

Nature of Science & Math: Analyzing the Presence in Everyday Communication

Joshua Kraus

I picked an article from NPR about predicting the effects of global warming. This topic is frequently in the media and is a prime candidate for articles where science may be misrepresented. However, this article does a good job of not overstating ideas or creating false assumptions and it does do a decent job of representing the nature of science. The Nature of math is present but not as clearly as commentary about the scientific work which was done.

First, I would suggest that the article represents the nature of science tenet that scientific investigations use a variety of methods. The second paragraph of the article states that the researchers took a novel approach to make their future predictions about the effects of global warming. This clearly shows that scientists are using a variety of methods (second part of the HS grade level understanding of this tenet) to look at evidence of how climate will change as the Earth warms. The article also states that they are making a prediction of the future based on their novel approach this points to the last part of the HS grade level understanding of this tenet because the scientists are creating new knowledge and helping to make revisions to prior predictions which have been made. Lastly the article points out that the scientists looked at changing pollen and vegetation from a long period in the distant past to see how climate changed as the result of a warming period between 10 and 20 thousand years ago. The scientists are logically concluding that vegetation changes seen through “paleo-ecology” will predict what kind of changes we may see in the future as climate changes.

The article also points out that science models, and mechanisms can be used to model the effects of global warming in the future. The article is showing that these scientists are contributing a model to the overall building of a theory on global warming. The article never uses these words possibly because they sound too “scientific” or because they do not want to overstate ideas beyond what the scientific community has accepted. Since the article is not specifically talking about theories or laws that have been created or accepted it never uses these words in connection to the research that is presented. Again the articles author does not address hypothesis but the scientists are developing a hypothesis (prediction) that changes in the past will happen again in the future, however this hypothesis won't be tested for a long time to come.

A final NoS tenet which I can address in regards to this article is Science addresses questions about the natural and material world. The article does point out that we are “not going to get” “data from the future.” Scientists cannot do that but they can model the future based on the past. The article also mentions that human activity is the cause of global warming and this is an ethical issue that we need to decide it is worth addressing. This article never states any absolute ideas about causes of global warming or that it needs to be stopped or changed, however, it does make a prediction about the changes and the rapidity of the change compared to the past leading the read to make the ethical decisions and choices based on the information presented. This is pointing out the last HS grade level understanding of this Nos tenet, that many decisions are not made using science alone.

I think this article presents the science accurately and does not tell the reader what to think, instead it informs and expects the readers to decide. This is how I believe science should be presented in the media. It may be lacking in some details or technical language but this could be for reason of making the article more approachable.

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As for the Nature of Mathematics seems to be addressed more as a concept and objectively not quantitatively. There are some specific numbers, however there is little about calculation and actual use of mathematics in the article.

The author makes a point to mention numbers and give an idea of the precision of the scientific study. Attending to precision when speaking on a geologic time scale could be a difficult idea. The article presents data as accurately as is possible based on the research being done, giving ranges of dates and temperature as well as rates of change in relative terms.

The scientists being referred to in the article clearly used modeling with mathematics along with the vegetation data which was collected to map out changes from 10 thousand to 20 thousand year ago and then used that model to predict out the ecological changes happening now in comparison. The author shows that the scientists see the increased speed of the changes in global temperature now were not seen in the past and it is not a definite prediction but as accurate as the data could present.

The article also constructs the viable argument based on the scientists work that while climate changes have happened in the past with a similar magnitude they have not happened at the same rate. The many ecological changes happening in and around Australia are “staggering” and states that it is possible “our ecosystems are more vulnerable than [has been] projected.”

Nature of math doesn't seem to be explicitly presented at least not in numeric terms however, the mathematical logic is present.

References

Joyce, C. (Writer). (2018, August 30). To Predict Effects of Global Warming Scientists Looked Back 20000 Years [Radio episode transcript]. In *All things Considered*. Retrieved from <https://www.npr.org/2018/08/30/643342003/to-predict-effects-of-global-warming-scientists-looked-back-20-000-years>.