Environmental Awareness Through Biophilia-inciting Video Stimulus

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Abstract

Anthropogenic climate change is starting to have a greater negative influence on habitats and species, so we need to find new methods to engage humans in saving our planet. In this research paper, the theory of biophilia is explored and methods for promoting marine conservation are tested through video stimuli. The aim of this study is to explore how a video stimulus of animal interaction could result in engagement with conservation. This was achieved through the use of a questionnaire that gauged qualitative and quantitative reactions of participants to a video stimulus. Respondents ranked their connection with the environment as well as their level of motivation for saving the environment, after watching video of human-animal interaction, participants were asked similar questions. These changes, as well as qualitative responses of watching the video were analysed to see if any change in attitude was evident. In qualitative analysis, it was noticed that many respondents expressed a desire to 'protect our oceans' after exposure to the video stimulus. Others expressed an attachment to octopus – the animal presented in the video. On scales of one to ten, participants initially responded high, and that was maintained after the video as well. With these findings we can start making informed choices about our methods for outreach; will a video incite a strong enough connection between humans and animals that they start aiding in conservation efforts?

Keywords

Biophilia, Marine conservation, Environmental protection, Environmental Psychology, Outreach and activism

Introduction

Picture yourself with your pet, or surrounded by puppies and kittens, the image that comes to mind is one of cuteness, and joy, it evokes a slew of positive emotions. When someone feels this connection with animals you are experiencing the phenomenon of biophilia. Biophilia, by definition, is the “innate affinity to our natural world” (Kellet and Wilson 1993). Whilst it is disputed whether biophilia is heritable or psychological, it is agreed that in some sense, biophilia does exist (Besthorn and Saleeby 2018). Biophilia has become influential, with incorporation into architecture and modern mental wellness (Joye and De Block 2011). Today, we see a growing divide between ourselves and nature, with more than 50 percent of the human people living in urban settlements (United Nations 2016), we struggle to find quick and easy connections with nature. Biophilia as a phenomenon can be utilized as a basis for conservation, by tying our ‘innate’ and inherent need to connect with nature to specific species or environments we can become more invested in conserving said species and environments (Zhang et al 2013). Organizations aiming to conserve habitats and species can aim to tie in biophilia to their conservation efforts.

As our world grows increasingly populous (Roser et al 2013), the human race is struggling to accommodate both itself and nature on earth. Environmental damage to the ocean is largely reflected in the ‘healthiness’ of marine life. Larger marine mammal populations, an indicator of marine ecosystem health, have decreased significantly in recent years, and one quarter (IUCN 2008) are registered on the International Union for Conservation of Nature red list. By inducing a personal connection between humans and marine animals through biophilia you possibly create a human invested in the health of the ocean. Employing biophilia in conservation could help reduce plastic waste in the ocean (Cabanek et al. 2020), lower overexertion on fisheries and decrease occurrence of other harmful habits.

Whilst it is apparent that biophilia occurs, its proper definition has not been fully developed, as a result it has been rarely used in peer-review articles (Simaika and Samways 2010). This gives less legitimacy to biophilia and is limiting its application in multiple fields, including conservation. The oceans constitute 90% of the planet's habitable space (UNESCO- Facts and figures on marine biodiversity 2017) so the importance of its maintenance is quite clear. Fisheries account for 15 percent of dietary intake of protein (UNESCO- Facts and figures on marine biodiversity 2017) as a cheaper alternative to other meats such as beef and chicken. Without instituting new measures in sustainability and changing our habits drastically we cannot hope to keep our oceans healthy.

We need to innovate and create novel solutions to combat many of these issues, connecting psychology into conservatism could be one of these solutions. In this report, biophilia is explored to see if there is potential for it to become a 'weapon for change' in conservationist's arsenals.

Methodology

Aim of Study

The aim of this research is to explore if a video of human-animal interaction has an impact on conservation attitudes, and how a human connection with nature, presumably present in the stimulus, changes attitudes towards marine conservation. The main objective of this experiment is to see if biophilia can be incorporated into activism as a subconscious way to change behaviours. Employing both a quantitative and qualitative approach to data collection will provide a holistic view of the changes effected by the video. The quantitative data will help to reveal if people are directly affected by the video whilst qualitative data provides a subtler exploration of the effects of the video. From our qualitative research data, we grasp if change or a shift in mind-set is triggered by the video.

Research Design

Data was collected through an online survey. Targeted exclusively at residents in Singapore, as well as a subset of 16-17 year old international students. The respondents were asked to rate the importance of various factors influencing their decisions. The survey was distributed through electronic means, specifically email and social media.

Descriptive analyses of the data were presented to compare the mean ratings of the importance of the six factors. A paired t-test was run to evaluate the statistical significance of these differences. Then, multiple regression analysis was done to compare the ratings of these factors to the respondents' changed responses. Finally, the qualitative responses to the open-ended questions were analysed.

Ethical Considerations

The survey was conducted after a consent form was signed, this included a pledge that no identifying information would be required of participants. Thus privacy and confidentiality was maintained for the respondents. The ethical guidelines of research were also followed.

Instruments Used

A questionnaire was used in the study. The questionnaire consisted of two main sections. The first section pertained to questions regarding demographic information as well as respondents' original opinions on conservation and care towards animals. The second section focused primarily on responses to the video stimulus as well repeats of questions from the start to see if there was a change in original opinions.

Results

In data collection, it was found that the mean change in similar questions before and after the video stimulus was extremely small, the question asked was ‘On a scale of 1 to 10, how strongly do you identify with this statement? "I believe that we should be protecting nature and animals on land and in the water."’ The initial average of the data was a 9.38 out of ten (M = 9.38, SD = 1.16) , which, after exposure to the stimulus, only increased to 9.44 (M = 9.44, SD = 0.99). Responses from this paired set of questions were put into a paired t-test. The two tailed values of the paired t-test were the values that were focused upon as we could not predict the direction of change of the responses. The t-stat was 0.596 and the t critical value for the two tail analysis was 2.00 (t-stat = 0.5961, t-critical = 2.009). The p-value of this test was 0.554, (P = 0.5538). This value is above the accepted p-value 0f 0.05 and therefore we must conclude that the data from this pair of questions is statistically insignificant. Interestingly though, whilst this did not change the rating, standard deviation fell to a value of 0.99. This meant a more concentrated band of responses.

Question 4, on a scale of 1 to 10, how would you rate your connection with animals, had a mean response of 7.56 out of ten with a standard deviation of 2.05 (M = 7.56, SD = 2.05). Its counterpart, question 10, about the likelihood of an increase with connection to animals had a mean of 8.28 and standard deviation of 1.78. (M = 8.28, SD 1.78). Both these questions are represented below in figures one and two.

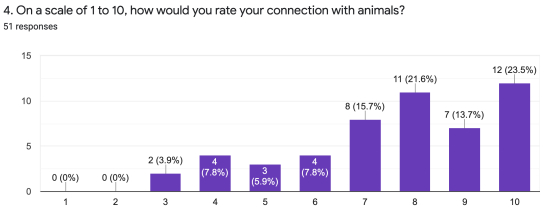

Figure 1.

Graphical representation of question 4 responses

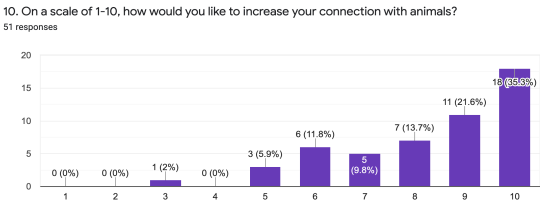

Figure 2.

Graphical representation of question 10 responses

In qualitative data, some responses were quantified using a word correlation list, including positive, negative and neutral words, then converting words into numerical ‘scores’. The results of the pre-video word association was 5.83 and its standard deviation was 1.36. The same word association question posed after exposure to the video stimulus had a mean of 7.05 and a standard deviation of 1.45.

Discussion

The mean change of pre-video and post-video responses was very low, and the regions of uncertainty are overlapping. This lack of change, in the median, mode and mean as well, pertains to a high initial perception that does not change after the video. The skewness does become less pronounced in the second response, which could allude to a lowering of the highest rating responses.

After exposure to the video stimuli, the question of likelihood of increase in animal connection was posed. Presented graphically in figures one and two, this data shows an interesting trend of how people feel towards increasing their connection with animals, or biophilial tendencies. Only one respondent rated themselves below 5 on a scale of 1 to 10 ($M = 8.28$, $SD = 1.78$). This data, whether or not it was affected by the video, could show that in our daily lives we lack a connection with animals. The high desire to connect with animals exhibited from the responses may be because of a lack of connection with animals. This could make conservation efforts that personally link humans and endangered animals even more effective.

As the survey was multi-faceted (Quantitative and Qualitative) analysis of the qualitative responses also revealed trends. Questions eight and nine were identified to have a link and therefore were analysed in tandem through a pre/post lens. Qualitative results were collected from the survey and split into three categories of word association; a positive, neutral and, negative correlation. After watching the video, participant's responses were categorized in a similar fashion and compared with their respective original responses. Scores for each category of words were assigned, with negative words being one point, neutral being two and positive being three. Word association is used widely in psychology and is believed to "reflect access of the strongest intra-lexical link" (Playfoot et al). If a word has a strong link to another, and this other word is a 'positive' word then the conclusion is that the original object (word) is thought of in a positive light. With this in mind, if an octopus has a word association of positive words (three points) that has changed from a neutral or negative word, the association to a positive word should be representative of the views on octopus.

Word-feeling correlation list		
Negative	**Neutral**	**Positive**
Strange	Food	Intelligent
Weird	Touch	Funny
Scary	Big	Cool
Dangerous	Small	Beautiful
Clumsy	Tentacles	Friendly
Scared	Difference	Interesting
Mysterious	Nature	Awesome
Alien	Ocean	Serene
Slow	Eight	Fantastic
Danger	Flexible	Harmony
Abnormal	Animal	Clever
Escape	Fish	Mind-Boggling
	Squid	Inspiring
	Legs	Magical
	Ink	Incredible
	Shark	Love
		Gentle
		Creative

Table 1.

List of word-associations for responses of questions eight and nine

The responses that had been translated into numerical values in the post video word-association (M = 5.83, SD = 1.36) had a noted a change from its original values (M = 7.05, SD = 1.45) which alludes to a change in opinions about octopus. Statistical analysis of these responses showed statistical significance in this change. The absolute t-stat was greater than the critical t-value (t-Critical = 2.02, t-stat = 5.44). The P value was; $P = 3.05\times10^{-6}$, which is below the threshold of P = 0.05. Interestingly the median and mode of the pre video responses are equal, and this is the same for the post video. This could mean that the demographics that were sampled have very similar perspectives of octopus, and that after watching the video the whole sample also increased uniformly in their perception of octopus

In other qualitative responses (question 14. and 15.), interesting responses were identified and then looked at in-depth. Some respondents, after being prompted to expand on their reaction to the video, wrote about protecting our environment. Respondents commented on their reactions;

> “Inspired to protect the oceans, do my part to reduce plastics”

> “… we aren't doing enough to protect them and we all know it but nothing is changing in any fundamental way”

Of the responses advocating for climate protection etc. these two specifically stated the idea of protecting our oceans. Showing that outwardly, videos such as the stimulus used in gathering data could be used to incite conservational tendencies. One of the responses identified as interesting said;

"I was jealous of the man as I also would like to have such a strong connection with an animal. I have experienced this to a certain extent with a land animal but I would like to be able to discover marine life more in depth"

In this answer, we see the suggestion that biophilia may be present. The respondent expresses jealousy of a connection another human has with an animal. The diver had a connection with an animal that the participant lacked, this may have been the root cause for the feeling of jealousy. Their statement about experiencing a strong connection with 'a land animal' suggests that humans may not lack a connection with nature on land, but rather a connection to nature that is rarely seen. Domesticated flora and fauna may be able to satiate the biophilic needs of humans, but this means that unseen habitats and animals may lack connection and publicity, making these hidden habitats and fauna areas of risk for conservation.

Conclusion

The aim of this research paper was to study if video stimuli could elicit protective tendencies towards animals in the video, if so, this would be explored further to see if biophilia had an influence in the apparent change in attitudes towards animal conservation. This change was explored through a multi-faceted analysis of qualitative and quantitative data. Qualitative and quantitative data was analysed to find if perceptions of the animal in the video stimulus (octopus) and perceptions towards conservation were changed.

On the basis of the results we can maintain the original hypothesis that there was a change in perceptions of the animal in the video as well conservation-connection. It was found that the word association of octopus changed after watching this video. After allocating values for the different levels of sentiment, the numerical value of the words used to describe octopus increased by 1.225 points. This increase was also statistically significant, which was shown through a paired t-test. Qualitative statements also helped determine if there was in fact a change. Respondents highlight a desire to protect octopus that was incited due to the video. This shows that videos similar to this one could create a mind-set change possibly prompted by biophilia. This understanding could be crucial for conservation efforts in protecting flora and fauna.

The demographics of respondents also reveal encouraging ideas of how new generations think. In a subset of respondents of ages 16-17 being educated at international schools, more than eighty percent very strongly believed in protecting marine environments. This offers a glimpse at our changing societal systems, specifically here in Singapore, where international schools are aiming to educate young generations about climate change related issues. The new challenge we face is

utilizing these pro-conservation perspectives into tangible protection and change in our environmental protection. In the case of biophilia, engineering an output where both humans and animals benefit is entirely possible. Simaika and Samways discuss health benefits accruing from animal companionship (2010). This connection with animals could be used to benefit humans by releasing stress whilst also being a tool for conservation. In fact, studies have shown that cortisol levels, a chemical associated with stress, were decreased by 48 percent when a dog was introduced at the time of waking up (A. Beetz et al. 2012).

Limitations

Psychological ramifications in the data may have been present. We already see broad video campaigns being used by large non-profits who's sole goal is conservation, but this should become more widespread if video stimuli is a motivating factor for engagement in conservation. Connections humans can make with animals via video could make them feel a sense of 'guardianship' that translates to activism or help in some way. Humans are inherently lazy, so this motivation will diminish if they aren't provided direct opportunities for action. Organizations need to realize this and make sure to provide easy-access ways to help such causes.

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***Contact editor.questioz@gmail.com for Appendix section**