

BSCS at 50 Years: Anniversary Reflections

In 2008 BSCS will celebrate 50 years of leadership in science education. During our history BSCS has endeavored to improve all students' understanding of science and technology by developing curriculum materials, providing professional development, and conducting research studies. In general, these activities have been, and continue to be, central to the BSCS mission. So, we begin our celebration.

This editorial is the first of several this year and next. NABT has been very generous in opening the pages of *The American Biology Teacher* to BSCS. This gesture exemplifies the cooperation between the two organizations. Here I express my gratitude and appreciation for the long, productive, and collaborative association BSCS has had with NABT.

An anniversary, and certainly a 50th, affords an opportunity for

a table and asserting that 100 years without Darwin is enough, BSCS has steadfastly defended biological evolution as a central idea of biology and integral to our programs. In recent years I have expressed this theme with the broader idea that BSCS programs must maintain the integrity of science by including evolution and enhancing students' and teachers' understanding of the nature of science. Biological evolution will continue to be central to our programs.

Closely related to maintaining the integrity of science, BSCS has continually advocated teaching science as inquiry. During these 50 years the form and function of inquiry in our programs has expanded from emphasis on laboratories designed to help students understand biological concepts, to activities that facilitate the development of cognitive abilities associated with inquiry, e.g., reasoning and critical thinking. BSCS

continues to develop programs and provide professional development that emphasizes a narrative of inquiry versus rhetoric of conclusion, as Joe Schwab once characterized BSCS programs versus that of other textbooks.

BSCS represents innovation in science education. Being innovative presents any organization with continual intellectual and economic challenges. One must identify the appropriate balance between maintaining the old and advancing the new. The 50 years would indicate stability, most, but not all, of the time. For those associated with BSCS, innovation comes in the form of science content, curricular design, and the professional development of science education leaders. Mostly known for curricular materials and professional development, BSCS as an organization contributes to science education through products and services that address contemporary societal needs, incorporate advances in science, and include the latest research on student learning. Some contributions of BSCS are clear and direct; for instance, we produce programs such as *BSCS Science: An Inquiry Approach*. Other contributions are less clear, but important nonetheless; for example, BSCS staff advises on international, national, state, and district policies, produce publications in journals and books, and deliver presentations on new content and pedagogy at professional meetings, such as NABT. I am confident and proud to state that BSCS has made a difference in science education.

There is one innovation that has been more successful than I ever could have imagined. That is the BSCS 5E Instructional Model. We originally developed this instruction-

BSCS Celebrating 50 Years of Leadership in Science Education

1958	Established by the American Institute of Biological Sciences (AIBS) 1st Director – Arnold Grobman (1958-1965)
1963	Produced three high school biology programs known as Green (Ecological), Blue (Molecular), and Yellow (Systematic) revisions
1965	2nd Director – William V. Mayer (1965-1982)
1973	BSCS established as an independent 501(C) 3 non-profit organization
1982	BSCS leaves Boulder, Colorado and moves to Colorado Springs, Colorado 3rd Director – Jack Carter (1982-1985)
1985	4th Director – Joseph McInerney (1985-1999)
1986	Initial work on an elementary science program published as <i>Science for Life and Living</i> in 1992 and later as <i>TRACKS</i>
1990	<i>Middle School Science and Technology</i> published
1993	BSCS purchases a building at 5415 Mark Dabbling Blvd. in Colorado Springs, and moves into the remodeled building in 1994.
1997	<i>BSCS Biology: A Human Approach</i> published
1999	5th Director – Rodger W. Bybee (1999-present)
2002	BSCS establishes Centers for Curriculum Development, Professional Development, and Research and Evaluation

reflection. In this editorial I offer some reflections on the history of BSCS, as some of the observations get to the heart of larger issues in science education. I conclude the essay with a contemporary perspective.

Beginning at a Board of Directors meeting and the Nobel Laureate geneticist H. J. Muller pounding on

BSCS at 50 Years: Key Contributions to Science Education

1963	Reintroduced evolution into biology textbooks
1960s	Used “teaching science as inquiry” in science programs
1975	Approximately 50% of high schools in U. S. used a BSCS program
1987	Created the BSCS 5E Instructional Model
1990s	BSCS adaptations in 25 languages for more than 60 countries
1996 to present	Used the <i>National Science Education Standards</i> as the basis for curriculum materials and professional development

al model in the late 1980s and included it in most programs since that time. However, the dissemination and success of the model far exceeds the adoption of BSCS programs or implementation in professional development institutes. The BSCS 5E Instructional Model is known internationally, is now included in state frameworks for science AND other disciplines, adapted by other science programs, and widely used in classroom practices.

Finally, BSCS has endeavored to design programs for all students. We have tried to be inclusive in the orientation and development of BSCS programs. Our programs have endeavored to present a balanced representation in pictures and historical vignettes. We may not have always achieved this goal. With this admission, and apology, we have continually tried to represent the best science to all students and teachers.

Where does BSCS stand now? In 2004, I formally established Centers for Curriculum Development, Professional Development, and Research and

Evaluation. Throughout our history curriculum development has been central to BSCS. Our role in curriculum reform continues. BSCS has new editions of our biology programs, supplemental materials for the National Institutes of Health (NIH), and materials on evolution based on NABT symposia conducted in collaboration with the American Institute of Biological Sciences (AIBS).

In the past few years BSCS has established a greater presence in professional development. Our work has centered on building capacity for curriculum reform within school districts through a National Academy for Curriculum Leadership (NACL). The National Science Foundation (NSF) provided original support for the initiative.

For sometime I have thought that the Biological Sciences Curriculum Study (BSCS) should attend to the STUDY part of our title. Establishing the Center for Research and Evaluation placed a priority on these activities. The organizational change came in conjunction with a new national emphasis

on research and BSCS has support for major research projects from NSF and the Institute for Educational Sciences (IES). In several years, BSCS will be an active contributor of knowledge about the design of curriculum materials, the effective implementation of programs, and the role of professional development in curriculum reform.

Throughout its history, BSCS has continued to develop as an organization. Today, BSCS is much more than the original organization that produced three high school biology programs. In our 50 years we have based our growth on principles I discussed in this essay: maintaining the integrity of science, focusing on scientific inquiry, championing innovation, and emphasizing the inclusion of all students in our science programs. I believe it is accurate and fair to say that during our 50 years, millions of students and thousands of teachers have benefited from BSCS. We are now setting the stage for continuing our work for the 21st century.

Rodger W. Bybee
Executive Director, BSCS

