Do Bees Know the Concept of Nothing Analysis

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Honeybees, which produce honey, are the least favorite insects for many. However the knowledge I discovered in this article is interesting. This sheds new light on how I might look at bees differently.

According to the article, honeybees have a unique sense of understanding what "nothing" or "zero" means. This remarkable ability is similar to primates and one famed parrot (Do Bees Know Nothing?, Gorman 2018). Besides humans, no other species has been tested for the understanding of the concept "nothing" or "zero".

The evidence produced by the researchers was adequate enough to inform the public but not enough to prove how or why bees know "more or few". The different patterns used to help train bees and find displays with fewer or more shapes were the key in understanding how the bees knew the idea of "fewer and more". I found this to be a great article for the younger grades (K-2), especially since they are learning about different patterns and shapes at that age. Using the 5E Model students can discuss the different shapes and patterns the bees used to differentiate more or few. Bar graphs can be used to describe the information and the CCMP standard used for this would be K.MD.B.3: *Classify objects into given categories; count the number of objects in each category and sort the categories by count.* The bar graphs can represent the number of bees tested with the number of displays used. The older students in grades 3-5 can use the bar graphs of the displays representing how many displays did the bees recognize were fewer or more.

Some were rewarded if they landed on the displays with more shapes, like squares or circles, and some if they landed on the displays with fewer. The shapes were of different

sizes and the displays with varying numbers of shapes were hung on a wheel in different places to avoid giving any spatial clues. (Do Bees Know Nothing?, Gorman 2018) This piece of information followed by how the bees were better at recognizing the empty displays was very interesting for me. This was the key to understanding the idea of the study. In the article they author asks about the meaning of "understand". This is a great misrepresentation of the article title and the study. The whole study is about how bees can distinguish displays with fewer and more objects. I am curious to know if they researchers tried a honeycomb type display and the bees went to counting on that.

Later in the article Gorman discusses how another scientist had done research on the brain of fruit flies. After reading the ending of the article, I saw that research had not been done on the brain of a bee. I would be curious to know if that would have impacted the study at all. It might have changed the way the article was written or presented. I felt the article was too short and not a very long explanation of why there is an understanding of the concept more and less. I think the evidence of having tested a bee's brain would have impacted the article's nature completely. This could be a project that the older students in grades 3-5 take interest in. I would encourage my students to study about bees and see if there is anything interesting about their habits and brains that relate to this article.

References

Gorman, J 2018, June 7 Retrieved from https://www.nytimes.com/2018/06/07/science/bees-intelligence-zero.html?rref=collection%2Fsectioncollection%2Fscience&action=click&contentCollection=science&region=rank&module=package&version=highlights&contentPlacement=2&pgtype=sectionfront