Testing the Effectiveness of Animal Advocacy Messages with Amazon Mechanical Turk

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1. Results
2. Methodology
3. Materials
4. Appendix

Note that full data for these experiments is available online,[1] and replication or further analysis is encouraged and appreciated!

1. Results

Each of four experiments was performed by randomly showing participants from Amazon Mechanical Turk one of several animal advocacy messages then asking questions regarding the participants' attitudes towards nonhuman animals ("animal attitudes"), which is an important and central outcome for most animal advocates. The first two experiments were intended largely to explore the viability of this type of experiment. The third was attempted as a more rigorous experiment of several different variables but yielded inconclusive results. The fourth attempted to flesh out what went wrong in the third experiment and suggests approaches for future studies. Overall, Amazon Mechanical Turk seems like a promising method for studying the effectiveness of animal advocacy messages, although special consideration should be given to powerful messaging presentation (i.e. presentation that produces a large psychological effect) and large sample size.

First Experiment: This experiment indicated that a heading of "Compassion for Animals" was significantly better for improving animal attitudes than "Justice for Animals," when each heading was presented with basic information about farmed animal welfare (p = 0.03294). The group exposed to "Compassion for Animals" also performed significantly better than participants exposed the farmed animal welfare information with no heading (p = 0.02965),

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[1] https://www.academia.edu/11299585/Animal_Advocacy_Messaging_Data

while the group exposed to "Justice for Animals" showed no significant difference from control (p = 0.9404).

Second Experiment: This experiment indicated that adding information about improvements in the treatment of farmed animals to farmed animal welfare information significantly improved animal attitudes (p = 0.001927).

Third Experiment: This experiment yielded inconclusive results, possibly due to some combination of software error (see Appendix), small sample sizes, or weak message presentation. Many hypotheses were tested using 19 treatment conditions, including:

- Does humane reform information affect animal attitudes compared to no information?
- How does focusing on each of the various aspects of factory farming, health, social, environment, cruelty, combination, and animal consciousness, affect animal attitudes?
- How does focusing on various farm animals, chickens, pigs, and cows, affect animal attitudes?

Fourth Experiment: This experiment also yielded inconclusive results with the same possible explanations as the inconclusive results of the third experiment, although the sample size and message presentation was substantially better in this case. The specific hypotheses tested were whether a "reducetarian" message, asking participants to reduce consumption of animal products, different significantly in its effects on animal attitudes compared to a "vegetarian" message, asking participants to eliminate consumption of animal flesh, and whether groups receiving either of these messages differed significantly from a control group.

2. Methodology

All participants were recruited via Amazon Mechanical Turk, a platform that is increasingly used for gathering high quality data in social science experiments.[2] Potential participants were shown vague titles such as "easy fun survey :)" to avoid bias in the group that actually clicked on the survey. Each participant then clicked on a link to the experiment and earned a small amount of money by entering a code received at the end of the experiment. 5-10% of potential participants who clicked on the experiment links failed to complete the experiment.

First Experiment: 58 responses were completed in the compassion condition, 60 in the justice condition, and 60 in the control condition. This experiment only used the first three questions of the animal attitudes questionnaire. The questions were included on the same page as the message.

Second Experiment: 64 responses were completed in the control condition (which received only the farmed animal welfare information) and 61 in the humane reform condition. This

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[2] http://sjdm.org/~baron/journal/10/10630a/jdm10630a.pdf

experiment also only used the first three questions of the animal attitudes questionnaire. The questions were included on the same page as the message.

Third Experiment: This experiment included an awareness check. The 89 participants who failed the awareness check were excluded from the analysis, yielding a final set of 787 participants. There were 19 conditions checked in this experiment with between 35 and 42 complete responses for each condition, except for the two humane reform conditions, which had 59 and 62 participants due to further interest in the specific hypotheses related to those two conditions. The sample sizes were determined by a power analysis based on the first two experiments. This experiment used the full animal attitude questionnaire, although only five questions were used in the analysis (see Appendix), a two question wild animal attitude questionnaire, and three demographic questions. The questions were on separate pages from the message, which might have reduced the power of the messages (i.e. effect size). Another factor that might have reduced the power of the messages is that the messages were introduced with, "Please take some time to read and consider the following information," in order to reduce social desirability bias. The full methodology for this experiment was preregistered.[3]

Fourth Experiment: 135 responses were completed in the control condition, 119 in the reducetarian condition, and 136 in the vegetarian condition. This experiment used five of the animal attitudes questions, excluding the question about whether eating animals is a personal choice, because that question was not being investigated here, and the question about participation in a leafleting event because that was found to correlate very well with the question about participation in a demonstration. Additionally, the message was shown three times to each participant: on an initial page by itself, on a page containing the first three questions, and on a page containing the last two questions. This was designed to maximize the effect of the message on participants. The message was introduced with a message similar to that of the third experiment.

3. Materials

Animal Attitudes Questionnaire:

- Suppose you were given $10 and allowed to donate any amount of it to an effective non-profit organization that works to help farm animals, keeping the rest for yourself. How much of this $10 would you donate? (Scale from $0-10 in $1 increments.)
- How much do you agree with the following statement? "Cows, chickens, and pigs have feelings just like you or me." (Scale in 1-point increments as follows: Strongly

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[3] https://www.academia.edu/11299556/Pre-Registration_of_Animal_Advocacy_Messages_Experiment_3

Disagree/Disagree/Somewhat Disagree/Undecided/Somewhat Agree/Agree/Strongly Agree)

- How much do you agree with the following statement? "Whether to eat animals or be vegetarian is a personal choice and nobody has the right to tell me which one they think I should do." (Scale in 1-point increments as follows: Strongly Disagree/Disagree/Somewhat Disagree/Undecided/Somewhat Agree/Agree/Strongly Agree)

- How is your meat consumption likely to change over the next six months? (Scale in 1point increments as follows: Strongly Decrease/Decrease/Somewhat Decrease/Undecided/Somewhat Increase/Increase/Strongly Increase)

- Suppose a public demonstration against the problems of factory farming occurred near where you live and your friend asked you to come demonstrate with her. If this demonstration fit into your schedule, how likely would you be to join and help demonstrate? (Scale in 1-point increments as follows: Very Unlikely/Unlikely/Somewhat Unlikely/Undecided/Somewhat Likely/Likely/Very Likely)

- Suppose a law was being considered that would require all farm animals to be rendered completely unconscious prior to slaughter. This law could increase the price of animal products, but would also greatly reduce the suffering of farm animals. How likely would you be to support this law? (Scale in 1-point increments as follows: Very Unlikely/Unlikely/Somewhat Unlikely/Undecided/Somewhat Likely/Likely/Very Likely)

Awareness Check:

- We want to be sure you are reading each of these questions carefully. For this question, please mark the answer as "Somewhat Unlikely" to assure us you are paying attention. There is a great chance we will not be able to pay you if you do not answer this question correctly. (Scale in 1-point increments as follows: Very Unlikely/Unlikely/Somewhat Unlikely/Undecided/Somewhat Likely/Likely/Very Likely)

Wild Animal Questionnaire:

- Suppose you live near a forest that has been entirely unaffected by human civilization. This forest has a large deer population due to a lack of predators, which leads to starvation, illness, and other forms of suffering. Your city council is considering a proposal to distribute birth control to these deer, which is a safe, cost-effective way to decrease their population, therefore reducing their suffering. However, some argue we do not have the right to interfere with nature like this. Would you support or oppose the proposal to distribute birth control? (Scale in 1-point increments as follows: Strongly Oppose/Oppose/Somewhat Oppose/Undecided/Somewhat Support/Support/Strongly Support)

- Suppose scientists have discovered a way to create life on another planet. This project would be cheap and only involve sending a small rocket through space, where it would land and create an ecosystem similar to that on Earth several million years ago. This project would be an impressive scientific achievement, but, as on Earth, there would be

  a large number of wild animals suffering from illness, starvation, and being eaten alive by other animals. Would you support or oppose this proposal? (Scale in 1-point increments as follows: Strongly Support/Support/Weakly Support/Neutral/Somewhat Oppose/Oppose/Strongly Oppose)

Demographic Questionnaire:

- What is your gender? (Options are: Male/Female)
- What is your age? (Numerical drop-down menu)
- What is the highest degree/level of schooling you have completed? If currently enrolled, please select the highest degree you have already received. (Options are: Elementary or middle school/High school diploma or equivalent/Trade/technical/vocational training/Associate's Degree/Bachelor's Degree/Post-graduate degree)

4. Appendix

Notably, the third experiment provided a large data set that was used to compare correlations between the various outcome measures. Among the seven animal attitude questions, answers were all reasonably correlated as expected (0.3-0.5, or higher in the case of the two event participation questions) with exceptions for the questions regarding animal consumption and whether vegetarianism is a personal choice. For the question about personal choice, this makes intuitive sense, but it seems surprising for the question about animal consumption.

One possible explanation unfortunately lies in the experimental software. Several of the outcomes were miscoded (e.g. "Increase" was miscoded as "Somewhat Increase"), which could be fixed by looking at the actual participant responses and comparing them to the data output, but all the "7" data points corresponded to a blank response in the software, which should be impossible given the question was forced-response. The miscoding also occurred in the fourth experiment, but there were no blank responses.

Only 64 responses were coded in this strange way in the third experiment (out of 787 total), but it raises suspicions about further errors in the software. We will probably use a different survey platform for future studies if we cannot resolve this platform, although we will still be able to use Amazon Mechanical Turk. For this experiment, the animal attitudes were calculated leaving out both the personal choice and consumption questions, which is unfortunate.