

1/3/2024

Dear Survey Respondent,

Thank you for taking the survey. As promised, this document reports the frequencies of responses to each question so you can see how your views compare to those of the other bioengineering professors in the U.S. These report certainly 99% of the data, but I will leave the portal open for a while longer for late responses.

Some notes:

- 1) The questions are listed in the order you saw them, but for technical reasons the question numbers are not in order and sometimes repeat. E.g. the first question is #141.
- 2) For the questions that are displayed in a matrix, the question order was randomized for each respondent to mitigate question order effects. The order of the questions you saw on your survey within a matrix response block may be different from the order in this document.
- 3) The numbers in the tables are percentages. The results for each question do not include non-responses.
- 4) When I write "NOTE TO READER" that is for you now and was not part of the original survey.
- 5) You will see blue boxes that show the logical rules for contingency questions. Contingency questions are only shown to the respondent if they answer previous questions in a particular way. For example, there are questions about religion that are only shown to the respondents who say earlier in the survey that they are religious.
- 6) There were two experimental design vignettes in the survey. These are small vignettes describing a situation, but phrases within the vignette vary and are randomly assigned to each respondent. These vignettes have important statistical and interpretive properties. For analysis I compare responses to the follow up question from people who saw different phrases. The survey platform output below shows the part that varies via a code such as "\${e://Field/Memory_method}."

Below the vignette I show what each of the possibilities were that you could have been randomly assigned to see. The frequencies in response to the questions that you were asked about the vignette should be interpreted as the average response across all the possible vignettes that you could have seen.

Again, thank you for your participation. I will send another notice to you when I have produced publications from these data.

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Q141 This survey contains questions about biotechnology and ethics. Some of the biotechnologies I describe are not possible now but may be in the future. Let's proceed to the first question.

Q2 In the future, scientists may be able to give people enhanced abilities. Please indicate the extent you agree or disagree with people receiving the following changes that would:

	Strongly agree (1)	Somewhat agree (2)	Neither agree nor disagree (3)	Somewhat disagree (4)	Strongly disagree (5)
Make people immune to infectious disease (1)	49.5	33.3	8.0	5.7	3.5
Give people much greater physical strength than humans have now (2)	14.9	29.5	23.8	18.6	13.3
Give people much greater intelligence than humans have now (3)	17.6	31.0	22.0	17.0	12.4
Make people have a healthy life for 140 years (4)	20.5	29.1	19.1	18.2	13.0
Make people much happier (5)	27.0	33.9	20.8	10.8	7.5
Make people only need 4 hours of sleep per night (6)	9.1	18.6	23.4	26.0	22.9

Q1 It may be possible in the future to safely change the genes in human embryos to make the resulting children much smarter than humans are now. Most people see arguments for and against this technology. Please tell us how much you agree or disagree with each of the arguments below:

	Strongly agree (1)	Somewhat agree (2)	Neither agree nor disagree (3)	Somewhat disagree (4)	Strongly disagree (5)
The modifications will mean the child is not who they were supposed to be (6)	13.5	21.8	27.1	21.7	15.9
Parents should have the freedom to have the type of child they want (7)	7.1	19.7	22.8	27.2	23.1
It is God's role to determine the qualities of children, not ours (8)	11.5	10.1	25.2	14.6	38.5
Parents should just accept whatever intelligence their child will have without trying to change anything (9)	19.2	27.0	22.6	22.7	8.5
The successes of these children would not be authentic (10)	11.8	18.1	27.6	25.5	17.0

Q107 We have more questions about modifying human embryos to make the resulting children smarter. Please tell us how much you agree or disagree with each of the arguments below

	Strongly agree (1)	Somewhat agree (2)	Neither agree nor disagree (3)	Somewhat disagree (4)	Strongly disagree (5)
The modified children will have an unfair advantage over other children (1)	24.8	41.8	19.8	10.1	4.1
Smarter humans will allow us to solve our ongoing problems in the world (2)	9.0	30.7	21.7	23.7	14.9
A more intelligent child would be happier (3)	9.0	5.8	28.5	35.0	29.9
This is wrong because the children did not give their permission to be changed (4)	16.2	31.5	25.8	17.8	8.6
These children would be outcasts from other children (5)	5.2	22.3	37.7	26.3	8.5

Q4 Now we have a question about possible developments in brain research. It may be possible to give a healthy person greater memory. This would be done by $\{e://Field/Memory_method\}$ This would be safe. The change would be $\{e://Field/Memory_longevity\}$

[NOTE TO READER: 25% of respondents were assigned to see each of the following four “memory method” phrases: hypnosis and meditation; implanting genetically modified cells in the brain; a drug that would be taken by mouth; a small mechanical device implanted in the brain.

50% of respondents were assigned to see each of two “Memory longevity” phrases: reversible; permanent.]

Q88 From the information we have just given you, indicate the how much you agree or disagree with the following statements.

	Strongly Agree (1)	Somewhat Agree (2)	Neither Agree nor Disagree (3)	Somewhat Disagree (4)	Strongly Disagree (5)
Scientists should continue to develop this method (1)	31.3	44.9	14.1	5.5	4.2
If perfected, I would consider using this method to increase my own memory (2)	25.9	38.3	13.4	12.1	10.3
I would want someone with this greater memory to be my doctor (9)	21.3	31.2	30.9	10.4	6.3
This greater memory may limit emotions like love and compassion (10)	6.2	14.9	45.5	22.0	11.5

Q2 Now we have a question about parents and children. A married couple has $\{e://Field/parent_intervention\}$ incredible musical talent.

[NOTE TO READER: 33.3% of respondents were assigned to see each of the following three “parent_intervention” phrases: used genetic modification of an embryo to ensure that the child they have has; given their child extensive musical training so the child has; raised their child and it turns out the child has.]

From the information we have just given you, please indicate how much you agree or disagree with the following statements.

	Strongly agree (1)	Somewhat agree (2)	Neither agree nor disagree (3)	Somewhat disagree (4)	Strongly disagree (5)
The parents should be dismayed if their child does not become a professional musician (1)	1.9	4.4	11.2	22.8	59.6
No matter what the child wants, the parents should strongly encourage the child to become a musician. (2)	1.2	5.9	9.9	30.0	53.0
If the child does not get into a prestigious music school, it is probably the parents' fault (3)	.6	2.4	19.1	25.5	52.4
If the child goes to music school, the child will probably be happy (4)	1.3	13.2	55.6	17.5	12.4
When the child becomes an adult, they should not feel bad at all if they decide to give up music (5)	61.0	25.3	6.8	4.5	2.4

It would be good for society's future musical entertainment if there were more children like this (6)

2.6

15.5

37.2

18.5

26.2



Q1 Please indicate to what extent you agree or disagree with the following statements.

	Strongly agree (1)	Somewhat agree (2)	Neither agree nor disagree (3)	Somewhat disagree (4)	Strongly disagree (5)
What is right and wrong is up to each person to decide (1)	3.7	15.8	8.8	39.7	32.0
Moral standards should be seen as individualistic: what one person considers to be moral may be judged as immoral by another person (2)	8.3	28.2	10.0	32.4	21.0
The question of what is ethical for everyone can never be resolved because what is moral or immoral is up to the individual to decide (3)	4.3	20.5	9.4	40.4	25.4
Moral standards are simply personal rules that indicate how a person should behave, and should not be used when making judgments of others.' (4)	5.8	17.7	11.0	39.6	25.9

Q1 Please indicate the extent you agree or disagree with the following statements:

	Strongly agree (1)	Somewhat agree (2)	Neither agree nor disagree (3)	Somewhat disagree (4)	Strongly disagree (5)
We humans should try to control nature and make it work for us (1)	5.1	32.0	18.8	28.0	16.1
Some things in nature should remain a mystery (2)	8.7	20.5	20.0	25.4	25.4
We should try to leave nature as it is now (3)	9.3	29.7	20.5	32.5	8.0
Humans should be in charge of nature (4)	3.5	12.8	22.4	30.2	31.0

Q109 Please indicate the extent you agree or disagree with the following statements:

	Strongly agree (1)	Somewhat agree (2)	Neither agree nor disagree (3)	Somewhat disagree (4)	Strongly disagree (5)
Humanity should design what future humans are like (8)	3.1	17.8	20.1	33.1	25.8
Being happy is the most important thing in life (9)	17.3	37.3	17.0	18.6	9.8
Humans are like other complicated machines (10)	9.4	26.3	12.2	24.5	27.6



Q110 Please indicate the extent you agree or disagree with the following statements:

	Strongly agree (1)	Somewhat agree (2)	Neither agree nor disagree (3)	Somewhat disagree (4)	Strongly disagree (5)
Instead of trying to control all of the qualities of a child before birth, it is better to leave some things to chance (11)	28.8	44.9	18.3	6.3	1.7
If someone takes a pill to be happier than normal, they are not truly happy (12)	9.4	22.4	20.4	31.7	16.0
Part of being human is to eventually die (13)	62.0	25.0	6.8	4.3	2.0
The body of the human species is flawed and should be improved (14)	5.6	29.1	29.0	24.2	12.1
It is better if children are genetically related ("by blood") to their parents instead of adopted. (15)	3.5	16.2	18.6	21.7	40.0

Q113 Please indicate the extent you agree or disagree with the following statements.

	Strongly agree (1)	Somewhat agree (2)	Neither agree nor disagree (3)	Somewhat disagree (4)	Strongly disagree (5)
If someone is shy, their true self may not be shy (16)	8.9	30.7	40.5	15.0	5.0

Display This Question:

If Please indicate the extent you agree or disagree with the following statements. = If someone is shy, their true self may not be shy [Strongly agree]

Or Please indicate the extent you agree or disagree with the following statements. = If someone is shy, their true self may not be shy [Somewhat agree]

Or Please indicate the extent you agree or disagree with the following statements. = If someone is shy, their true self may not be shy [Neither agree nor disagree]



Q112 Please indicate the extent you agree or disagree with the following statement.

	Strongly agree (1)	Somewhat agree (2)	Neither agree nor disagree (3)	Somewhat disagree (4)	Strongly disagree (5)
It would be OK to use medicine to make someone's level of shyness match their true self (6)	4.7	28.3	37.0	20.4	9.6

Q31 There is a debate about what defines a human. To what extent do you disagree or agree with each of the following:

	Strongly agree (6)	Somewhat agree (7)	Neither agree nor disagree (8)	Somewhat disagree (9)	Strongly disagree (10)
A human is defined by having human genes (DNA) (1)	39.5	37.9	10.3	8.7	3.7
A human is defined by being made in the image of God and having a soul (2)	16.0	11.1	16.8	14.2	41.9
A human is defined by having traits like higher intelligence and ability to plan for the future (3)	19.4	43.7	17.3	12.6	7.0
A human is defined by being able to emotionally interact with other humans (4)	22.2	40.1	14.7	15.2	7.8

Q2 How much do you agree or disagree with the following statements?

	Strongly agree (1)	Somewhat agree (2)	Neither agree nor disagree (3)	Somewhat disagree (4)	Strongly disagree (5)
The most important questions for society can be answered with science (1)	10.8	36.7	21.7	20.8	9.9
We should use science to set society's goals (2)	14.2	42.0	22.0	16.9	5.0
Because of science and technology, there will be more opportunities for the next generation (3)	42.6	42.5	8.4	5.1	1.4
Science makes our way of life change too fast (4)	6.2	25.4	23.4	31.7	13.3

Q1 Now we want to ask you some questions about social issues. How morally acceptable is each of the following situations?

	1 -- Always Acceptable (1)	2 (2)	3 (3)	4 (4)	5 -- Always Unacceptable (5)
Putting U.S. troops at risk to stop the mass murder of an ethnic group (genocide) in Eastern Europe (1)	18.3	50.4	20.0	7.2	4.2
Buying a kidney from a poor person to implant in a child who has kidney disease (2)	2.7	13.3	19.7	27.1	37.2
Someone with expensive medical bills and an incurable and fatal disease committing suicide in order to save their family money (3)	8.7	25.7	25.7	16.3	23.6
Taking a blood sample against the will of a death-row prisoner if it is used to develop drugs that would cure cancer (4)	5.2	10.6	10.6	19.6	54.0
Torturing terrorism suspects in order to get information that could save many innocent lives (5)	4.3	15.4	19.8	25.9	34.5

Q38 <p>We hear a lot of talk these days about liberals and conservatives. Where would you place yourself on this scale?

- 4.2 Extremely liberal (1)
- 30.3 Liberal (2)
- 22.2 Slightly liberal (3)
- 22.6 Moderate, middle of the road (4)
- 9.1 Slightly conservative (5)
- 6.0 Conservative (6)
- .5 Extremely conservative (7)
- 5.0 Don't know (8)

Page Break

Q39 <p>Generally speaking, do you usually think of yourself as a Republican, Democrat, Independent, or what?

- 6.5 Republican (1)
- 44.5 Democrat (2)
- 32.9 Independent (3)
- 3.1 Other (4)
- 8.8 No preference (5)
- 4.2 Don't know (6)

Display This Question:

If Generally speaking, do you usually think of yourself as a Republican, Democrat, Independent, or w... = Republican

Q40 Would you call yourself a strong Republican, or not a very strong Republican?

- 30.6 Strong (1)
- 62.5 Not very Strong (2)
- 6.9 Don't know (3)

Display This Question:

If Generally speaking, do you usually think of yourself as a Republican, Democrat, Independent, or w... = Democrat

Q41 Would you call yourself a strong Democrat, or not a very strong Democrat?

49.7 Strong (1)
44.2 Not very Strong (2)
6.1 Don't know (3)

Display This Question:

If Generally speaking, do you usually think of yourself as a Republican, Democrat, Independent, or w... = Independent

Or Generally speaking, do you usually think of yourself as a Republican, Democrat, Independent, or w... = Other

Q42 Do you think of yourself as closer to the Republican or Democratic party?

11.1 Republican (1)
42.7 Democratic (2)
42.2 Neither (3)
4.0 Don't know (4)

End of Block: Ideology PartyID Block

Start of Block: Gender Block

Q50 <p>What is the gender with which you identify?

67.0 Male (1)
27.9 Female (2)
.5 Non-binary or another gender (3)
4.6 Prefer not to say (4)

Q137 In what year did you complete your most advanced academic degree?

Page Break

Q59 Are you of Hispanic or Latino descent?

91.6 No (1)

7.6 Yes (2)

[NOTE TO READER: These add up to more than 1 because multiple selections were allowed]

Q58 Please check one or more categories below to indicate what race or races you consider yourself to be.

62.2 White (1)

2.2 Black/African American (2)

.6 American Indian or Alaska Native (3)

23.2 Asian (4)

.2 Native Hawaiian or Pacific Islander (5)

3.6 Other (6) _____

Q140 Which sub-fields of bioengineering do you work in? Check all that apply:

11.6 Bioinformatics (1)

19.9 Bioinstrumentation (2)

26.0 Biomaterials (3)

23.3 Biomechanics (4)

3.1 Biomechatronics (5)

4.8 Biomimetics (6)

14.6 Bionanotechnology (7)

5.1 Bioprocess Engineering (8)

20.9 Biotechnology (9)

5.1 Clinical Engineering (10)

6.8 Genetic Engineering (12)

18.0 Medical Engineering (13)

15.7 Neuroengineering (14)

9.8 Orthopedic and Rehabilitation Engineering (15)

6.0 Synthetic Biology (16)

9.7 Systems Biology (17)

5.5 Systems Physiology (18)

3.1 Telehealth (19)

22.3 Tissue Engineering and Regenerative Medicine (20)

Other (21) _____

Q43 What is your present religion, if any?

- 16.1 Protestant (Baptist, Methodist, Non-denominational, Lutheran, Presbyterian, Pentecostal, Episcopalian, Reformed, etc.) (1)
 - 10.5 Roman Catholic (Catholic) (2)
 - .5 Mormon (Church of Jesus Christ of Latter-day Saints) (3)
 - 1.4 Orthodox (Greek, Russian, or another orthodox church) (4)
 - 5.6 Just Christian (12)
 - 5.0 Jewish (Judaism) (5)
 - 1.8 Muslim (Islam) (6)
 - 1.5 Buddhist (7)
 - 3.8 Hindu (8)
 - 16.3 Atheist (do not believe in God) (9)
 - 12.1 Agnostic (not sure there is a God) (10)
 - 20.8 Nothing in particular (11)
 - 4.6 Something Else (13)
-

Page Break

Display This Question:

If What is your present religion, if any? = Protestant (Baptist, Methodist, Non-denominational, Lutheran, Presbyterian, Pentecostal, Episcopalian, Reformed, etc.)

Or What is your present religion, if any? = Just Christian

Q44 <p>Which of the following terms best describes your religious identity?

- 0.0 Fundamentalist (1)
 - 8.0 Conservative Protestant (2)
 - 13.0 Evangelical (3)
 - 17.6 Born Again Christian (4)
 - 9.2 Mainline Protestant (5)
 - 23.9 Liberal Protestant (6)
 - 28.2 None of the above (7)
-

Page Break

Display This Question:

If What is your present religion, if any? = Something Else

Or Which of the following terms best describes your religious identity? = None of the above

Q45 Please write in your religious preference here

End of Block: Relig Tradition Question Block

Start of Block: Are you Religious Bock 21

Display This Question:

If What is your present religion, if any? != Atheist (do not believe in God)

And What is your present religion, if any? != Agnostic (not sure there is a God)

Q48 To what extent do you think of yourself as a religious person? Are you . . .

- 12.1 Very religious (1)
- 25.6 Moderately religious (2)
- 32.6 Slightly religious (3)
- 29.8 Not religious at all (4)

Page Break

Display This Question:

If What is your present religion, if any? != Atheist (do not believe in God)

And What is your present religion, if any? != Agnostic (not sure there is a God)

Q98 What statement comes closest to expressing what you believe about God?

- 7.7 I don't believe in God (1)
- 16.6 I don't know whether there is a God and I don't believe there is any way to find out (2)
- 20.1 I don't believe in a personal God, but I do believe in a Higher Power of some kind. (3)
- 6.1 I find myself believing in God some of the time, but not at others (4)
- 20.1 While I have doubts, I feel that I do believe in God (5)
- 29.4 I know God really exists and I have no doubts about it (6)

End of Block: Are you Religious Bock 21

Start of Block: Relig Attendance Block

Q46 <p>How often do you attend religious services? </p>

- 32.0 Never (1)
- 19.7 Less than once a year (2)
- 13.5 About once or twice a year (3)
- 9.1 Several times a year (4)
- 3.7 About once a month (5)
- 3.4 2-3 times a month (6)
- 5.9 Nearly every week (7)
- 10.1 Every week (8)
- 2.5 Several times a week (9)

End of Block: Relig Attendance Block

Start of Block: Biblical Literalism Question

Q143 Do you want to receive a copy of the results of the survey?

- 58.0 Yes (1)

Q144 Are you willing to sit for an in-depth interview on this topic? It would take approximately 45 minutes and occur via zoom. You would receive a \$50 gift card.

- 29.1 Yes (1)

[NOTE TO READER: From here to the end of the survey was only shown to people who said their present religion was Protestant, Roman Catholic, Mormon, (Eastern) Orthodox or Just Christian]

Q49 Which of these statements comes closest to describing your feelings about the Bible?

- 10.5 The Bible is the actual word of God and is to be taken literally, word for word (1)
- 67.0 The Bible is the inspired word of God but not everything in it should be taken literally, word for word (2)
- 22.4 The Bible is an ancient book of fables, legends, history, and moral precepts recorded by people (3)

Q1 <p>There are many ways to compare the responsibilities of humans and the responsibilities of God for the natural world. One continuum is below. Please place your views upon that continuum:

- 18.0 1 -- Humans are to oversee what God has already created (1)
- 16.7 2 (2)
- 31.1 3 (3)
- 14.9 4 (4)
- 19.4 5 -- Humans are to aid God in God's ongoing creation (5)

Q2 It is often said that Christians yearn for the Kingdom of God on Earth. Please indicate on the continuum below whether you think the Kingdom of God will:

- 36.4 1 -- Come into being largely independent of human effort (1)
- 15.5 2 (2)
- 25.0 3 (3)
- 16.4 4 (4)
- 6.8 5 -- Be built through the efforts of Christians (5)

Q3 <The best understanding of the first chapter in the book of Genesis in the Christian Bible is that:

- 17.8 God told humans to use nature for human goals (1)
- 82.2 God told humans to guard and supervise nature (2)

End of Block: Theology Continua block
