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THE ATTITUDES OF THE PUBLIC TOWARD SCIENCE AND SCIENCE EDUCATION

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At the mid-point of the 1980's, science has once again risen in public esteem to a point parallel to that which existed in the mid 1950's. David Yankelovich (1984) has recently presented data regarding changes in public attitudes toward science. This positive perception of science has continued to improve during the last five years, as evidenced by follow-up studies at the University of Iowa (Fig. 3).

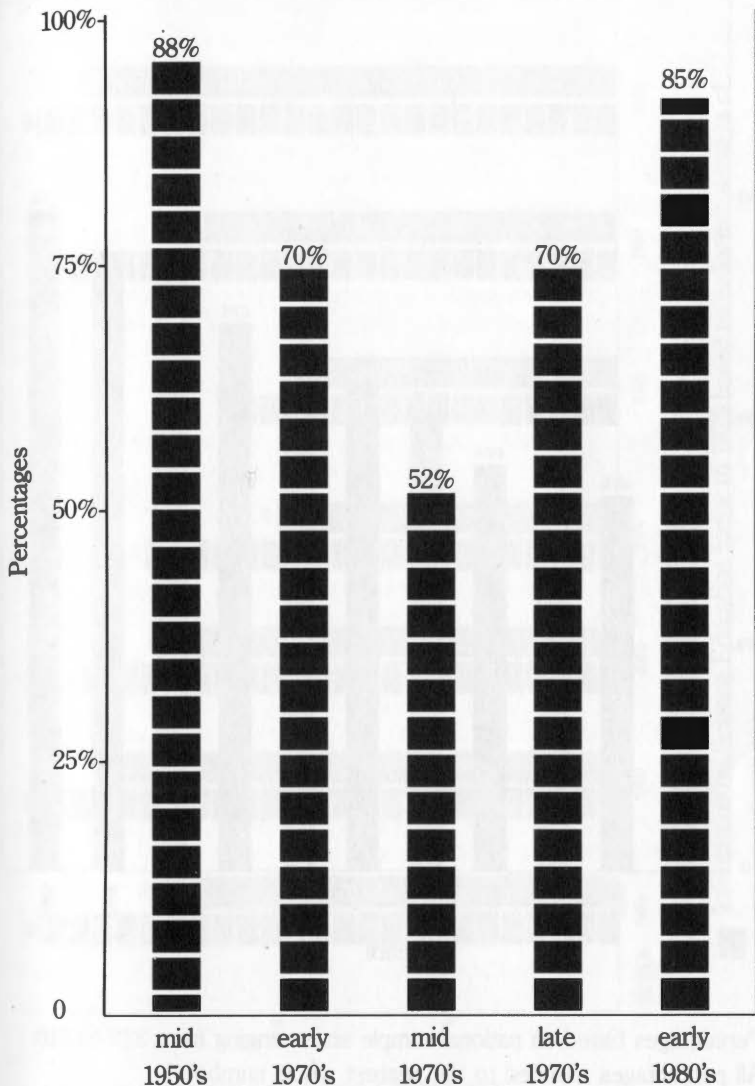
Interest in public support for science education has been of central interest for the past decade. Many national assessments in science education were conducted in 1976 — the year that public support for science education slipped to an all-time low. The national curriculum efforts (as supported by NSF) were called into serious question as debate questioned their continuation. Further, all support for pre-college teacher education activities was suspended.

In this environment, a multitude of national studies were undertaken. The largest and most publicized of these were the three NSF Status Studies (Helgeson, et al., 1977; Weiss, 1978; and Stake and Easley, 1978). Graduate centers for science education were studied (Yager, 1980). Programs and staff for science in state departments of public instruction were investigated (Dowling & Yager, 1983). Several professional societies began major studies as a result of the great decline in public support. The NSTA Accomplishment and Needs study is perhaps the most noteworthy (NSTA, 1978). The Third Assessment of Science as a part of the Annual National Assessment of Educational Progress efforts provided, for the first time, information about attitudes toward science from students and a young adult sample as well as the traditional achievement data (NAEP, 1978).

Most of the studies began with 1955 — the period just prior to the Soviet launching of Sputnik in October 1957. The 1960's were golden years for science education as the public seemed to support activities without question. A total of two billion dollars of federal support was directed toward science education improvements during the two decades that followed Sputnik (Shamos, 1980).

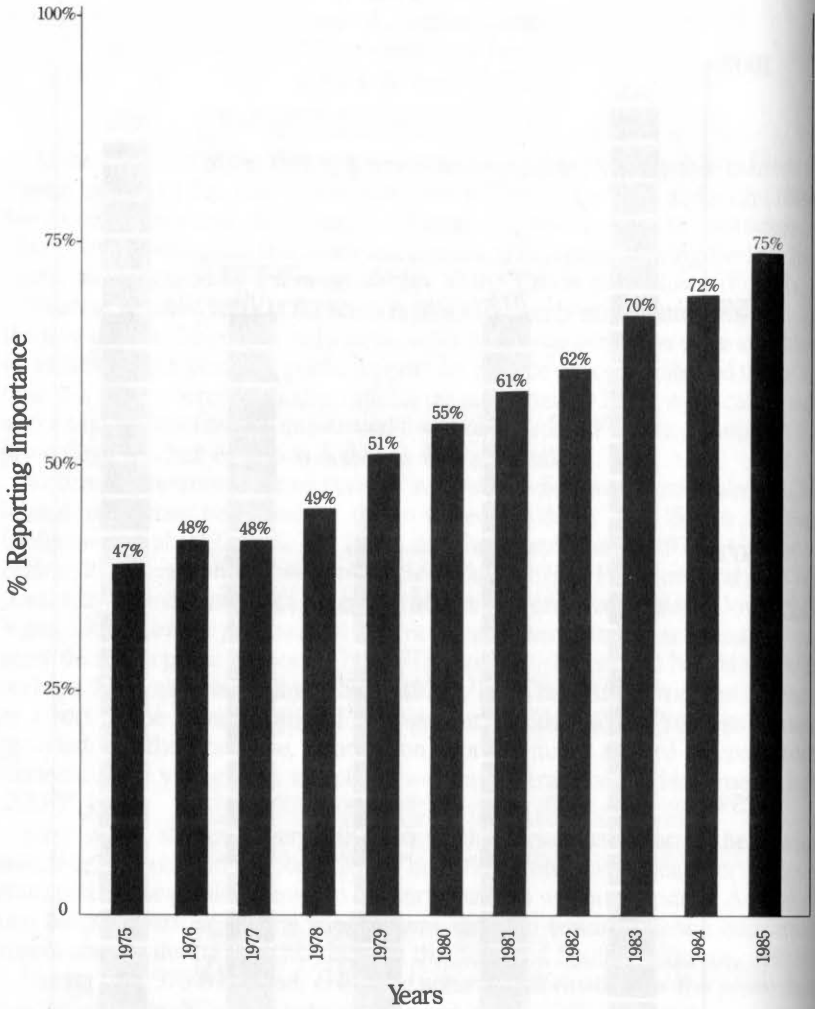
During the 1976-80 period, collecting accurate information for the preceding two decades was difficult. Evidentially, no one in the 1960's had felt the need (nor had the support) to conduct careful assessments of the support, the affects of special efforts, or changes in public perception. For this reason, some of the reflective information (as that reported in Figure 3) could be questioned. However, it is the best we have.

Many who were most involved with the assessments following the 1976 challenges are collecting information on a regular basis so that problems and corrective actions are better monitored than they were in the past. This situation makes the Yankelovich report of greater interest.



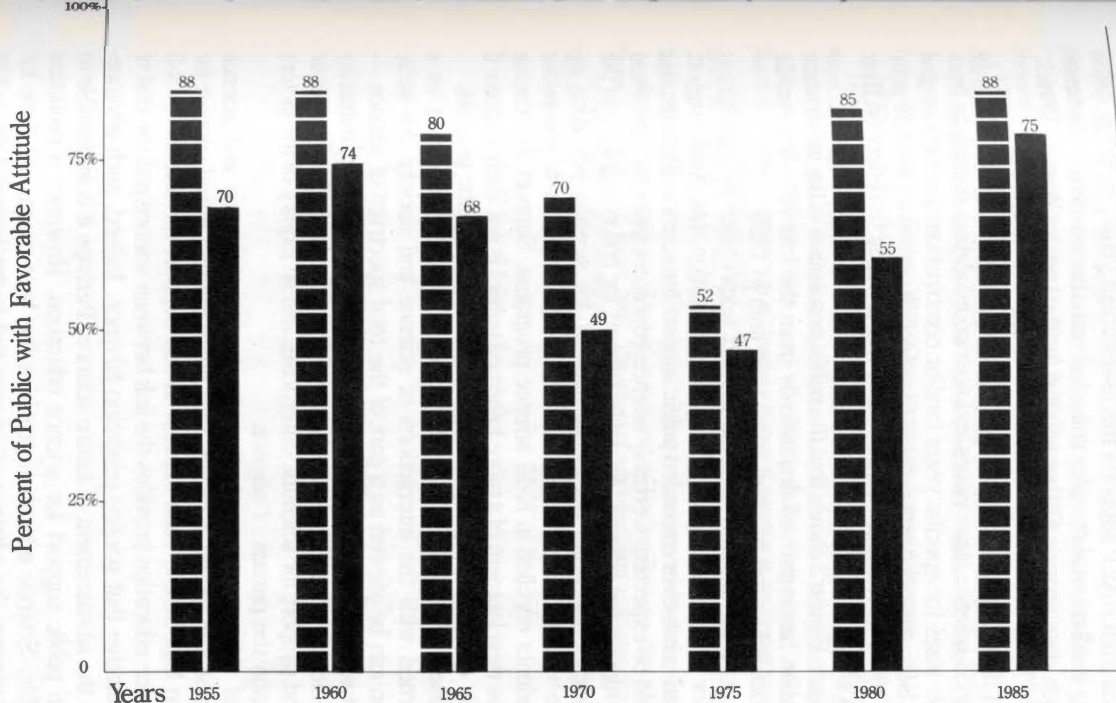
reprinted from *Issues in Science Technology*, Fall 1984, Vol. 1, No. 1.

Figure 1
FAVORABLE ATTITUDES TOWARD SCIENCE



- 1) Percentages based on national sample sizes ranging from 325 to 810.
- 2) All percentages rounded to the nearest whole number.

Figure 2
PERCENT OF THE U.S. PUBLIC FAVORABLE
CONCERNING SCIENCE EDUCATION



- Information on Science (prior to 1975 from Yankelovich).
- Information on Science Education (prior to 1975 based on reflective surveys of science educators).

Figure 3
A COMPARISON OF PUBLIC ATTITUDES TOWARD
SCIENCE & SCIENCE EDUCATION

In many respects the public attitude toward science education seems to lag behind public attitude concerning science per se. At the same time, the public perceptions of science and of science education are intimately related as logic would suggest (Fig. 2).

Information collected from adult samples by follow-up studies using some of the affective items from NAEP supports this assessment (Yäger & Yäger, 1985a & b). In addition, small national samples collected with the assistance of science consultants in each state provide further support for the trends (Yäger & Penick, 1985).

Figures 2 and 3 summarize information from questionnaires distributed to citizen groups by 53 science supervisors and science education specialists from 32 states. Sample sizes for specific years (and/or combination of years) ranged from 325 to 810. Some respondents refused to reflect on perceived attitude prior to 1970 or even 1975. Fortunately, others were more willing to reflect on their past perceptions of the importance of science and/or science education.

The information in Figure 2 shows that the public perception of the importance of science education has improved dramatically from the late 70's. This public support for science education reached an all-time high in 1985.

Figure 3 permits a comparison of public support (expression of importance) for science and for science education. There is no indication that public support for science education has ever exceeded public support for science. Perhaps this relationship should be expected. Certainly science educators must be concerned about the public support for science. As public support for and recognition of the importance of science increase, the public support for science education increases. Science education is thus affected by the perceptions of the public including the students enrolled in K-12 science programs. Support for science education (and the development of a more informed public) is not likely to occur if the general public questions the importance of the basic scientific process.

The data presented strengthens a definition of science education as a discipline concerned with the interactions of science and society. As such, science education can be viewed as a part of the total spectrum of science — being the link between human endeavors called science and the rest of humanity called society. Science education is an inquiry of the factors affecting public understanding and support for scientific enterprise, and an inquiry of the factors set by society upon the pursuit of science.

The results of this survey emphasize the fact that science and science education are connected and intertwined. But, public interest in and support for science education lags behind such interest in and support for science by 4-5 years. Since science education provides the link between science and the rest of society, it is imperative that science education advance. Indeed, such advancement will assure the advancement of future science. Perhaps it is impossible to reduce the lag in public support for science education. However, a reduction would be desirable. Science education provides the best means we have for closing the gap between the advance of science and technology and the public process.

References

- Dowling, K. W. and R. E. Yager. 1983. Status of science education in state departments of education: an initial report. *Journal of Research in Science Teaching*, 20:771-780.
- Helgeson, S. L., P. E. Blosser and R. W. Howe. 1977. *The Status of Pre-College Science, Mathematics, and Social Science Education: 1955-75*. The Center for Science and Mathematics Education, Ohio State University, Columbus, OH. U.S. Government Printing Office, stock no. 038-000-00362-3, Washington, D.C.
- National Assessment of Educational Progress. 1978. *The Third Assessment of Science, 1976-77*. 08-S-08, (released exercise set May, 1978) Denver, CO.
- National Science Teachers Association. 1978. *Science Education: Accomplishments and Needs*. ERIC/SMEAC, Columbus, OH.
- Shamos, M. H. 1980. Expanding the meaning of "science" for purposes of general education. *Proceedings of Iowa Curriculum Update Conference*, Science Education Center, University of Iowa, Iowa City, IA.
- Stake, R. E. and J. Easley. 1978. *Case Studies in Science Education*, Vol. I and II. Center for Instructional Research and Curriculum Evaluation, University of Illinois, Urbana-Champaign. U.S. Government Printing Office, stock no. 038-000-00376-3, Washington, D.C.
- Weiss, I. R. 1978. *Report of the 1977 National Survey of Science, Mathematics, and Social Studies Education; Center for Educational Research and Evaluation*. Research Triangle Park, NC. U.S. Government Printing Office, stock no. 038-000-00364. Washington, D.C.
- Yager, R. E. 1980. *Status Study of Graduate Science Education in the United States, 1960-1980*. Final report to National Science Foundation, contract #79-SP-0698.
- Yager, R. E. and J. E. Penick. 1985. Perceptions of four age groups toward science classes, teachers, and the value of science. *Science Education* (in press).
- Yager, R. E. and S. O. Yager. 1985a. Changes in perceptions of science for third, seventh and eleventh grade students. *Journal of Research in Science Teaching*, 22(4):347-358.
- Yager, R. E. and S. O. Yager. 1985. The effect of schooling upon understanding of selected science terms. *Journal of Research in Science Teaching*, 22(4):359-364.
- Yankelovich, D. 1984. Science and the public process: Why the gap must close. *Issues in Science and Technology*, 1(1):6-12.