

Science and Technology: Public Attitudes and Understanding

Highlights

- **Although Americans express strong support for science and technology (S&T), they are not very well informed about these subjects.** Many in the scientific community are concerned that lack of knowledge about S&T may adversely affect the level of government support for research, the number of young people choosing S&T careers, and the public's resistance to miracle cures, get-rich-quick schemes, and other scams.

Information Sources

- **Most adults pick up information about S&T primarily from watching television; the print media are a distant second.** This is true in both the United States and Europe. Several types of television shows play a role in communicating science to the public, including educational and nonfiction programs, newscasts and newsmagazines, and even entertainment programs. However, television (and other media) can be faulted for miscommunicating science to the public by sometimes failing to distinguish between fantasy and reality and by failing to cite scientific evidence when it is needed.
- **The Internet is having a major impact on how the public gets information about S&T.** According to the 2001 National Science Foundation (NSF) survey, the Internet is the preferred source when people are seeking information about specific scientific issues, an indication that encyclopedias and other reference tools have lost a substantial number of customers to the Internet.
- **Books about science influence popular culture and public debate on policy issues.** Beginning in the late 1970s, science-related books began to win more Pulitzer Prizes and appear more often on bestseller lists. Books by the late Carl Sagan achieved publishing milestones that indicate a growing interest in science among the book-reading public.
- **S&T museums are much more popular in the United States than in Europe.** Americans were nearly three times as likely as Europeans to have visited an S&T museum within the past year.

Public Interest in S&T

- **Evidence about the public's interest in S&T is mixed.** Surveys conducted by the Pew Research Center for the People and the Press found that S&T ranked only 9th of 13 categories of news followed most closely by the public in 2002. Yet science/health and technology ranked second and fourth, respectively, as categories of news sought online. The data also indicate that interest in S&T news seems to have declined between 1996 and 2002, along with interest in most subjects. The popularity of science museums and books suggests that people are interested in science even though they may not be following science-related news.
- **Very few Americans admit to not being interested in S&T issues.** Only about 10 percent of surveyed Americans said they were not interested in news about scientific discoveries or new inventions and technologies. In Europe, however, half of surveyed residents said they were not interested in S&T.

Public Knowledge About S&T

- **Neither Americans nor Europeans got high marks in a 2001 quiz designed to measure their knowledge of science.** Out of 13 questions, Americans answered an average of 8.2 correctly, Europeans 7.8.
- **Science knowledge in the United States and Europe is not improving.** Respondents' ability to answer most questions about science has remained essentially unchanged since the 1990s, with one exception: more people now know that antibiotics do not kill viruses. This may be attributable to media coverage of drug-resistant bacteria, an important public health issue.
- **More Americans now agree with the theory of evolution.** The 2001 NSF survey marked the first time that more than half (53 percent) of Americans answered "true" in response to the statement "human beings, as we know them today,

developed from earlier species of animals." (In Europe, 69 percent responded "true.") Whether and how the theory of evolution is taught in public schools remains one of the most contentious issues in U.S. science education.

- **Most Americans (two-thirds in the 2001 NSF survey) do not clearly understand the scientific process.** Knowing how ideas are investigated and analyzed—a sure sign of scientific literacy—is important. Critical thinking skills are invaluable not only in science but also in making wise and well-informed choices as citizens and consumers.
- **Studies seem to indicate that not many Americans are "technologically literate."** In addition, the public's understanding of technology lags behind its professed interest in the subject.
- **Belief in various forms of pseudoscience is common in both the United States and Europe.** For example, 60 percent of surveyed Americans said they believe in extrasensory perception, and 41 percent thought that astrology is at least somewhat scientific. More than half of surveyed Europeans said they believe in astrology. Because society is heavily dependent on S&T, scientists are concerned about the persistence of beliefs that run contrary to scientific evidence.
- **A recent poll of scientists found that 42 percent engaged in no public outreach.** Asked why, 76 percent said they did not have time, 28 percent did not want to, and 17 percent did not care. Only 12 percent of the surveyed scientists said they were engaged in political outreach, and 20 percent were in contact with the media.

Public Attitudes About Science-Related Issues

- **Americans generally have highly favorable attitudes regarding S&T.** Attitudes are more positive in the United States than in Europe. For example, in 2001, 72 percent of Americans, compared with 50 percent of Europeans, agreed that the benefits of scientific research outweigh any harmful results.
- **All indicators point to widespread support for government funding of basic research.** In 2001, 81 percent of NSF survey respondents agreed with the following statement: "Even if it brings no immediate benefits, scientific research that advances the frontiers of knowledge is necessary and should be supported by the Federal Government." In Europe, 75 percent of those surveyed agreed with the statement.
- **Optimism about biotechnology actually increased in Europe between 1999 and 2002.** A similar trend occurred in the United States during the same period. However, antibiotechnology sentiments remain more common in Europe than in the United States.
- **Technologies based on genetic engineering are controversial.** Americans overwhelmingly oppose human cloning but are more divided on the subject of medical research that uses stem cells from human embryos. Support for the latter has fluctuated, but in 2003, 47 percent of the public expressed support for stem cell research, and 44 percent were opposed.
- **Americans continue to express confidence in the science community.** In addition, the events of September 11, 2001, seemed to affect the ranking of institutions based on public confidence, giving rise to a surge in ratings for the military and the executive branch of the Federal Government.
- **The public seems to recognize that S&T play a role in combating terrorism.** In one survey, about 90 percent of respondents said that scientific research is either extremely or very important to prepare for and respond to threats of bioterrorism, and more than 80 percent strongly or somewhat supported increased funding for such research.
- **Attitudes toward environmental protection have been shifting in recent years, according to a Gallup survey.** In 2003, 47 percent of those surveyed chose the statement "protection of the environment should be given priority, even at the risk of curbing economic growth," compared with 42 percent who chose its alternative, "economic growth should be given priority, even if the environment suffers to some extent." However, the percentage choosing the former has been declining since 2000, and the percentage choosing the latter has been increasing.