How science is visually portrayed in the media: An examination of science times

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How Science is Visually Portrayed in the Media: An Examination of Science Times
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Introduction
From the simplest line drawing to the most sophisticated computer generated 3-D image, text and information from the scientific world are communicated to the general public. With the purposes of understanding what these images are and how they have changed over time, this pilot study examined one of the most widely distributed media outlets and its science imagery. Using content analysis we looked at 30 years worth of the Science Times, the popular section of The New York Times which has been published every Tuesday since 1978. The ways science images are communicated to the public are very important. Visual images can convey complex scientific processes and the invisible world of scientific phenomena to light. Scientific ideas can be brought to life with photographs, illustrations, and animations while stimulating excitement and providing new ways of understanding. Each image can also be deceptive, misleading, and intentionally used.

Methodology
A random sample of the science of The New York Times for every year from 1978 to 2007 formed a database of 156 images for this study. Only the images or images on the front page, above the fold of the Science Times section was or were analyzed. A coding instrument was developed which examined four dimensions of the image (excluding their gravity fields. (From, The New York Times, May 9, 2006, p. D1.)

Figures:

Figure 1. A computer generated model of black holes orbiting each other. The yellow lines indicating the contours of the gravitational field.

Figure 2. Pictures of places, such as the aerial view of Erbil in northern Iraq were seen in 23.6% of our sample. (From, The New York Times, May 2, 2006, p. D1.)

Figure 3. This pie chart shows that almost half (49.1%) of the visual images of scientific information are communicated in nonphotographic ways. Non-photographic include computer-generated images, paintings, drawings, cartoons, charts, graphs, and other forms of illustration.

Figure 4. When deciding on the type of image to portray, considering the audience is very important. In a story about the health risks of under-aged drinking in a cartoon visual format was used (The New York Times, July 4, 2006, p. D1). Other findings show that:

- people are shown in science images 18.9% of the time
- animals are shown 14.7% of the time
- places are depicted 25.6% of the time
- things are represented 37.9% of the time
- something else (other) is shown 13.7% of the time
- text is embedded within the image 48.3% of the time

Figure 5. This graph shows how the Science Times has relied primarily on non-photographic visualizations of scientific information over the years (red line) until recently where we see photographic imagery (blue line) becoming more prevalent. Statistical analysis indicates the change in the type of imagery shown in the Science Times over the decades is significant at the p<.05 level. (Chicago: R=5.263, p=.01)

Conclusions
The trend away from non-photographic imagery to more photographic images of science phenomena could be the result of many things. Advances in newspaper reproduction of full color images may be one reason. The New York Times printed its first full color picture on June 6, 1995 in the Book Review section. Color images in the rest of the paper soon followed. Coincidentally we see the rise in the use of photographic images in the decade of the 1990s (see Figure 3). Did color technology make photographic imagery of science phenomena more feasible? Further study is needed to answer this question.

More important than the reasons why the Science Times increasingly used photographic portrayals of scientific images are the potential effects such imagery may have on an audience and in turn, on scientific endeavors. We know that photographs are imbued with a sense of realism. They are often associated with ideas of truth and objectivity. Could the mass distribution of such images cause public opinion to associate science with a greater sense of truthfulness? Do such images decrease public skepticism of science? Again, further research is needed for the answers to these questions.

Being a pilot study, there are several shortcomings to this research. For example, an essentially one time study of a single mass medium, The New York Times, it is difficult to make broad generalizations about trends in science images. And we do not offer these findings and conclusions with an element of caution.

Suggested Readings

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For further information
Please contact Lawrence Mullen. More information on the research and graduate course offerings being offered in the Hank Greenspun School of Journalism and Media Studies can be found at http://journalism.unlv.edu/graduate.htm.