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

Rachel Toyer
University of Nevada Las Vegas, Hank Greenspun School of Journalism and Media Studies

Larry Mullen
University of Nevada Las Vegas, Hank Greenspun School of Journalism and Media Studies

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How Science is Visually Portrayed in the Media: An Examination of Science Times
Rachel Toyer & Lawrence Menullen, Ph.D. (Principal Investigator)
Hank Greenspun School of Journalism and Media Studies

Introduction
From the simplest line drawing to the most sophisticated computer generated 3-D image, and from ideograms and hieroglyphics to the 21st century’s text and images, it is clear that the role of our visual images is changing. With the purpose 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 1974. The ways science images are communicated to the public are very important. Visual images can bring complex scientific processes and the invisible world of scientific phenomena to light. Fostering scientific ideas can be brought to life with photographs, illustrations, and animations while stimulating curiosity and providing new ways of understanding. Such imagery can also be deceptive, misleading, and incorrectly used.

Methodology
A random sample of five issues of The New York Times for every year from 1978 to 2007 formed the data set of 156 images for this study. Only the images or images on the front page, above the fold of the Science Times section were included. A coding instrument was developed which examined four dimensions of the image (excluding basic data management codes such as the date). These included, • type of imagery shown in the image (non-photographics), • text is embedded within the image 68.3% of the time, • places are depicted 23.6% of the time, • people are shown in science images 18.0% of the time

Results
One of the more interesting and significant findings from this study was the type of images that tend to be portrayed in the Science Times. Our findings show that non-photographic images are the most popular way to portray science information. These included, • pictures are shown in science images 16.0% of the time, • animals are shown 14.3% of the time, • places are depicted 25.4% of the time, • things are represented 17.9% of the time, • something else (either) is shown 13.7% of the time. • text is embedded within the image 68.3% of the time.

Other findings show that • people are shown in science images 16.0% of the time
• animals are shown 14.3% of the time
• places are depicted 25.4% of the time
• things are represented 17.9% of the time
• something else (either) is shown 13.7% of the time
• text is embedded within the image 68.3% of the time

Figure 1. A computer generated model of black holes orbiting each other, the yellow lines indicating the contours of their gravity fields. (From, The New York Times, May 2, 2006, p. D1.)

Figure 2. Pictures of places, such as the aerial view of Erbil in northern Iraq were seen in 23.6% of our sample. (From, Science Times, August 23, 2005, p. D1.)

Figure 3. This pie chart shows that almost half (49.1%) of all the visual images of science information are communicated in non-photographic ways. Non-photographs 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, a series of visual formats were used in the July 4, 2006 issue of the Science Times. Since the target audience was college-aged adults and hopefully increase their interest in reading this story. (From, The New York Times, July 4, 2006, p. D1.)

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. (Chi-square=16.331, p=.012)

Figure 6. This reader sent image accompanied a Mother’s Day article about all the strange forms of maternal behavior one can find in the animal kingdom. (From, The New York Times, May 9, 2006, p. D1.)

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 newspaper soon followed. Coincidentally we see a steady rise in the use of photographic images in the decade of the 1990s (see Figure 5). 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 images over non-photographic images are the potential effects such imagery may have on an audience and, in turn, on society. Why do we know that photographs are imbued with a sense of reality? They are often associated with ideas of truth and objectivity. Could the mass distribution of such images cause public opinions to be 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. (Chi-square=16.331, p=.012)

Suggested Readings

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For further information
Please contact Lawrence Menullen at lawrence.mullen@unlv.edu. 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/hank.htm.