

Human-Animal Relationships

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Summary

Sustainable development has been used in various contexts by theoreticians and practitioners from a number of disciplines. According to the definition of sustainable development, we think sustainable human-animal relationship means the environmental sound, psychologically, physically and socially beneficial, ethically acceptable and economically viable practices between humans and animals. Previous studies showed that many factors, including culture, geographic places, psychological feelings, sustenance, awareness of animal welfare, economy and human demographics, that could influence the sustainable human-animal relationships. However, how to investigate human-animal relationships in a more comprehensive way deserves further consideration. The emotional and environmental relationships are two of the most important aspects of sustainable human-animal relationships. Additionally, comparing to the lay public, collecting data from companion animal owners would be a better choice when measuring animal emotions and resource consumptions because owners' direct experience in interacting with animals may allow them to better comprehend animals' daily conditions. Therefore, the central aim of this dissertation is to investigate public attitudes toward animals in general and the emotional and environmental relationships between companion animals and their caretakers. To make the structure clearer and the content easier to understand, we divided this dissertation into three key parts according to the three main questions as shown below:

What are the people's attitudes toward animals in general and how does this relate to people's ethical ideologies in China, the Netherlands and Japan?

Which emotions can owners attribute to their companion dogs and cats, and what are the correlations between the attribution of emotion and owners' degree of attachment to their dogs and cats?

What are the environmental impacts of food consumption by companion dogs and cats?

These questions were answered in chapter 2 to chapter 9 by using the data from China, Japan and the Netherlands. We thought the culture, ethical ideologies, economy and people's awareness of animal welfare might be different in these three countries, and this would make it possible to execute the influence of these factors on the issue of sustainable human-animal relationships. Data for this dissertation has been collected by two questionnaires between 2015 and 2016 in those three countries.

The first main question has been addressed in chapters 2, 3 and 4, which investigated people's attitudes toward animals in general and how ethical ideologies and their interaction with human demographics were related to such attitudes toward

animals in China, the Netherlands and Japan. The second main question has been addressed in chapters 5 and 6, which explored companion animal owners' attribution of emotions to their animals and how the attribution of emotions was correlated with the degree of attachment to companion animals in China and Japan. The comparison analyses across these two countries and the Netherlands were also discussed in each chapter. The third main question has been addressed in chapters 7, 8 and 9. We quantified the food consumption by companion dogs and cats in China, Japan and the Netherlands in these three chapters. According to the food consumption, companion animals' dietary EPP, GHG/carbon emissions and energy consumption were calculated and compared with humans' dietary "Ecological Footprint" (EF) and GHG/carbon emissions.

Chapter 2 aimed to find out how Chinese people's attitudes toward animals (measured by Animal Attitude Scale, AAS, and Animal Issue Scale, AIS) as well as how ethical ideologies (measured by Ethical Position Questionnaire, EPQ) associated with Chinese people's attitudes toward animals. Since previous research has demonstrated that Chinese people's awareness of animal welfare is lower than that of the Western population, in this chapter, we questioned whether the links between ethical ideologies and attitudes toward animals could be low in a country where the awareness of animal welfare is poor. We found that Chinese people's attitudes toward animals were positively correlated with idealism and negatively correlated with relativism. According to our findings and previous studies in the United States, we concluded that the same mechanisms underlying the effect of ethical idealism on attitudes toward animals might work in different countries to increase awareness on animal welfare, while the manner in which ethical relativism influences attitudes toward animals may differ between developed (e.g. the US) and developing countries.

In order to confirm our findings in chapter 2, we conducted the study of chapter 3. **Chapter 3** analysed Dutch people's attitudes toward animals as well as how ethical ideologies related to Dutch people's attitudes toward animals. Since Dutch people have a greater awareness of animal welfare, we examined whether the correlation between ethical ideologies and attitudes toward animals differ between Dutch and Chinese people. Our results showed that Dutch people had a higher awareness of animal welfare than Chinese people. Dutch people's attitudes toward animals were significantly related to idealism; this confirmed our findings in China, while no significant correlation between relativism and attitudes toward animals was found among Dutch respondents, which was inconsistent with our findings in China. Overall, chapter 3 further clarified our point in chapter 2: the correlation between idealism and attitudes toward animals is the same in different countries, while the correlation between relativism and attitudes toward animals differs between different countries, in particular, between developed and developing countries. These findings also reveal that the different level of development and awareness of animal welfare may influence the correlation between ethical ideologies and attitudes toward animals.

However, besides the different level of development and awareness of animal welfare, we suppose other factors such as culture, society condition and geographical location may influence people's attitudes toward animals. Therefore, we conducted **chapter 4**, which used Japan as a representative because Japan's development

conditions are similar to those of the Western countries, while its culture is similar to those in other Eastern countries such as China, although their social values are also influenced by the Western culture. Chapter 4 revealed that Japanese people's awareness of animal welfare was similar to Chinese people but lower than Dutch people. In Japan, people's attitudes toward animals were positively associated with idealism and negatively associated with relativism. These findings are similar to those from China, but partly contrast with those from the Netherlands, where relativism was unrelated to attitudes toward animals. Considering that idealistic individuals are concerned about others' welfare and believe in the absolute value of moral standards based on their unselfish concern for others. Hence, greater concern for animal welfare has always gone together with a higher level of idealism. With regard to relativism, Chinese and Japanese people are considered to be more collectivistic, focusing attention on the contextual factors when explaining their attitudes toward animals. Therefore, relativism is significantly associated with their attitudes toward animals. Dutch people are more individualistic and they might regard animals as more valuable than the benefits that they bring. Hence, the relativism would be ignored when investigating the predictor variables of Dutch people's attitudes toward animals.

The emotional and environmental relationships are two of the most significant aspects of the relationship between companion animals and their owners. Therefore, we wanted to investigate sustainable human-animal relationships by measuring their emotional and environmental relationships between companion animals and their owners, respectively. Chapters 5 and 6 focused on the emotional relationship while chapters 7, 8 and 9 focused on the environmental relationship. Our research team (Pim Martens and Marie-Jose Enders) have demonstrated that Dutch companion dog and cat owners could attribute all primary (anger, joy, fear, surprise, disgust and sadness) and secondary (shame, jealousy, disappointment and compassion) emotions to their animals, with a trend toward basic emotions being more commonly attributed than secondary emotions (with the exception of jealousy). All companion animal owners showed strong attachment to their animals, and their degree of attachment was found to be significantly correlated to the attribution of seven (three primary emotions and four secondary emotions) out of ten emotions to animals. In order to find out whether these findings are also suitable in China, we conducted chapter 5. **Chapter 5** showed that Chinese companion dog and cat owners had a high attachment to their animals, which was similar to the Dutch companion owners. They frequently attributed primary emotions to their animals rather than secondary emotions (with the exception of compassion). Additionally, the degree of attachment was significantly associated with the attribution of five (two primary emotions and three secondary emotions) out of ten emotions to their animals. Our findings provided evidence that the correlation between the degree of attachment and the attribution of emotions was significant for more animal emotions by Dutch owners than by Chinese owners, which means that the attribution of emotions was more associated with the degree of attachment in the Netherlands than in China. Since animal emotions have been identified as a critical marker for animal welfare, other factors such culture may also influence the correlation between the degree of attachment and the attribution of emotions to animals. Therefore, we conducted the study of chapter 6.

Chapter 6 was conducted in Japan and similar to our findings in the Netherlands and China, it showed that Japanese owners have a strong attachment (but lower than that of Dutch and Chinese owners) to their animals. Companion animals' primary emotions, compared to secondary emotions, were more commonly attributed by their owners, with the exceptions of two secondary emotions of compassion and jealousy. The degree of attachment was significantly correlated with the attribution of nine (five primary emotions and four secondary emotions) out of ten emotions. Findings from this chapter imply that the relationship between degree of attachment and the attribution of emotions was significant for more animal emotions by Japanese and Dutch owners than by Chinese owners. In addition, based on our findings in chapter 5 and our previous Dutch research, we concluded that Chinese and Japanese animal owners were more commonly to attribute compassion to their animals than Dutch owners. This finding indicated that culture could, to some extent, influence people's attribution of emotions to animals. In Chinese and Japanese culture, the feeling of compassion reflects the principle of benevolence, one of the five basic elements of Confucianism. Dogs and cats are regarded as sentient beings and as having the nature of compassion to all misfortunes. Therefore, Chinese and Japanese people tend to give more anthropomorphic descriptions of compassion than Dutch population.

While Chapter 5 and 6 focused on the emotional relationship between companion animals and their owners, the following three chapters mainly analyzed the environmental relationship. **Chapter 7** examined the environmental impacts of food consumption by companion dogs and cats in China, by utilizing variables of dietary Ecological Paw Print (EPP), carbon emissions and energy consumption. We concluded that the dietary EPP of an average-sized dog was 0.82 to 4.20 ha. year⁻¹, while for a cat was 0.36 to 0.63 ha. year⁻¹ (regarding commercial dry food). All companion dogs and cats' dietary EPP (27.4 million companion dogs and 58.1 million companion cats, assuming they eat commercial dry food) was 43.6 to 151.9 million ha. year⁻¹, which was equivalent to the dietary EF of 70.3 to 245.0 million Chinese people in a year. Their carbon emissions from their food consumption were 2.4 to 7.5 million tons per year, which was equivalent to 34.3 to 107.1 million Chinese people's carbon emissions regarding their food consumption.

Chapter 8 examined the environmental impacts of food consumption by companion dogs and cats in Japan, by utilizing variables of dietary EPP, greenhouse gas (GHG) emissions and energy consumption. The dietary EPP of an average-sized dog in Japan was 0.33 to 2.19 ha. year⁻¹, while for a cat was 0.32 to 0.56 ha. year⁻¹. The dietary EPP of all companion dogs and cats (10.35 million companion dogs and 9.96 million companion cats) in Japan was 6.6 to 28.3 million ha. year⁻¹, which was equivalent to the dietary EF of 4.62 to 19.79 million Japanese people. Their GHG emissions from food consumption were 2.52 to 10.70 million tons, which were equivalent to 1.17 to 4.95 million Japanese people's GHG emissions regarding their food consumption.

In **chapter 9**, our results showed that the dietary EPP of an average-sized dog was 0.90 to 3.66 ha. year⁻¹, while for a cat was 0.40 to 0.67 ha. year⁻¹. Owning a large dog could increase the household's annual EF and GHG emissions by 58% and 11.3%, respectively. The dietary EPP of all companion dogs and cats (1.8 million companion dogs and 3.2 million companion cats) in the Netherlands was 2.9 to 8.7 million ha. year⁻¹.

¹, which was equivalent to the whole EF of 0.50 to 1.51 million Dutch people. Their GHG emissions from their food consumption were 1.09 to 3.28 million tons, which were equivalent to 94 to 284 thousand of Dutch people's GHG emissions regarding their total resource consumption.

Additionally, results from chapter 7, 8 and 9 also showed that many companion animals (especially medium-sized and large dogs) consumed more energy than their actual needs in all three case studies, suggesting that overfeeding and food waste were two common phenomena among companion dog and cat households.

Chapter 10 ends with a summary of the main findings, discussions and further considerations according to the empirical chapters. In this chapter, we explained the sustainable human-animal relationships and highlighted the approaches to improve the emotional and environmental relationship between companion animals and owners. We concluded that a sustainable emotional relationship between humans and animals requires human to improve their concern for animals and understanding for animal emotions, while a sustainable environmental relationship between companion animals and owners requires a large scale reduction of companion animal numbers, replacing large animals with small animals that could supply the same emotional and physical support, and avoid overfeeding and food waste.

Through this dissertation, we hope people's awareness of animal welfare will increase and humans and animals could live on the earth in a more sustainable way. We acknowledge that this dissertation did achieve a degree of success by measuring the human-animal relationships in a relatively comprehensive way, yet we should admit that there is no one simply method can explain the complex relationships between humans and animals and the predictor variables that involved in such relationships, further studies from different perspectives and disciplines therefore need to confirm the main points in this dissertation.