

**Reducing Speciesism: An Intervention Towards Changing People's Attitudes and
Behavioural Intentions**

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10 July 2022

Abstract

Mistreatment, exploitation and abuse all relate to Speciesism. Speciesism is a phenomenon by which we assign different worth or rights to beings based on their species. Two studies were conducted to explore the effectiveness of an intervention, a video about switching roles between humans and animals, on participants' attitudes and behavioural intentions that are directly or indirectly hurtful to animals, such as the above-mentioned consequences of speciesism. It was expected that participants in the intervention condition (with the video) had a reduced speciesist attitude compared to the control condition (with no manipulation). Furthermore, it was expected that participants in the intervention condition had reduced behavioural intentions that are hurting animals compared to the control condition. In Study 1, participants (N = 231) were randomly assigned to the intervention condition or control condition. Participants' demographics, speciesist attitude, behavioural intentions, and actual behaviour in form of signing a petition were measured. Findings showed that participants in the intervention condition intended to change their behaviour towards behaviour that is less directly or indirectly hurtful to animals more strongly than participants in the control condition but there was no effect on attitude and actual behaviour. Study 2 (N = 399) aimed to replicate these findings and investigated the underlying mechanisms (perspective-taking towards the treatment of animals, feelings of injustice, and awareness of common practices of animals) on the intention for behavioural change. The findings were indeed replicated: Results showed that participants in the intervention wanted to intend to change their behaviour compared to participants in the control condition. Again, no effect on attitude or actual behaviour was found. Feelings of injustice was found to be a mediator for behavioural intentions. Possible reasons for why the intervention changed intentions but no actual behaviour or attitude were elaborated in the discussion section. This paper shows that such videos or images can change behavioural intentions towards behavioural intentions to reduce the hurting of animals and can be regarded as the groundwork for future interventions to reduce the consequences of speciesism.

Keywords: speciesism, intervention, video, attitude, behaviour, feelings of injustice

"I need to revise my way of living urgently" - anonymous participant. This quote was from a participant after being exposed to the intervention of this paper about the mistreatment of animals. Pigs and dogs have comparable mental and emotional capabilities (Caviola et al., 2018; Mendl et al., 2010). Why do we then usually perceive pigs as food and dogs as beloved pets (Caviola et al., 2018; Joy, 2020)? Caviola and Capraro (2020) define this phenomenon as *speciesism* whereby we respect certain beings more than others based only on their species. Abuse, exploitation and mistreatment all relate to speciesism (Bègue, 2020; Sollund, 2011). This paper investigates the effectiveness of an intervention focusing on switching the roles of humans and animals on people's speciesist attitudes and behavioural intentions that are directly or indirectly hurtful to animals such as abuse or exploitation (hereinafter referred to as behavioural intentions).

There are two major types in which speciesism presents itself (Caviola & Capraro, 2020). The first type is *pet speciesism* which demonstrates that individuals value pets over other animals which are treated as food, entertainment, and experimental subjects (Caviola & Capraro, 2020; Gradidge et al., 2022). The second type is *anthropocentric speciesism* whereby individuals place a higher value on people than on (other) animals (Caviola & Capraro, 2020). We abuse animals for food, medical studies, and hunting for fun, which we would not think of doing to our species. We do not permit other species basic rights despite some of them, for instance, chimpanzees, having similar emotional and mental cognitions (Caviola & Capraro, 2020; Matsuzawa, 2007). But what are the reasons for people to treat animals differently?

People attribute moral worth to animals based on species membership (Caviola et al., 2018). Common conceptions are that animals have lower cognitive and emotional abilities as well as an inability to be moral agents (Caviola et al., 2018). However, those conceptions are not accurate as chimpanzees, dolphins and pigs can have higher cognitive and emotional intelligence than pets and therefore this fails to account for the difference in attributed moral value (Carr, 2001; Caviola et al., 2018; Marino, 2013). Moral agency in this context concerns the idea that people depreciate animals for not being able to be moral agents. This conception is also incorrect because humans grant equal or even higher moral status to severely disabled people, compared to other people and animals, despite their lack of moral judgement abilities (Caviola et al., 2018). Those improper explanations led researchers to investigate the reasons for those misconceptions as well as the psychological mechanism responsible for speciesism (e.g., Caviola et al., 2018; Horta, 2010).

Research showed that speciesism is psychologically linked to human-to-human prejudices such as racism, sexism, and homophobia (Caviola et al., 2018). Importantly, speciesism shares the same underlying mechanism as other types of prejudices (such as towards ethnic outgroups), called social dominance orientation (SDO) (Caviola et al., 2018). SDO predicts individuals' degree of preference toward group-based dominance and inequality over social groupings (Caviola et al., 2018; Pratto et al., 2006). Those differences anticipate prejudicial attitudes towards a multitude of human social groupings (Caviola et al., 2018; Kteily & Sidanius, 2012). In the context of speciesism, SDO similarly concerns how individuals perceive the disparity between humans and animals (Caviola et al., 2018). For example, Dhont et al. (2016) showed that SDO is a major contributor to the considerable positive relationship between ethnic outgroup attitudes and speciesist attitudes towards animals. In line with Caviola's and colleagues' (2018) results, these findings imply that ideological underpinnings, namely a general approval of social hierarchy and inequality that promote human-human prejudice, also underlie speciesism (Dhont et al., 2016). Speciesism and SDO also predict negative consequences towards animals (e.g., Caviola et al., 2018; Jarmakowski-Kostrzanowski & Radkiewicz, 2021).

Caviola et al. (2018) found that speciesism predicts people's desire to aid humans and "superior" animals like dogs (rather than "inferior" animals like pigs) in regards to donating money and volunteering time. They also showed that speciesism influences people's eating preferences (meat vs vegetarian). The lower people scored on speciesism, the higher the chance they would choose vegetarian food and vice versa. Abuse, exploitation and mistreatment can also relate to speciesism (Bègue, 2020; Sollund, 2011). Jarmakowski-Kostrzanowski and Radkiewicz (2021) showed that the higher the participants' SDO was, the more they were inclined to harm animals. The type of harm was presented as direct (e.g., kicking, throwing rocks at) as well as indirect (e.g., keeping the animal somewhere under harsh conditions). Therefore, human exploitation of animals, in this view, is one manifestation of humanity's proclivity to control and exploit perceived inferior groups and individuals.

An important step would be to avoid these negative consequences and try to change speciesists' attitudes and behavioural intentions. To our knowledge, no such scientific interventions exist. Animal activists, however, use various ways to create awareness of the common practices toward animals (Buddle et al., 2017; Dugnoille, 2014; Lu et al., 2013). Those may also contribute to a change in people's attitudes and intentions towards changing behaviours that reduce the hurting of animals (Lu et al., 2013; Mummery & Rodan, 2019). However, it is not clear to what extent those interventions are successful in reducing

speciesism. Currently, often seen interventions are videos which show a parallel universe wherein illustrations are presented demonstrating switched roles of humans and animals. The act of switching roles is akin to taking perspective, the act of taking the point of view of another person (Healey & Grossman, 2018). As perspective taking can lead to a decrease in prejudice and discriminatory behaviour as well as increased empathy towards outgroups (Matera et al., 2021; Shih et al., 2009), it is expected that an intervention focusing on switching roles between humans and animals reduces speciesism. This is expected as speciesism might be regarded as a form of prejudice (Caviola et al., 2018; Jackson, 2019).

To investigate whether people's attitudes and behavioural intentions can be changed to reduce speciesism, a video was created consisting of pictures displaying switched roles between humans and animals. The video was created so that all relevant categories of animal exploitation were covered. Participants either watched this intervention or did not, as in a control condition, they were only presented with a text to continue. After that, attitude and behavioural intentions were measured regarding the treatment of animals and purchasing animal products (meat, dairy, eggs, medicine, cosmetics, and clothing) using a questionnaire. Lastly, participants were asked to sign a petition for animals' rights. Taking perspective can lead to a decrease in prejudice. Since speciesism is a form of prejudice, it is expected that the intervention will change participants' speciesist attitudes and behavioural intentions (Matera et al., 2021; Shih et al., 2009). Given that, the first hypothesis is that participants' speciesist attitudes will be reduced in the intervention condition, compared to the control condition. The second hypothesis is that participants will have reduced behavioural intentions that directly or indirectly hurt animals in the intervention condition compared to the control condition.

Study 1

Methods

Participants and Design

To our knowledge, no study concerning a speciesism intervention has been scientifically tested before, thus there is no information to base a power analysis on. Therefore, for each condition at least 50 participants were recruited (Simonsohn, 2015). 241 University of Twente students participated via non-probability sampling using the test subject pool BMS. For the analysis, those who did not finish the survey or finished it more than once were excluded, leaving 231 participants (51 male, 175 female, three who identified as non-binary or a third gender, and two who did not prefer to say). The age ranged between 17 and 31 ($M = 20.36$; $SD = 1.94$). Participants received study credit points for completing the study.

The independent variable was intervention (yes vs. no), and the dependent variables were attitude, behavioural intentions, and actual behaviour (signing the petition).

Procedure and Materials

Before the start of the study, the BMS Ethics Committee authorised the research. Participants were given a link that led them to Qualtrics, an online survey tool to conduct research (see Appendix A for full survey questionnaire). They were shown an informed consent form, and if they agreed, the study started. The questionnaire began with general demographic items concerning their age and gender. Next, participants were either assigned to the intervention condition or control condition.

Independent Variables. If participants were allocated to the intervention condition, a video was presented with illustrations showing a parallel world wherein the roles of humans and animals were switched (<https://youtu.be/K9LMkJyBgZk>). The video started with a warning after which participants were shown seven categories of different domains (entertainment, experiments, farming, fashion, held home, hunting, and offered as products). For each category 4 pictures were shown, resulting in 28 pictures in total. Each picture was shown for 8 seconds, and the total amount of time of the video was 4 minutes. The pictures were drawn by artists, which were first asked for permission to use their art for this study. One example of the pictures is where the human is tied outside on a leash, sitting in the rain and the dog is inside, drinking and sitting on an armchair. Another example is a crocodile walking around with a purse made of human skin with a human face on it. In the control condition, only a text appeared instructing participants to continue with the study.

Dependent Variables. Participants were first asked about their attitude towards speciesism. For that, the Speciesism Scale from Caviola and colleagues (2018) was used due to its empirical validation, high internal consistency, and test-retest reliability. It consisted of six items with answers on a 7-point scale ranging from “Strongly Disagree” to “Strongly Agree”. One example is “Morally, animals always count for less than humans.”.

Next, the behavioural intentions of participants were measured. For each of the seven categories of the intervention, two items were presented, except for the category "offered as products" as it was akin to the other categories. Thus, the total amount of items was 12. The choices consisted of a continuous scale from one to four “more than I currently do”, “just as much as I currently do”, "less than I currently do" and "stop doing that altogether" and a fifth answer possibility of "I do not do that and I would stick to that", for instance: "Regarding the cruelty-free cosmetic products I intend to buy...". The answer choices four and five were matched to the corresponding item.

In addition to behavioural intentions and attitude, an actual response was measured. Therefore, participants were asked to read a fictitious animal rights petition regarding the equality between animals and humans and could decide whether they wanted to sign it or not. After that, participants were asked control questions regarding their attention towards the video (for participants in the intervention condition only) and their type of diet, i.e., omnivore, vegetarian, pescatarian, vegetarian, and vegan. In addition, participants could have chosen to indicate that they “do not know” and “do not prefer to say”. Lastly, participants received a debriefing, wherein they were informed about the nature of the research: the conditions, that the petition was not real, information about the artists of the images, and contact details of the researcher for questions or reports.

Results

Five participants were excluded from the analyses because they indicated that they have not watched the video attentively (score < 5). For attitude and behavioural intentions, separate Mann-Whitney U tests were conducted because the assumptions for an analysis of variance (ANOVA) were violated.

Attitude

One item was recoded so that for all items a higher score means a more negative attitude towards animals. Cronbach’s alpha of all attitude items was .75. A Mann-Whitney U test with intervention (yes vs no) as independent variable and mean of attitude as dependent variable was conducted. The test revealed a non-significant difference between the two groups ($U = 5657, p = .140, d = .197$; Overall: $M = 2.42, SD = 0.90$).

Behavioural Intentions

Cronbach’s alpha with all behavioural intentions items was .80 so a mean was calculated including all items. A Mann-Whitney U test with intervention (yes vs no) as independent variable and mean of behavioural intentions as dependent variable was performed. Results showed that participants in the intervention condition reported to intend to less likely perform behaviour hurting animals in the future ($Rank = 124.95, M = 4.05, SD = 0.54$) than participants in the control condition ($Rank = 102.64, M = 3.84, SD = 0.62$; Overall: $U = 5120.50, p = .010, d = .346$). A one-sample t-test within each intervention condition testing the mean of each condition against the value indicating participants intend to show the behaviour just as much as they currently do (2) showed that for both the intervention ($t(109) = 59.34, p < .001$) and control condition ($t(115) = 32.18, p < .001$), participants want to change their behaviour.

Actual Behaviour

A Chi-square test with intervention (yes vs no) as independent variable and the petition item as dependent variable (yes vs no) was performed. Results showed no significant effect of the conditions on signing the petition, $\chi^2(1) = .148, p = .668$. In the intervention condition, 79.09% of participants signed the petition, while 76.72% signed in the control condition.

Correlation

A Pearson correlation was run to determine the relationship between attitude, behavioural intentions, and actual behaviour (the petition item). Speciesist attitude is negatively correlated with behavioural intentions ($r = -.66, p < .001$) and positively correlated with the petition item ($r = .43, p < .001$). This indicates that the more speciesist attitudes participants reported, the less they intended to change their behaviour towards behaviour that reduces animal hurting and the fewer participants reported not signing the petition. Behavioural intentions is negatively correlated with the petition item ($r = -.42, p < .001$). This implies that the more behavioural intentions to reduce hurting animals participants reported, the fewer participants signed the petition.

Discussion

Results showed that participants in the intervention condition were more likely to intend to change their behaviour to reduce hurting animals than participants in the control condition. Participants' speciesist attitudes, however, remained unaffected. Also, no difference between the two groups concerning signing the petition was found.

One limitation of the study is that it turned out that the effect on attitudes and behavioural intentions is small and small to moderate. A power analysis that was conducted afterwards on this study showed that to detect an effect a total sample of 382 is required. Lastly, it may be easy to agree to sign a petition, therefore an additional petition question asking for more effort from participants might be required. Moreover, as the intervention was successful in changing participants' behavioural intentions, it is interesting to investigate the mechanism behind this. Taking this into account, a second study aims to replicate the findings with a bigger and different sample size, an additional petition item, and added process measures.

Study 2

Study 1 showed that participants in the intervention condition intended to change their behaviour to reduce the hurting of animals compared to the control condition. In addition, no effect on attitude and actual behaviour was found. The aim of Study 2 was to replicate these findings with additional items concerning the opinion toward petitions and process measures.

Possible mediators for the effect of the intervention on behavioural intentions could be perspective taking (towards the treatment of animals), awareness (towards the common practices of animals), and feelings of injustice (towards the treatment of animals). The video aims to increase awareness and perspective taking. Raising awareness can reduce avoidance and wilful ignorance towards the consequences of animals (e.g., slaughter) while eating meat (Rothgerber & Rosenfeld, 2021). Perspective taking can lead to less prejudicial or discriminatory behaviour (Matera et al. 2021; Shih et al., 2009) which in turn might be linked to speciesism (Caviola et al., 2018; Jackson, 2019). Another possible mediating mechanism could be feelings of injustice. These feelings were found to play an important role in reducing prejudice via perspective taking (Dovidio et al., 2004). In addition to these possible mediating mechanisms, we also want to make sure the results cannot be explained by social desirability as participants in Study 1 were more prone to indicate that they already perform a behaviour to reduce hurting animals after they watched the video. Thus, participants might have been inclined to answer questions in a way that will be seen favourably by the researchers also known as a social-desirability bias (Kwak et al., 2021).

Methods

Participants and Design

The sample size was a priori determined. A priori power analysis was conducted using G*Power 3.1.9.7 with $d = .346$ (based on the results of behavioural intentions from Study 1), 95% power, and $\alpha = .05$. The difference between two independent groups (Wilcoxon-Mann-Whitney test, two groups) showed that 191 participants are required per group (i.e. 382 total). 399 participants (172 women, 216 men, nine non-binary or a third gender and two who did not prefer to say) were recruited via Prolific and participated via payment for £3.75. The age ranged between 18 and 70 years ($M = 31.59$, $SD = 10.78$). The independent variable was intervention (yes vs no). The dependent variables were attitude, behavioural intentions, and actual behaviour (signing a petition and answering additional questions). Possible mediating variables that were measured were perspective taking, feelings of injustice, awareness and social desirability. Cronbach's Alpha with all items was .18 so a mean was calculated with all items included. Due to the low internal consistency, no further analyses were conducted on social desirability.

Procedure and Materials

As in Study 1 participants received an information sheet and demographics, intervention (yes vs no), attitude, behavioural intentions, actual behaviour, and control questions were measured (see Appendix B for full survey questionnaire). Participants were

informed that there are no wrong or right answers in the information sheet in an attempt to avoid social desirability bias. Considering the behavioural intentions, participants were asked only to choose category 5 “I did not do that and intend to stick to that” when they actively checked the products that animals might have been tested on or might include animal-derived ingredients. Items should have been inspected for this as those might not be generally known to be animal-derived products (for example clothes or dairy products), and those also include the sentence “I did not do this as I actively check this and I would stick to that” as category 5.

As the results of the petition of Study 1 suggest it is relatively easy to agree with signing the petition, regardless of one's opinions, a question was added whether they would agree to answer five additional questions concerning their opinion towards petitions which were not part of the study. If they declined, they were guided to the perspective and awareness items. If they accepted, they were presented with five filler items on a 7-point Likert scale (1 = Strongly disagree to 7 = Strongly agree). An example item is “Signing petitions is a valuable tool to change society.”

To investigate possible mediating mechanisms, perspective taking, feelings of injustice and awareness were measured. First, perspective taking was measured with three items concerning their current perspective of animals. An example is "I take the perspective of animals.". Second, participants' feelings of injustice were measured with 7 points ranging. One item was “I feel alarmed”. Third, participants were asked nine items concerning their awareness of the common practices of animals. An example item was "I am aware of the common practices of how animals are being treated in the meat industry." All items were measured using a 7-point Likert scale. For perspective taking and awareness, the scale ranged from “strongly disagree” to strongly agree”. For feelings of injustice from “not at all” to “extremely”.

Lastly, the same control questions (attention, eating preference) were asked and, a short version of the original 33-item Social Desirability Scale of Marlowe-Crowne (1960) was included. This short version consists of 12 items with a “Yes” or “No” answer choice (Reynolds, 1982) and was the best-fitting short version (Loo & Thorpe, 2000). For example, “It is sometimes hard for me to go on with my work if I am not encouraged.”. Then participants could write down any remarks, the debriefing followed and participants completed the study.

Results

For the analysis of this second study two participants were excluded because they stated that they have not watched the video attentively (score < 5). For perspective taking and

awareness, separate Mann-Whitney U tests were performed because the assumptions for an ANOVA were violated.

Attitude

One item was recoded so that a higher score for all items indicates a more negative attitude toward animals. Cronbach's alpha with all attitude items was .83, so a mean was calculated including all items. An ANOVA with intervention (yes vs no) as independent variable and mean of attitude as dependent variable was conducted. The analysis demonstrated a trend that participants in the intervention condition had a more speciesist attitude ($M = 2.77$, $SD = 1.13$) compared to the control condition ($M = 2.58$, $SD = 1.10$), $F(1,395) = 2.87$, $p = .091$, $\eta_p^2 = .007$, $d = .281$.

Behavioural Intentions

Cronbach's alpha with all items was .84, so a mean with all items was calculated. An ANOVA with intervention (yes vs no) as independent variable and mean of behavioural intentions as dependent variable was conducted. Results showed a significant effect between the groups, $F(1,395) = 6.46$, $p = .011$, $\eta_p^2 = .006$, $d = .170$, indicating that participants in the intervention condition intended to change their behaviour to reduce the hurting of animals more strongly ($M = 3.41$, $SD = 0.69$) compared to the control condition ($M = 3.22$, $SD = 0.74$). A one-sample t-test within each intervention condition testing the mean of each condition against the value indicating participants intend to show the behaviour just as much as they currently do (2) showed that for both the intervention ($t(196) = 48.71$, $p < .001$) and control condition ($t(199) = 23.31$, $p < .001$), participants wanted to change their behaviour.

Actual Behaviour

A Chi-square test with intervention (yes vs no) as independent variable and the petition item (yes vs no) as dependent variable was performed. Results showed no significant effect of the intervention on signing the petition, $\chi^2(1) = .001$, $p = .973$. The percentage of participants signing the petition in the intervention condition was 55.33% and in the control condition 55.50%.

A Chi-square test with intervention (yes vs no) as independent variable and the answering petition items (yes vs no) as dependent variable was performed. There was no significant effect of the intervention on answering further petition questions, $\chi^2(1) = .009$, $p = .924$. The percentage of participants accepting to answer five petition questions in the intervention condition was 71.07% and in the control condition 71.50%.

Perspective Taking

Cronbach's Alpha with all items was .84 so a mean was calculated with all items included. A Mann-Whitney U test with intervention (yes vs no) as independent variable and mean of perspective taking as dependent variable revealed no significant difference between the two groups ($U = 17987.50$, $p = .132$, $d = .151$; Overall: $M = 5.45$, $SD = 1.06$).

Feelings of injustice

Cronbach's Alpha with all items was .92, so a mean was calculated with all items included. An ANOVA with intervention (yes vs no) as independent variable and mean of feelings of injustice as dependent variable was performed. The results demonstrated that participants in the intervention condition experienced stronger feelings of injustice ($M = 5.01$, $SD = 2.20$) compared with the control group ($M = 4.26$, $SD = 2.24$), $F(1, 395) = 11.48$, $p = .001$, $\eta_p^2 = .028$, $d = .354$.

Awareness

For awareness, Cronbach's Alpha with all items was .91 so a mean was calculated with all items included. A Mann-Whitney U test with intervention (yes vs no) as independent variable and mean of awareness as dependent variable was performed. Results showed no statistically significant difference between groups ($U = 18676$, $p = .370$, $d = .090$; Overall: $M = 4.85$, $SD = 1.17$).

Correlation and Mediation

A Pearson correlation was run to determine the relationship between behavioural intentions, attitude, and the possible mediators: perspective taking, feelings of injustice, and awareness. Attitude is negatively correlated to behavioural intentions ($r = -.44$, $p < .001$), perspective taking ($r = -.58$, $p < .001$), feelings of injustice ($r = -.28$, $p < .001$), and awareness ($r = -.23$, $p < .001$). This indicates that the more speciesist attitudes participants reported, the less participants intended to change their behaviour (to hurt animals), took perspective toward the treatment of animals, experienced feelings of justice, and were unaware of the common practices of the treatment of animals. Behavioural intentions was positively correlated with perspective taking ($r = .38$, $p < .001$), feelings of injustice ($r = .22$, $p = .001$), and awareness ($r = .29$, $p < .001$). This indicates that the more behavioural intentions participants reported, the more participants took perspective towards the treatment of animals, experienced feelings of injustice, and were aware of the common practices of the treatment of animals.

As the intervention only affected feelings of injustice of all possible mediating variables, a mediation test was conducted with feelings of injustice. First, linear regression with intervention (yes vs no) as independent variable and mean of behavioural intentions as dependent variable was conducted. Results showed a significant effect of the intervention on

behavioural intentions ($B = -0.183$, $SD = 0.50$, $p = .011$). Linear regression with intervention (yes vs no) and feelings of injustice as independent variables and mean of behavioural intentions as dependent variable showed that this effect of intervention on behavioural intention was reduced to a marginally significant effect ($B = -0.135$, $SD = 0.50$, $p = .061$). Furthermore, results showed a significant effect between the mediator feelings of injustice and behavioural intentions ($B = 0.064$, $SD = 2.25$, $p < .000$). A Sobel test indeed showed that the indirect effect of intervention on behavioural intentions via feelings of injustice is significant ($z = -2.623$, $SD = 0.29$, $p = .009$).

Discussion

This study replicated the results of Study 1 for behavioural intentions by demonstrating that participants in the intervention condition had stronger behavioural intentions reduce the to hurting of animals compared to those in the control condition. Also, again there was no significant effect of the intervention on speciesist attitudes. A trend in the other direction than what was expected was found for speciesist attitudes indicating that participants in the intervention condition had a stronger speciesist attitude compared with participants in the control condition. Furthermore, as in Study 1, participants' actual behaviour remained unaffected by the intervention. Importantly, feelings of injustice was found to be a mediating mechanism of the effect of the intervention on behavioural intentions. This indicates that participants intended to change their behaviour to reduce the hurting of animals due to the feelings of injustice towards the treatment of animals.

General Discussion

The results of both studies showed that the intervention led participants to intend to change their behaviour to reduce the hurting of animals. However, their speciesist attitudes and their actual behaviour were not affected. Furthermore, results of Study 2 demonstrated that participants' feelings of injustice towards the treatment of animals is an underlying mechanism of the effect of the intervention on participants' behavioural intentions.

A question needs to be raised why there was no effect of the intervention on participants' speciesist attitudes and why for Study 2 there was a trend in the opposite direction. Although there is a negative relationship between speciesist attitude and behavioural intentions towards displaying behaviour to reduce the hurting of animals, only an effect on behavioural intentions, not on attitudes was obtained. A possible explanation for this may be that the intervention video focused on behaviours by displaying pictures whereby animals mistreat humans. This might explain why there was no effect on speciesist attitude. The trend in the other direction of Study 2 could be interpreted as a boomerang effect or

emotional reactance (Byrne et al., 2009; Kuang et al., 2020; Ringold, 2002). Ringold (2002) mentions that when a persuasive message is too far removed from the receiver's position, a boomerang effect occurs, resulting in a negative —instead of the expected positive— effect. Furthermore, she points out that when a sender uses communication methods countering norms, or when the message causes unceasing emotional arousal, it might also result in a boomerang effect. All those reasons might apply here: The video concerning switching roles between animals and humans lead participants to want to change their behaviour, however as they strongly believed that animals and humans are not the same, the video may have backfired and led to a trend towards a more speciesist attitude. Only mentioning the norms to argue against them, might increase the receiver's understanding of the norms and thus increase conformity. Thus, showing the prevalent mistreatment of animals might have led participants to increase conformity towards the common treatment of animals and since the video resulted in an enhanced feeling of injustice it possibly heightened their speciesist attitude. Since the video could not change participants' speciesist attitudes, a separate intervention should be designed focusing on speciesist attitudes (only), avoiding the focus on equality, norm and emotional arousal. For example, a video could be designed presenting visual opinions of people that express attitudes in favour of ethical animal treatment (focus on attitudes, avoiding norm), without images concerning switching roles between animals and humans (avoiding equality) and pictures that might be disturbing to some (avoiding emotional arousal).

Why did the intervention have an effect on behavioural intentions but not on actual behaviour? It could be possible that the answer possibility of simply indicating a yes or a no is not reflective of real behaviour. At least the non-effect here shows that the results cannot (entirely) be explained by social desirability. Future research could investigate whether participants' actual behaviour changed by a priori measuring the extent to which their behaviour is speciesistic and repeat this measure after a short period of time.

Interestingly, the results of the behavioural intentions showed that participants in the control condition also want to adjust their behaviour to reduce hurting animals. This may seem surprising, but nowadays, there is a strong focus on climate change, zoonoses, and animal welfare in the media. This may explain why most people want to intend to change their behaviour regardless of the condition they were in. Importantly, participants in the intervention still experienced a stronger intention to change their behaviour compared to participants in the control condition.

Opposite as expected, the intervention video did not increase participants' perspective taking and awareness of the common treatment of animals. While perspective taking and awareness were also positively correlated to behavioural intentions and negatively correlated to attitude, it is the feelings of injustice that can explain the effect of the intervention on behavioural intentions. So, this means that although perspective taking and awareness are important factors related to speciesist attitudes and behaviour, the intervention video mainly elicits feelings of injustice due to which participants intend to change their behaviour to behaviour that is less directly or indirectly hurtful to animals.

Animal rights activists often use a short video or information to elicit awareness in people, however, the current studies show that it seems to be more complicated to change their actual behaviour. It is conceivable that although a short video changes people's behavioural intentions, more opportunities to create awareness and elicit feelings of injustice are needed to want people to change their behaviour. Future research should therefore also implement the element of feelings of injustice towards animals since this mediated the effect on behavioural intentions and researchers need to focus on the implementation of actual behaviour to investigate the effectiveness of these kinds of drawings or videos in this context.

This paper demonstrates that an intervention in the form of a video focusing on switching roles between humans and animals to reduce speciesism can indeed reduce behavioural intentions to hurt animals. Those intentions are the first step before the change of actual behaviour. The present study is the first to experimentally assess the effectiveness of an intervention toward changing participants' attitudes and behavioural intentions. Furthermore, these results represent the first direct demonstration of a change in behavioural intentions to reduce the indirect or direct hurting of animals after being exposed to an intervention video regarding switching roles between animals and humans to reduce speciesism. Furthermore, this study can be seen as groundwork for future interventions toward reducing speciesism and preventing animal mistreatment.

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Appendix A

Questionnaire of Study 1

Start of Block: Information Sheet

Q1 Welcome to this study!

Thank you for participating in this research. In the following, you will be informed about the focus of this research, the method and the data management.

Focus of this research

You are being invited to participate in a research study titled Speciesism. This study is being done by Nicole Banach from the Faculty of Behavioural, Management and Social Sciences at the University of Twente. The purpose of this research study is to investigate peoples' attitudes and behavioural intentions towards speciesism (the assignment of different worth or rights based solely on species, e.g., humans are more worth than animals) and will take you approximately 10 minutes to complete. The data will be used for a report and international publication.

Information and Data Management

Your data is handled with utmost confidentiality. Your individual responses cannot be traced back to you. Research results are solely reported in groups of gathered data.

Risks and Voluntariness

Participating in this research may elicit discomfort and distress. Part of the participants will receive information via video in which roles of humans and animals are switched. The images presented can be disturbing to some, as they contain violence and nudity. You are not obligated to watch the full video or answer any questions that cause distress or discomfort. Participating in this research is entirely voluntary and you can stop for any reason at any moment. If you decide to leave this research, all your data will be fully deleted and omitted from the research results. Questions or remarks regarding this research can be emailed directly to the leading researcher Nicole Banach (n.banach@student.utwente.nl). Objections or concerns about the setup or method of this research can be emailed to the secretary of the Behavioural Management and Social Sciences Ethics Committee of the University of Twente (ethicscommittee-bms@utwente.nl).

Kind regards,
Nicole Banach



Q2 Hereby I declare that I

- Read the Information above and agree to partake in this study (1)
- Do not consent (2)

Skip To: End of Survey If Hereby I declare that I = Do not consent



Q3 For SONA participants, please write down your Identity Code (can be found under "my profile", consists of 5 numbers) (for others: please continue)

End of Block: Information Sheet

Start of Block: Demographics

Q33 First, we are interested in your demographics. In the following, please indicate your gender and age.



Q4 What is your gender?

- Male (1)
- Female (2)
- Non-binary / third gender (3)
- Prefer not to say (4)



Q5 What is your age? (Please enter only numbers, not letters and in years)

End of Block: Demographics

Start of Block: Intervention Condition

Q34 Timing
First Click (1)
Last Click (2)
Page Submit (3)
Click Count (4)

Q7 Below, a video will be presented in which the roles of humans and animals are switched. Watch the video carefully, as later there will be questions asked about it. Please start the video.

Page Break

Q35 In the following, your opinions and intentions will be asked.

End of Block: Intervention Condition

Start of Block: Control Condition

Q9 Timing

First Click (1)

Last Click (2)

Page Submit (3)

Click Count (4)

Page Break

Q10 In the following, your opinions and intentions will be asked.

End of Block: Control Condition

Start of Block: Attitude

Q30 Now we are interested in your ideas about animals. Please indicate below to what extent you agree or disagree.



Q12 Morally, animals always count for less than humans.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)



Q13 Humans have the right to use animals however they want to.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)



Q14 It is morally acceptable to keep animals in circuses for human entertainment.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)



Q15 It is morally acceptable to trade animals like possessions.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)



Q16 Chimpanzees should have basic legal rights such as a right to life or a prohibition of torture.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)



Q17 It is morally acceptable to perform medical experiments on animals that we would not perform on any human.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

End of Block: Attitude

Start of Block: Behavioural Intention

Q31 Now we would like to ask you about your intentions for future behaviour as compared to your past behaviour.



Q18 I intend to consume meat...

- more than I currently do (1)
 - just as much as I currently do (2)
 - less than I currently do (3)
 - stop consume all together (4)
 - I did not consume meat and I would stick to that (5)
-



Q41 I intend to consume dairy products (e.g., cheese, eggs, milk)...

- more than I currently do (1)
 - just as much as I currently do (2)
 - less than I currently do (3)
 - stop consume all together (4)
 - I did not consume dairy products and I would stick to that (5)
-



Q24 I intend to be ok with pets being held under unnatural conditions (e.g., in cages/benches, in the cold)...

- more than I currently do (1)
 - just as much as I currently do (2)
 - less than I currently do (3)
 - not being ok all together (4)
 - I was not ok with pets being held under unnatural conditions and I would stick to that (5)
-



Q25 I intend to be ok with pets being held in conditions under which their basic needs are not provided (e.g., food, water, attention)...

- more than I currently do (1)
 - just as much as I currently do (2)
 - less than I currently do (3)
 - not being ok all together (4)
 - I was not ok with pets being held in conditions under which their basic needs are not provided and I would stick to that (5)
-



Q22 I intend to buy fur products (e.g., coats, purses, blankets, carpets, furniture for which fur is used)...

- more than I currently do (1)
 - just as much as I currently do (2)
 - less than I currently do (3)
 - stop buying all together (4)
 - I did not buy fur products and I would stick to that (5)
-



Q23 I intend to buy leather products (e.g., coats, purses, shoes, furniture for which leather is used)...

- more than I currently do (1)
 - just as much as I currently do (2)
 - less than I currently do (3)
 - stop buying all together (4)
 - I did not buy leather products and I would stick to that (5)
-



Q40 I intend to visit the circus...

- more than I currently do (1)
 - just as much as I currently do (2)
 - less than I currently do (3)
 - stop visiting all together (4)
 - I did not visit the circus and I would stick to that (5)
-



Q19 I intend to visit the zoo...

- more than I currently do (1)
 - just as much as I currently do (2)
 - less than I currently do (3)
 - stop visiting all together (4)
 - I did not visit the zoo and I would stick to that (5)
-



Q20 I intend to buy cosmetic products for which animals were tested on...

- more than I currently do (1)
 - just as much as I currently do (2)
 - less than I currently do (3)
 - stop buying all together (4)
 - I did not buy cosmetic products for which animals were tested on and I would stick to that (5)
-



Q21 I intend to buy medicines for which animals were tested on...

- more than I currently do (1)
 - just as much as I currently do (2)
 - less than I currently do (3)
 - stop buying all together (4)
 - I did not buy medicines for which animals were tested on and I would stick to that (5)
-



Q26 I intend to support hunting animals...

- more than I currently do (1)
 - just as much as I currently do (2)
 - less than I currently do (3)
 - stop supporting all together (4)
 - I did not support hunting animals and I would stick to that (5)
-



Q27 I intend to buy products from hunters (e.g., meat, horns, fur)...

- more than I currently do (1)
- just as much as I currently do (2)
- less than I currently do (3)
- stop buying all together (4)
- I did not buy products from hunters and I would stick to that (5)

End of Block: Behavioural Intention

Start of Block: Animal Rights Petition

Q28 In the following, an animal rights petition is presented. Please read the text below and decide whether you want to sign the petition or not.

Q29

I would like to ask you to sign this petition to help give animals the same rights as humans. This leads to animals being treated equally.

Signing this petition would help animals have the right to live without being abused or exploited by humans. Equal treatment of animals means laws against the abuse of animals in any kind such as slaughter for animal products (e.g. fur and meat), use for entertainment (e.g., circus or zoo), abuse of pets (e.g. kept in small cages), used for experiments or hunting.



Q43 I hereby sign the above petition for helping animals have the same rights as humans.

Yes (1)

No (2)

Display This Question:

If I hereby sign the above petition for helping animals have the same rights as humans. = Yes

Q44 Thank you for signing this petition!

Please continue the survey.

End of Block: Animal Rights Petition

Start of Block: Control Questions

Q45 Please answer the final question(s).

Display This Question:

If Below, a video will be presented in which the roles of humans and animals are switched. Watch the... Is Displayed

X→

Q36 Did you watch the video until the end?

Yes (1)

No (2)

Display This Question:

If Below, a video will be presented in which the roles of humans and animals are switched. Watch the... Is Displayed

X→

Q37 I watched the video attentively.

Strongly disagree (1)

Somewhat disagree (2)

Disagree (3)

Neither agree nor disagree (4)

Agree (5)

Somewhat agree (6)

Strongly agree (7)

Display This Question:

If Below, a video will be presented in which the roles of humans and animals are switched. Watch the... Is Displayed

Q42 What can you remember from the video?

Display This Question:

If Below, a video will be presented in which the roles of humans and animals are switched. Watch the... Is Displayed

Q43 Which specific picture(s) do you remember?



Q38 Which category applies to you?

- Omnivore (eating everything) (1)
- Pescetarian (Vegetarian who eats fish) (2)
- Vegetarian (not eating meat) (3)
- Vegan (not consuming any animal products) (4)
- Do not know (5)
- Do not prefer to share (6)

End of Block: Control Questions

Start of Block: Debriefing

Q42

This is the end of the study. Thank you for participating!

As we noted in the informed consent we were interested in investigating peoples' attitudes and behavioural intentions towards speciesism. You either watched a video with animals switching roles with humans or not and we were interested in whether this influenced your attitude and behavioural intentions towards treating animals.

It is important to mention that you did not actually sign a petition. If you would still like to do so feel free to look it up on the internet.

Artists created the illustrations of the video. These were mostly created to raise awareness of how animals are being treated. We investigated whether this was indeed the case.

Again, questions or remarks concerning this research can be emailed directly to the leading researcher Nicole Banach (n.banach@student.utwente.nl).

To complete this survey, please continue.

End of Block: Debriefing

Appendix B

Questionnaire of Study 2

Start of Block: Information Sheet

Q1 Welcome to this study!

Thank you for participating in this research. In the following, you will be informed about the focus of this research, the method and the data management.

Focus of this research

You are being invited to participate in a research study titled Speciesism. This study is being done by Nicole Banach from the Faculty of Behavioural, Management and Social Sciences at the University of Twente. The purpose of this research study is to investigate peoples' attitudes and behavioural intentions towards speciesism (the assignment of different worth or rights based solely on species, e.g., humans are more worth than animals). It will take you approximately 25 minutes to complete for £3.75. The data will be used for a report and international publication. Please keep in mind that there are no wrong or right answers to the questions of this survey.

Information and Data Management

Your data is handled with utmost confidentiality. Your individual responses cannot be traced back to you. Research results are solely reported in groups of gathered data.

Risks and Voluntariness

Participating in this research may elicit discomfort and distress. Part of the participants will receive information via video in which roles of humans and animals are switched. The images presented can be disturbing to some, as they contain violence and nudity. You are not obligated to watch the full video or answer any questions that cause distress or discomfort. Participating in this research is entirely voluntary and you can stop for any reason at any moment. If you decide to leave this research, all your data will be fully deleted and omitted from the research results.

Questions or remarks regarding this research can be emailed directly to the leading researcher Nicole Banach (n.banach@student.utwente.nl). Objections or concerns about the setup or method of this research can be emailed to the secretary of the Behavioural Management and Social Sciences Ethics Committee of the University of Twente (ethicscommittee-bms@utwente.nl).

**Kind regards,
Nicole Banach**



Q2 Hereby I declare that I

- Read the Information above and agree to partake in this study (1)
- Do not consent (2)

Skip To: End of Survey If Hereby I declare that I = Do not consent

End of Block: Information Sheet

Start of Block: Demographics

Q33 First, we are interested in your demographics. In the following, please indicate your gender, age, and country of residence.



Q4 What is your gender?

- Male (1)
- Female (2)
- Non-binary / third gender (3)
- Prefer not to say (4)



Q5 What is your age? (Please enter only numbers, not letters and in years)

Q44 Where do you live?

- Belgium (1)
- France (2)
- Germany (3)
- Ireland (4)
- United States (5)
- The Netherlands (6)
- other (7)

End of Block: Demographics

Start of Block: Intervention Condition

Q34 Timing

First Click (1)

Last Click (2)

Page Submit (3)

Click Count (4)

Q7 Below, a video will be presented in which the roles of humans and animals are switched. Watch the video carefully, as later there will be questions asked about it. Please start the video.

Page Break

Q35 In the following, your opinions and intentions will be asked.

End of Block: Intervention Condition

Start of Block: Control Condition

Q9 Timing

First Click (1)

Last Click (2)

Page Submit (3)

Click Count (4)

Page Break

Q10 In the following, your opinions and intentions will be asked.

End of Block: Control Condition

Start of Block: Attitude

Q30 We are interested in your ideas about animals. Please indicate below to what extent you disagree or agree.



Q12 Morally, animals always count for less than humans.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)



Q13 Humans have the right to use animals however they want to.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)



Q16 Chimpanzees should have basic legal rights such as a right to life or a prohibition of torture.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)



Q14 It is morally acceptable to keep animals in circuses for human entertainment.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)



Q15 It is morally acceptable to trade animals like possessions.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)



Q17 It is morally acceptable to perform medical experiments on animals that we would not perform on any human.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

End of Block: Attitude

Start of Block: Behavioural Intention

Q31 Now we would like to ask you about your intentions for future behaviour as compared to your past behaviour.

IMPORTANT: Only choose category 5 'I did not do that and intend to stick to that' when you **actively check** the products on whether animals were used. Animals are more often used for products than people may think.

For instance, animal products are used in most cookies (dairy), shoes (leather), and duvets (fur, down, feathers, wool). Also, the majority of medicines and cosmetics are tested on animals (bigger brands also).



Q18 I intend to consume meat...

- more than I currently do (1)
 - just as much as I currently do (2)
 - less than I currently do (3)
 - stop consume all together (4)
 - I did not consume meat and I would stick to that (5)
-



Q41 I intend to consume dairy products (e.g., cheese, milk, cookies)...

- more than I currently do (1)
 - just as much as I currently do (2)
 - less than I currently do (3)
 - stop consume all together (4)
 - I did not consume dairy products as I actively check this and I would stick to that (5)
-



Q44 I intend to consume eggs...

- more than I currently do (1)
- just as much as I currently do (2)
- less than I currently do (3)
- stop consume all together (4)
- I did not consume eggs and I would stick to that (5)



Q22 I intend to buy fur products (e.g., coats, purses, blankets, carpets, furniture for which fur is used)...

- more than I currently do (1)
- just as much as I currently do (2)
- less than I currently do (3)
- stop buying all together (4)
- I did not buy fur products as I actively check this and I would stick to that (5)



Q23 I intend to buy leather products (e.g., coats, purses, shoes, furniture for which leather is used)...

- more than I currently do (1)
- just as much as I currently do (2)
- less than I currently do (3)
- stop buying all together (4)
- I did not buy leather products as I actively check this and I would stick to that (5)



Q40 I intend to visit the circus...

- more than I currently do (1)
- just as much as I currently do (2)
- less than I currently do (3)
- stop visiting all together (4)
- I did not visit the circus and I would stick to that (5)



Q19 I intend to visit the zoo...

- more than I currently do (1)
 - just as much as I currently do (2)
 - less than I currently do (3)
 - stop visiting all together (4)
 - I did not visit the zoo and I would stick to that (5)
-



Q20 I intend to buy cosmetic products for which animals were tested on...

- more than I currently do (1)
 - just as much as I currently do (2)
 - less than I currently do (3)
 - stop buying all together (4)
 - I did not buy cosmetic products for which animals were tested on as I actively check this and I would stick to that (5)
-



Q21 I intend to buy medicines for which animals were tested on...

- more than I currently do (1)
- just as much as I currently do (2)
- less than I currently do (3)
- stop buying all together (4)
- I did not buy medicines for which animals were tested on as I actively check this and I would stick to that (5)

End of Block: Behavioural Intention

Start of Block: Animal Rights Petition

Q28 In the following, an animal rights petition is presented. Please read the text below and decide whether you want to sign the petition or not.

Q29

I would like to ask you to sign this petition to help give animals the same rights as humans. This leads to animals being treated equally.

Signing this petition would help animals have the right to live without being abused or exploited by humans.

Equal treatment of animals means laws against the abuse of animals in any kind such as slaughter for animal products (e.g. fur and meat), use for entertainment (e.g., circus or zoo), abuse of pets (e.g. kept in small cages), used for experiments or hunting.



Q43 I hereby sign the above petition for helping animals have the same rights as humans.

Yes (1)

No (2)



Q45 We also want to ask you to voluntarily fill in 5 additional questions about signing petitions. This is not obliged as it is not part of the study.

I volunteer to fill in 5 additional questions about petitions.

Yes (1)

No (2)

Page Break

Display This Question:

If We also want to ask you to voluntarily fill in 5 additional questions about signing petitions. Th... = Yes

X→

Q44 Thank you for wanting to answer 5 additional questions! Please indicate the answer possibility that best represents your answer.

| | Strongly disagree (1) | Disagree (2) | Somewhat disagree (3) | Neither agree nor disagree (4) | Somewhat agree (5) | Agree (6) | Strongly agree (7) |
|--|--------------------------|-----------------------|--------------------------|-----------------------------------|-----------------------|-----------------------|-----------------------|
| Signing petitions is a valuable tool to change society. (7) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| A petition allows many with the same voice to be amplified and heard in unison. (8) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| A petition is more powerful than demonstrations. (9) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Governments' decisions are hardly influenced by petition results. (10) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Petitions will raise awareness in the community. (11) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

End of Block: Animal Rights Petition

Start of Block: Perspective taking and Awareness

X→

Q53 Now we are interested in your **current** perspective towards animals. Please indicate for the items below to what extent you experience this at this moment.

| | Strongly disagree (1) | Disagree (2) | Somewhat disagree (3) | Neither agree nor disagree (4) | Somewhat agree (5) | Agree (6) | Strongly agree (7) |
|---|-----------------------|-----------------------|-----------------------|--------------------------------|-----------------------|-----------------------|-----------------------|
| I take the perspective of animals. (1) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel emotionally involved with animals. (2) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel empathy for animals. (3) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |



Q60 Please indicate to what extent you experience these emotions **currently**.

| | 1 - Not at all (1) | 2 (4) | 3 (5) | 4 (6) | 5 (7) | 6 (8) | 7 - Extremely (9) |
|----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| I feel alarmed. (1) | <input type="radio"/> |
| I feel bothered. (2) | <input type="radio"/> |
| I feel angered. (4) | <input type="radio"/> |
| I feel annoyed. (5) | <input type="radio"/> |



Q58 We would also like to know your perception towards animals. Please indicate to what extent you disagree or agree.

I am aware of the common practices of how animals are being treated in the medicine industry.
(10)



End of Block: Perspective taking and Awareness

Start of Block: Control Questions

Q45 Please answer the final questions.

Display This Question:

If Below, a video will be presented in which the roles of humans and animals are switched. Watch the... Is Displayed

X→

Q36 Did you watch the video until the end?

Yes (1)

No (2)

Display This Question:

If Below, a video will be presented in which the roles of humans and animals are switched. Watch the... Is Displayed

X→

Q37 I watched the video attentively.

- Strongly disagree (1)
- Somewhat disagree (2)
- Disagree (3)
- Neither agree nor disagree (4)
- Agree (5)
- Somewhat agree (6)
- Strongly agree (7)

Display This Question:

If Below, a video will be presented in which the roles of humans and animals are switched. Watch the... Is Displayed

Q42 What can you remember from the video?

Display This Question:

If Below, a video will be presented in which the roles of humans and animals are switched. Watch the... Is Displayed

Q43 Which specific picture(s) do you remember?

Q38 Which category applies to you?

- Omnivore (eating everything) (1)
- Pescetarian (Vegetarian who eats fish) (2)
- Vegetarian (not eating meat) (3)
- Vegan (not consuming any animal products) (4)
- Do not know (5)
- Do not prefer to share (6)

Page Break



Q46 Please indicate for the following statements "Yes" or "No" as applicable.

| | Yes (1) | No (2) |
|--|-----------------------|-----------------------|
| It is sometimes hard for me to go on with my work if I am not encouraged. (1) | <input type="radio"/> | <input type="radio"/> |
| I sometimes feel resentful when I don't get my way. (14) | <input type="radio"/> | <input type="radio"/> |
| There have been times when I felt like rebelling against people in authority even though I knew they were right. (4) | <input type="radio"/> | <input type="radio"/> |
| No matter who I'm talking to, I'm always a good listener. (15) | <input type="radio"/> | <input type="radio"/> |
| There have been occasions when I took advantage of someone. (16) | <input type="radio"/> | <input type="radio"/> |
| I'm always willing to admit it when I make a mistake. (7) | <input type="radio"/> | <input type="radio"/> |
| I sometimes try to get even rather than forgive and forget. (8) | <input type="radio"/> | <input type="radio"/> |
| I am always courteous, even to people who are disagreeable. (17) | <input type="radio"/> | <input type="radio"/> |
| I have never been irked when people expressed ideas very different from my own. (10) | <input type="radio"/> | <input type="radio"/> |
| There have been times when I was quite jealous of the good fortune of others. (18) | <input type="radio"/> | <input type="radio"/> |
| I am sometimes irritated by people who ask favors of me. (22) | <input type="radio"/> | <input type="radio"/> |
| I have never deliberately said something that hurt someone's feelings. (20) | <input type="radio"/> | <input type="radio"/> |

Q45 Do you have any remarks about this study?

End of Block: Control Questions

Start of Block: Debriefing

Q42

This is the end of the study. Thank you for participating!

As we noted in the informed consent we were interested in investigating peoples' attitudes and behavioural intentions towards speciesism. You either watched a video with animals switching roles with humans or not and we were interested in whether this influenced your attitude and behavioural intentions towards treating animals.

It is important to mention that you did not actually sign a petition. If you would still like to do so feel free to look it up on the internet.

Artists created the illustrations of the video. These were mostly created to raise awareness of how animals are being treated. We investigated whether this was indeed the case.

Again, questions or remarks concerning this research can be emailed directly to the leading researcher Nicole Banach (n.banach@student.utwente.nl).

To complete this survey, please continue.

Page Break

Q43 Thank you for participating! Your Prolific code is: 2BAB258B
Below, please enter your Prolific ID for approval:

End of Block: Debriefing
