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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, findings 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 more 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 bring complex scientific processes and the invisible world of scientific phenomena to light. Esoteric scientific ideas can be brought to life with photographs, illustrations, and animations while stimulating excitement and providing new ways of understanding. Such imagery can also be deceptive, misleading, and incorrectly used.

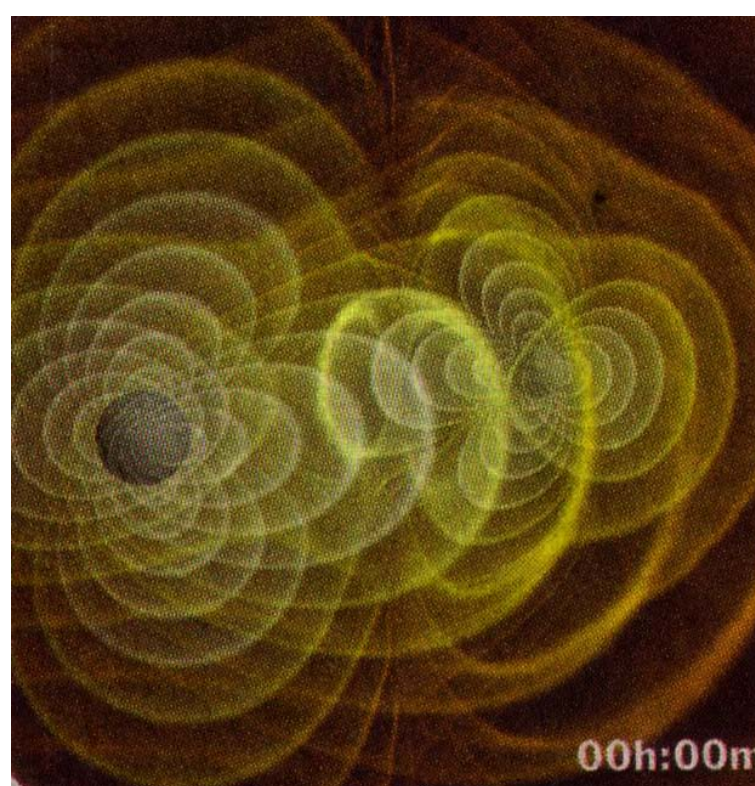


Figure 1. A computer generated model of two black holes orbiting each other, the yellow lines indicating the contours of their gravity fields. (From, *The New York Times*, May 2, 2006, p. D1.)

Methodology

A random sample of five issues of *The New York Times* for every year from 1978 to 2007 formed a data base of 156 images for this study. Only the image 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 basic data management codes such as the date). These included,

- image type (photo, non-photo, combination, and other/can't tell)
- single image vs. multiple images
- content of the image (person, animal, place, thing, other)
- and if text was imbedded in the image or not



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*, August 23, 2005, p. D1.)

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 (see Figure 3). However, more recently photographic portrayals have taken over as the most fashionable way to visually portray science in the newspaper (see Figure 5).

Other findings show that

- people are shown in science images 18.0% of the time
- animals are shown 14.3% of the time
- places are depicted 23.6% 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 68.3% of the time

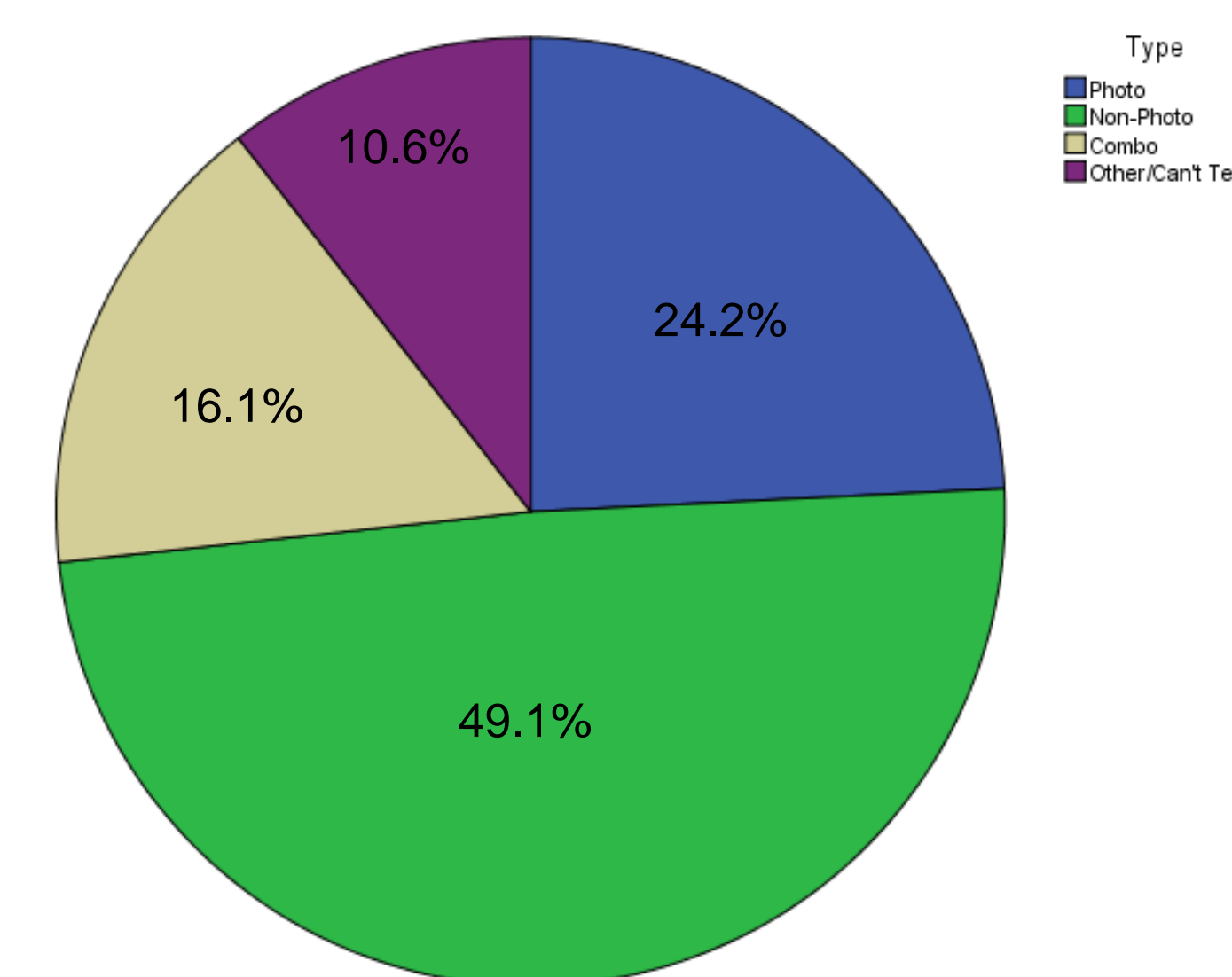


Figure 3. This pie chart shows that almost half (49.1%) of all the visual images of science information are communicated in non-photographic ways. Non-photographs include computer-generated illustrations, paintings, drawings, comics, charts, graphs, and other forms of illustration.



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 comic book visual format was used in the July 4, 2006 issue of the *Science Times*. This visual format would catch the eye of teens and young adults and hopefully increase their interest in reading this story. (From, *The New York Times*, July 4, 2006, p. D1.)

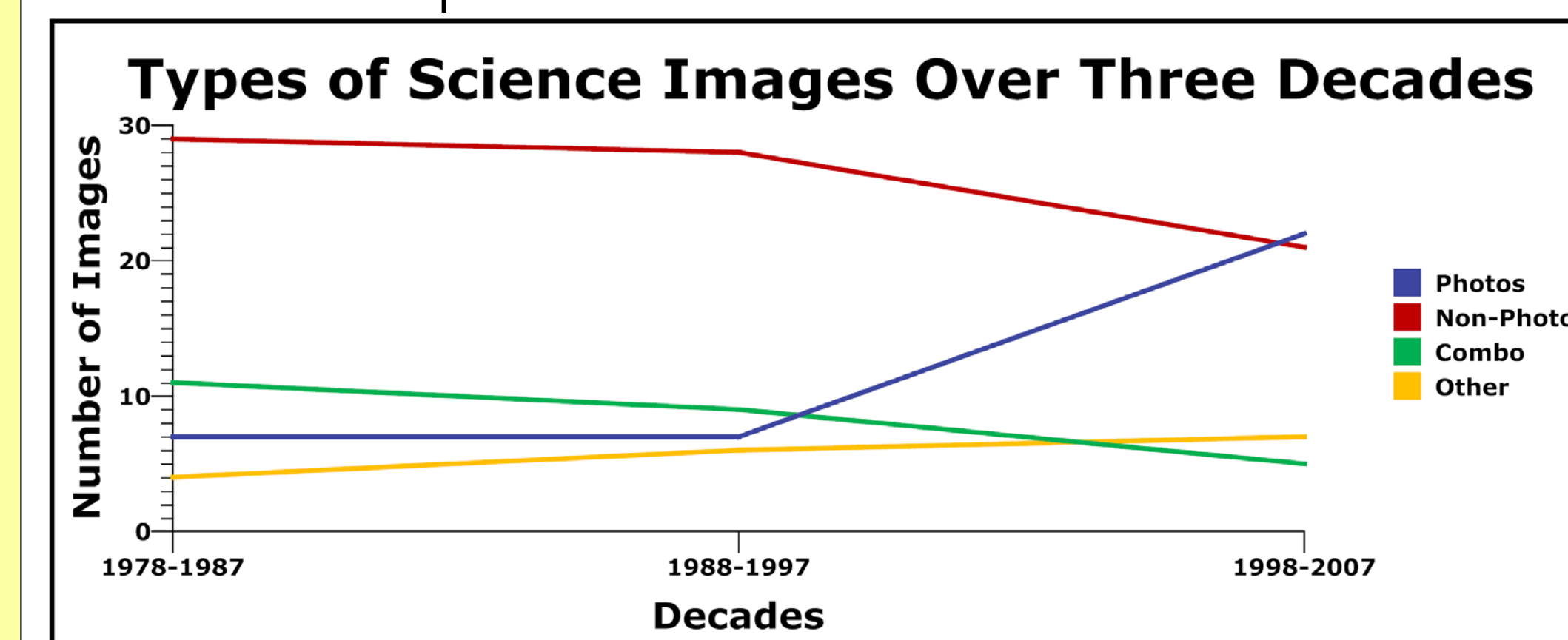


Figure 5. This graph shows how the *Science Times* has relied primarily on non-photographic visualizations of scientific information over the years (red line) until recently where we see photographic imagery (blue line) becoming more prevalent. Statistical analysis indicates the change in the type of imagery shown in the *Science Times* over the decades is significant at the $p \leq .05$ level. (Chi-square=16.331, $p=.012$)



Figure 6. This rather odd 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 pictures on June 6, 1993 in the Book Review section. Color images in the rest of the paper 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 photographs over non-photographic imagery are the potential effects such imagery may have on an audience and, in turn, on scientific endeavor. 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, as essentially a case study of a single mass medium, *The New York Times*, it is difficult to make broad generalizations about trends in science images. And so we offer these findings and conclusions with an element of caution.

Suggested Readings

- Earnshaw, R.A., & Wiseman, N. (1992). *An introductory guide to scientific visualization*. Berlin: Springer-Verlag.
- LaFollette, M.C. (1990). *Making science our own: Public images of science 1910-1955*. Chicago: University of Chicago Press.
- Pauwels, L. (Ed.). (2006). *Visual cultures of science: Rethinking representational practices in knowledge building and science communication*. Lebanon, NH: Dartmouth College Press.
- Tufte, E.R. (1983). *The visual display of quantitative information*. Cheshire, CT: Graphics Press.

Acknowledgments

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For further information

Please contact 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/graduate.htm>.

