Language Effects on Children’s Opinions of Snakes

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Abstract

As a society we can express fears over many things, with this fear sometimes escalating into a phobia indicating an even higher level of fear. However, knowing what is causing these fears and phobias has received much debate over whether this is something innate and we are born with these fears, or it is something that is learned from our environment. There is still not a definitive answer in the literature. Perhaps this debate really does not have an either/or answer, but rather might be a combination of the two theories. When looking at the environmental factors, research examining the effects that language use can have on children’s opinions have shown promising results for affecting the way our young children view their world. The current research further explored that connection between language use and children’s opinions by making use of gender pronouns in non-objectifying language and the influence it may have on 3-year-old children’s aversion to snakes. It was hoped that the non-objectifying condition would have a positive effect on the children’s opinions of snakes, with more children from that condition choosing the nice option for the snake. However, this is not what the researchers found. There were no significant effects observed during this research.
Language Effects on Children’s Opinion of Snakes

An intense fear of snakes is among the most prevalent phobias seen in society today. Fear can be an adaptive and beneficial response to stimuli when the circumstances warrant it, although it can also be maladaptive and detrimental if that fear is not necessary to an individual’s health or safety and that fear causes a disruption to their daily activities. This phobia is high on the list of most common phobias, and it is a fear seen in varying levels below phobia as well, although there is debate over why it may be such a common occurrence. It is the opinion of some researchers that it may be an innate response to fear-inducing stimuli (Cook, Mineka, Wolkenstein & Laitsch, 1985; Cook & Mineka, 1989; Ohman & Mineka, 2003). This threat-relevant fear may have been beneficial to previous generations who may have been more likely to come into contact with dangerous snakes in their day-to-day lives, and the predisposition for it may have continued to carry over from those times, as some researchers have shown from their work with rapid detection of these threat-relevant stimuli (Hoehl et al., 2017; LoBue, 2014; LoBue & Adolph, 2019; Penkunas & Coss, 2013; Waters, Lipp & Spence, 2008).

Other researchers, however, believe that it is more of an acquired fear resulting from the behaviours of the people that surround them in their life, and other environmental factors, rather than an innate response (Rachman, 1977; Rigney & Callanan, 2011). Rachman (1977) presented the conditioning theory of fear-acquisition and believed that fear was acquired through three different pathways: conditioning, vicarious exposures, and by the transmission of information and instruction. Rachman’s theory of fear acquisition was later explored by Ollendick and King (1991). Through a large sample of Australian and American children they found that most of the children attributed the onset of their fears to vicarious and instructional factors. Many of these
fear acquisitions did coincide with direct conditioning experiences, however. This lends support to Rachman’s pathways in his theory of fear acquisition.

A more environmental than innate view posits that the people around us influence our behaviours which can result in the creation of a fear of something that we were not previously afraid of. One behaviour that may be able to influence a young child’s opinions of their world is language and the way it is used around them. It can be common for parents to refer to things around a child as an ‘it’ or a ‘thing’ often without attributing pronouns or psychological states to the objects they are describing. This could lead to a detachment and desensitization in the children who are observing this language use. Removing the personal and relatable words could potentially lead to children experiencing lower levels of empathy and compassion. The current research looked at this gendered or object pronoun use to see what effects, if any, language would have on the children’s opinions of snakes after listening to a story.

**Previous Research**

Fear-inducing stimuli has been researched many times over the years, with much emphasis being placed on how we acquire these fears and whether they are external or innate. The research does lend support for both options, however much of it leans towards some fears as being more of an innate response, such as the fear of snakes. Fear of snakes is a common phobia among the general population (LoBue & DeLoache, 2011), with many individuals potentially not even being aware of when they acquired that fear or why they are even afraid. In fact, this fear of snakes can even be seen as young as preschool children, or even infants, many of whom have no previous experience or prior reference with snakes to refer to that may be causing their reactions (LoBue & Rakison, 2013).
Children who have never experienced a snake previously should have no reason to display fear-reaction behaviours, yet even infants as young as 5-months would display preferential behaviours towards snakes and fear (fearful voices or faces) (DeLoache & LoBue, 2009). Thrasher and LoBue followed this research up with a study that was similar to DeLoache and LoBue’s 2009 work. They had 9-month-old children view a video of either a snake (fear-relevant) or an elephant (non-fear-relevant). These videos included both auditory and visual stimuli. They found that while the snake video captured the infants’ attention, it did not show evidence in the children of a physiological response that would indicate fear.

This research, and others, lends evidence to support the theory that a fear of threatening stimuli is innate in all of us and spontaneously emerges at some point in our lives. Seligman (1970) referred to this spontaneity of emergence as being preparedness and believed that certain fears, such as fear of snakes, heights, spiders, etc., were more prepared than others to go through this spontaneous emergence. Seligman (2016) also outlined the stories of both Little Hans and Little Albert as examples of how fears can be spontaneously brought on by experiences that children go through. Seligman did not feel that fears were just randomly distributed amongst society, but rather were acquired based on things that previously would have been threats to humankind (Hoffman, 2008).

Much research on the theory of threat-relevant or fear-inducing stimuli has been presented in favour of the spontaneous emergence of fears because it is evolutionarily beneficial for us to do so. Researchers have found that both children and adults are able to detect a snake more quickly than other stimuli (LoBue & DeLoache, 2008; LoBue & DeLoache 2011; Ohman & Mineka, 2003). The assumption for this rapid detection and emergence of fears of threatening stimuli have been discussed in much research over the decades (Burris et al., 2019; LoBue 2013;
Field & Lawson, 2003; Poulton & Menzies, 2002), with convincing arguments being presented for the preparedness theory and other innate, evolutational theories; however, there are also many convincing arguments that are brought forth in support of fear-induction being more of a learned behaviour specific to individuals rather than a blanket statement across all people.

Despite the evidence in favour of Seligman’s preparedness and other innate theory research, there is also research that has found evidence to support the theory that our fears are the result of learned behaviours and show potential for the ability to be influenced and changed. In a study conducted by Rule & Zhbanova in 2012 explored whether children’s perceptions of eight unpopular animals (skunk, snake, spider, mosquito, mouse, bat, centipede, and cockroach) could be changed. The utilized different art forms such as poetry, crafts, and puppet plays and provided factual information to the children through these art forms. The results the researchers found indicated that lessons such as these, focusing on ecology, could promote feelings of empathy and compassion in the children for both the humans and animals around them and could help increase the levels of caring that children have for not only the well-loved animals of the world, but also those who are considered much less desirable.

A similar result showing favourable opinions of an unpopular animal (snake) was found in a study conducted in 2015 by Ballouard et al. They were interested in school children’s’ opinions of snakes and questioned whether the children would be willing to protect snakes. Many children often like cuddly-looking animals, like panda bears, and would like to see them be protected from endangerment or extinction, but would the same hold true for a slithering serpent? According to the results, these researchers found that most 7- to 14-year-old children from 10 countries who responded to a questionnaire not only wanted to see the snakes protected, but also reported that they even like snakes.
There has also been research conducted that analyzed language use. Geerdts, Van de Walle and LoBue (2015) studied parents’ language in informal environments to observe their use of pronouns in the different settings. They observed the parents in the penguin exhibit at the zoo, and the stick insect enclosure at a science museum. Their observations showed that the parents were more likely to use gender pronouns and describe psychological states for the penguins, which are a more human-like animal, then they were for the stick insects, that are distinctively unhuman-like. Another study conducted in 2011 by Rigney and Callanan also discovered a relationship between gender pronouns and animals. They studied parent-child interactions in an exhibit that had typical and atypical animals together. The researchers found that the parents were more likely to use gender pronouns and psychological states for the typical animals, and the children were more likely to use gender pronouns for the typical animals, but not psychological states. The results of these studies show a correlation between the use of language and the type of animal being spoken about.

LoBue, Pickard, Sherman, Axford, and DeLoache (2012) also found that 18- to 36-month-old children did not have an aversion to snakes or spiders when they conducted their study. LoBue et al. had 18- to 36-month-old children interacting in a room that held enclosures of live animals, a hamster, fish, snake, and a spider, as well as toys that were physically similar and interesting. They found that the children did not avoid the threat-relevant stimuli (snake, spider), and interacted with those animals more frequently than the toys, and the snake and fish were equal in being the second most frequently interacted with item in the room (with the hamster being the most frequently interacted with and the spider coming in fourth behind the fish and snake). This would imply that the children do not have a fear of these animals at this early stage in their lives.
There was research conducted with the use of storybooks in 2016 by Geerdts, Van de Walle, and LoBue that looked at the effects that anthropomorphic values in a storybook would have on children’s views of real animals. They were questioning whether the use of anthropomorphic language would have a negative impact on children’s views of animals in real life and their ability to learn factual information about the animals. Their results showed that there may not be a negative association between anthropomorphic language use in storybooks and children’s ability to learn factual information about real life animals. They put forth the need for further research in this area to determine benefits of usage in an educational role for children.

Further research into the use of language and animals was done by Buchko in 2019. Buchko looked at conceptualization and snake aversion in 3- and 5-year-old children. There were many tasks conducted within this research project, however two of them are most relevant to the current research. The first was a storybook task. The storybooks made use of either objectifying or non-objectifying language. The second was an aversion task. The children were asked to rate their fear level of animals on a scale rating system of 1-5. Buchko found that there was a small effect seen in the 3-year-old children, with the non-objectifying storybook condition producing lower ratings on the snake aversion scale than the objectifying storybook. This aversion task, however, was found to be a difficult task for the 3-year-old children to complete.

**Current Research**

The primary goal of the current research was to look at the relationship, or lack thereof, between objectifying language and aversion of snakes in young children. We wanted to observe young children’s responses to snakes after they were read a story involving a snake that was paired with either a gender pronoun or was given an objectifying status (Non-objectifying ex., “She is frightened, so she slithers into a nearby rock cave where she feels safe”; Objectifying ex.,...
“After seeing the shadow, it slithers into a nearby rock cave where the hawk can’t see”). Our objective was to look at whether a gender pronoun versus an object pronoun would have an influence on the child’s opinion of the snake; with the gender pronoun being anticipated to lend for a more positive view of the snake versus the object pronoun. We expected to see a higher frequency of snake photographs being placed into the scary container after the children were read the objectifying storybook than the non-objectifying storybook. We hypothesized that the use of gender and psychological states in the non-objectifying storybook would help make the snake more relatable and would then affect how they viewed the snake when it was presented to them on the following sorting task. Significant findings would be relevant to future practical and clinical applications as well as further research into the use of language and our views of different animals and other objects as well as our fear acquisition of these things. This concept was well conveyed by Amiot & Bastian (2015), they wrote of our distinguishing of animals, that it is “important because how we categorize and evaluate animals has concrete repercussions for how we treat them and for the quality of our relations with them” (p.35).

Methods

Participants

For this study we recruited three-year-old children to complete the tasks. The children were recruited from daycares and preschools in and around the Regina, SK area. The aim for the study was to recruit a minimum of 88 participants to achieve a medium effect size, however the researcher was only able to recruit a total of 76 participants by the time the study had come to an end. The student researcher reached out to the daycare managers to inquire if they would be willing to allow the use of their establishment for the study sessions. The student researcher then took consent forms and parent information letters to any establishments that had agreed to host
the sessions. These consent forms and parent information letters were then sent home by the daycare to the parents of the three-year-old children that attended their daycare/preschool. When the consent forms had been returned, the student researcher arranged times to go to the establishments for the in-person sessions with the children whose parents consented to their participation in the study. There were four children who did not provide their assent to complete the study so the information from these children was omitted from the study, bringing the participant total to 72 children. There was no penalty for not participating in the study, those children were given their choice of toy and taken back to their room. All the children who participated were also given their choice of a small toy after they had completed the study.

**Materials and Measures**

**Materials**

The student researcher utilized two different versions of a short children’s storybook which revolved around some activities of a snake. The first version of the storybook followed the snake through the activities of its day while objectifying the snake by using objectifying language throughout, such as, “it finds a pond”. The second version of the storybook also follows the snake through its daily activities, however it provides the snake with a gender, “she”, and introduces psychological states to the snake, such as, “she is frightened”.

The student researcher also used printed laminated photographs of twelve animals. There were four “scary” animals (spider, snake, lion, and wolf), four “nice” animals (horse, cat, fish, bird) and four neutral animals (ladybug, squirrel, turtle, lizard).

The children were asked to sort the animal photographs into one of two Rubbermaid containers. One container had a picture of a yellow cartoon smiling face adhered to it, the other same sized Rubbermaid container had a scared expression cartoon face adhered to it.
**Procedure**

The researcher worked with the children in a one-on-one setting. The procedure began with the researcher and one student, along with one daycare worker, individually going to, preferably, a separate, quiet room to perform the study. The researcher began the recording on the video camera once seated. The researcher asked the participants if they would like to read a story and play a game with her to obtain their verbal assent to performing the study.

Upon receiving their assent, the researcher then proceeded to read either the objectifying or non-objectifying storybook. The storybooks were alternated, beginning with the objectifying and then the non-objectifying with each student to provide a similar number of trials for each while remaining as random assignment as possible amongst the participants.

After the storybook the researcher asked the children if they would like to help her with the names of some animals if shown pictures of them. Upon the child’s assent to continue, the researcher went through the 12 animal photographs one at a time, requesting the child to provide the name of each, to ensure the child’s awareness of the animals in order to assess their response in the next phase of the session. The photographs were shown to the children in the same order in each of the trials; horse, bird, spider, fish, snake, cat, lion, squirrel, lizard, ladybug, turtle, and wolf.

Once the 12 animal photographs had been gone through once and the children have named the animals on them, the researcher will place the “nice” and “scary” containers on the table in front of the child with a space in between to lay the animal photograph down. The photographs were then gone through again, one at a time, in the same order as the previous task. This time the children were asked to place each animal photograph, one at a time, into either the
“nice” or the “scary” container after the researcher placing the photograph into the space in between the containers in front of the child.

**Results**

The researchers had predicted that children would be less likely to place the snake in the scary container after they had been read the non-objectifying storybook. It was our belief that this non-objectifying language would help the children relate to the snake, which in turn might make them feel less fear toward the snake photograph when they were presented it during the sorting task.

The results of this research, however, did not turn out as predicted by the researchers. The observed results did not show this positive relationship between the non-objectifying storybook and increased placement of the snake photograph into the nice container. The number of children who said that the snake was scary or nice in each condition are presented in Table 1. A chi-squared test of independence revealed that there was no significant difference in proportions between these conditions, $\chi^2(N=72) = 1.34, p > .24$.

<table>
<thead>
<tr>
<th></th>
<th>Scary</th>
<th>Nice</th>
</tr>
</thead>
<tbody>
<tr>
<td>She</td>
<td>26</td>
<td>11</td>
</tr>
<tr>
<td>It</td>
<td>20</td>
<td>15</td>
</tr>
</tbody>
</table>

Table 1

**Discussion**

The goal of the current research was to examine the effect that objectifying versus non-objectifying language could have on a child’s opinions of animals to determine whether children’s fear of snakes could be impacted by the use of non-objectifying language. As Tierney & Connolly made note of in the review of the biological basis for snake fear, the results as to
date, while promising, are not yet able to be viewed as conclusive evidence because they found that the studies “all have methodological and interpretive limitations” (2013, p. 919). This, unfortunately, could also be said of the current study. There were some execution errors that could have influenced the results, many of which may be able to be eliminated in future research by this student researcher due to a gained experience throughout the process, or by execution by a more experienced researcher. It would be of benefit to see if smoothing out these rookie errors could lead to different results if this study were to be conducted again.

The children observed in this study appeared to hold a high interest of animals and enjoyed engaging with the researcher. The task of asking them if they knew the animals assisted the researcher with having the children open up and be willing and interested in completing the sorting task. It would be interesting to see whether having different animals used, or perhaps a photograph of a green snake to make the green snake in the storybook, would show any differences in the result. It would also be good going forward to introduce a distractor task or a way to help distinguish whether animals were really placed where the children felt they belonged, or if they were simply placing them in a back and forth pattern or some other method that did not actually reflect their opinions. Perhaps a higher number of neutral animals could assist with this.

The research involving young children and their opinions of varying animals, especially ones thought to be threatening or unfavourable, is an area receiving much attention from researchers today, and for good reason, especially when combined with the language use variable. Even though the results have shown conflicting evidence and are often difficult to interpret and it may be difficult to conduct the study without some form of limitation or difficulty (children can be a rather difficult subset of participants to engage consistently throughout a
research project), it is still highly relevant material that benefits from future attempts to fine tune the methodologies and attempt to eradicate the limitations to really begin to understand what ways language is able to affect young children in their formative years and the influence it may have on the opinions that they form not only of animals, but potentially could also be applied to many other sensitive areas (prejudices, race-and other -isms, sexual orientation, etc.), even possibly increasing the acceptance and compassion for others if significant results are found.

**Limitations**

The researcher acknowledges that there were limitations in this research that could have had an impact on the results that were observed. First, this was the first time that the sorting game the children played had ever been used, it had never been used or tested previously. It was difficult to tell exactly whether the children understood the game and were placing the photographs in the bin with the face that actually represented their opinion of the animal or if they were just placing them randomly in a container. Further use of this task would be beneficial to determine how reliable and valid this task may be internally.

Second, the participants were recruited from a convenient sample of daycares located within and around the Regina, SK area. The recruitment then also was further narrowed down to facilities who had agreed to allow the researcher to using their facility to conduct the sessions. Due to this selection process the participants are not completely randomly assigned to a storybook condition which could limit the external validity of the study. Future research should attempt to extend the recruitment area to allow for more generalizability.

Third, this study also did not have a large sample size which could have had an effect on the results that were observed. A larger sample size would be beneficial to discovering whether
an effect could be observed in a larger population. This would be a good area for future researchers to expand upon this research.

Lastly, the student researcher was inexperienced at conducting research studies. Due to this inexperience the method was not consistent throughout the participants which could have led to some inconsistencies in the responses from the participants, thus potentially effecting the results of the research.

**Implications**

**Practical Implications**

While significant results were not found in this current research, further research into this area could be beneficial because if significant results were found it could have practical implications for young children as they are growing up. Most children are commonly read storybooks in their youth. Mothers and fathers of every ethnicity, religion, SES, etc., all share that common thread – they read to their children. Children are also often read to at daycares, preschools, and throughout their school life. Some are read to more than others, but most grow up listening to storybooks being read, even if infrequently. Those storybooks could potentially become better learning aids than they already are if they are able to take advantage of making use of this non-objectifying language and behaviours to help introduce things that might often be seen as scary, like snakes, in a friendly and human-like manner. This could also prove to be helpful for the parents and other adults who are reading the storybooks. They may discover that they begin to have a better attitude towards the subjects used in the non-objectifying storybooks.

**Clinical Implications**

Significant results in this research area could also hold benefit for use in clinical practice. If the use of non-objectifying language is able to help prevent the causation of a phobia in
advance, then it is likely that it should be true for the opposite as well. It is possible that psychologists would be able to integrate the use of non-objectifying language into their sessions with patients who are already suffering with a phobia. Having these clients begin to think of the object of their fear in terms of genders and emotions, it may help them relate to, and empathize with, the object that had previously terrified them. This would likely require a long course of treatments as phobias are not extinguished overnight, however it could prove to be something that may turn out to be of great benefit to the patients’ quality of life if their fear is able to be lessened or completely extinguished. Due to these potential implications further research into the effects of the use of non-objectifying language in children’s storybooks could prove to be very beneficial to society.

**Conclusion**

The possible ways that language can influence a child as they are growing up shows the potential to have a huge significance on that child and the way that they view the world and speak about it. As many studies have now shown evidence that it is not only possible for children to like snakes and to not be afraid of them, it also lends support to the theory that fear could be learned and thus could also be unlearned. Without an evolutionary benefit for some fears, like a fear of snakes, being necessary, perhaps we will see the prevalence of them lessen in society, and research like mentioned in this paper may introduce new ways for our children to view the world, possibly lowering their overall fear levels and enhancing levels of empathy and compassion in the process.
References


