



BAYER FACTS OF SCIENCE EDUCATION IX:

Americans' Views on the Role of Science &
Technology in U.S. National Defense

EXECUTIVE SUMMARY



Prepared for:
Bayer Corporation

Conducted by:
The Gallup Organization

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Introduction and Methodology

The following report is based on the findings of the *Bayer Facts of Science Education IX: Americans' Views on the Role of Science and Technology in U.S. National Defense*, a survey among the U.S. adult public conducted by The Gallup Organization and commissioned by Bayer Corporation. The study examines Americans' knowledge and attitudes toward science literacy and education and the role science and technology play in U.S. national security.

The survey results are based on a national survey conducted by telephone with a sample of 1,004 adult men and women, age 18 and over who were either U.S. citizens or permanent residents of the United States. The study was conducted during the period of March 10 through April 7, 2003. The findings are representative of all American adults age 18 and over residing in U.S. households with telephones. For results based on samples of this size, one can say with 95% confidence that the error attributable to sampling and other random effects could be plus or minus three percentage points. In addition to sampling error, question wording and practical difficulties in conducting surveys can introduce error or bias into the findings of opinion polls.

Key Survey Findings

Science & Technology and National Security

- Almost all (96%) but a very few adult Americans surveyed feel that science and technology play an important role in the country's national security. This sentiment does not vary significantly across each of the demographic groups analyzed.
- Three-quarters (75%) of Americans feel that America's new emphasis on national security will create new job opportunities in science and technology - one in five (20%) do not.
- Three in five (62%) Americans believe that it is very important for those entering the new homeland security jobs to be science literate. An additional 33% say this will be somewhat important.
- Virtually all (98%) Americans believe that science and technology plays an important role in military preparedness (79% very important and 19% somewhat important). Similarly, 96% feel science and technology are very (76%) or somewhat important (20%) in intelligence preparedness. While most also feel science and technology play an important role in law enforcement preparedness, fewer believe it is a very important role (57%).
- Most feel that each of these functions are reliant on science and technology. Specifically, 63% say military preparedness is very reliant on science and technology, and 32% say somewhat reliant. Similarly, 57% feel intelligence preparedness is very reliant on science and technology, and another 36% somewhat reliant. As for law enforcement preparedness, 32% believe it is very reliant on science and technology, and 54% say somewhat reliant.
- Four in every five (80%) Americans surveyed are of the opinion that science and technology will be very important in meeting future terrorist threats. An additional 17% say this will be somewhat important.

Science Literacy and Homeland Security

- One in every two (49%) Americans feel it is very important for the average American to be science literate in order to understand and deal with terrorist threats; 42% say this is somewhat important. One in fourteen (7%) do not think it is important for the average American.
- Two-thirds (66%) of all Americans surveyed believe they are science literate. One-third (32%) say they are not. Men are more likely than women to perceive themselves as being science literate (73% vs. 59%).
- Asked if improving their general knowledge of science and technology would help them make more effective decisions about protecting them and their families against potential threats to homeland security, 76% feel this would help, while 22% do not.
- The majority of the American adult public - 72% - believe science literacy is more important for today's students than it was before 9/11.

TIMSS Scores and Science Education for Today's Students

- Respondents were informed about the results of the Third International Math and Science Study (TIMSS) including the fact that compared to students in other participating countries, U.S. 12th graders performed much below the international average. When asked to what extent they were concerned that these low test scores might negatively impact the nation's future security and economic prosperity, nearly nine in ten were either very or somewhat concerned.
- Further, nine in ten adults in the survey report they are either very (52%) or somewhat (38%) concerned that today's students may not have the skills necessary for homeland security and economic leadership in the future.
- The vast majority (90%) of Americans believe that improving pre-college math and science education is a national priority that must be addressed - nine percent do not.
- Most favor replacing textbook-based science education with hands-on science learning - 44% strongly favor and 42% favor. One in twenty (5%) neither favor nor oppose, and eight percent oppose replacing textbook-based science education with hands-on learning.
- Sixty-two percent feel today's elementary school teachers have the qualifications to teach science versus other basic subjects - 53% feel they are somewhat qualified and nine percent feel they are very qualified. Nearly three in ten (28%), however, do not feel that elementary school teachers are qualified to teach science compared to other basic subjects.
- The public is divided when asked if U.S. colleges are adequately preparing the teachers of tomorrow to teach science at the elementary school level. Forty-two percent feel that colleges are preparing them, while 46% do not think they are being adequately prepared. One in eight (12%) were uncertain.

Parental and Corporate Involvement in Helping Children Learn Science

- The large majority of the public feels it is important for parents to be involved in a number of educational activities in order to help their children learn science. Parents as well as non-parents were in agreement on this issue. These activities include:
 - emphasizing science as an important subject to learn (97%);
 - assisting them with science projects and homework (96%);
 - teaching them informally about science at home (94%);
 - encouraging them to learn about science on their own (94%);
 - taking them to visit science museums, science centers and zoos (96%);
 - participating in strengthening science education at their child's school (96%).
- At least three in five (62%) Americans feel it is very important for companies that employ science and technology workers to play an active role in improving pre-college science education. An additional one-third (32%) say this is somewhat important.
- When asked how valuable each of a number of corporate-sponsored programs would be, most Americans feel each would be valuable. These programs include:

- company employee-volunteer programs that bring scientists, engineers and technical workers into classrooms to work with students and teachers (71% very valuable and 27% somewhat valuable);
- internship programs for high-school students that bring students into companies to interact with scientists, engineers and technicians (79% very valuable and 19% somewhat valuable);
- internship programs for K-12 science teachers that bring the teachers into companies to interact with scientists, engineers and technicians (64% very valuable and 31% somewhat valuable);
- one-on-one mentoring programs for middle and high school students (66% very valuable and 29% somewhat valuable).

In summary, most Americans recognize the role science and technology play in national security and 93% feel that a strong national science and technology capability is a critical component of American's security at home and abroad. This opinion is shared by a large majority across all demographic groups



Making Science Make Sense® is Bayer's award-winning, company-wide initiative that advances science literacy through hands-on, inquiry-based science learning, employee volunteerism and public education.

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