counter-projection facilitate group distinctions between individuals who belief or do not belief in evolution, with those who align with secularised identities claiming evolution acceptance as their normative in-group stance.

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