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Doing Well by Doing Good

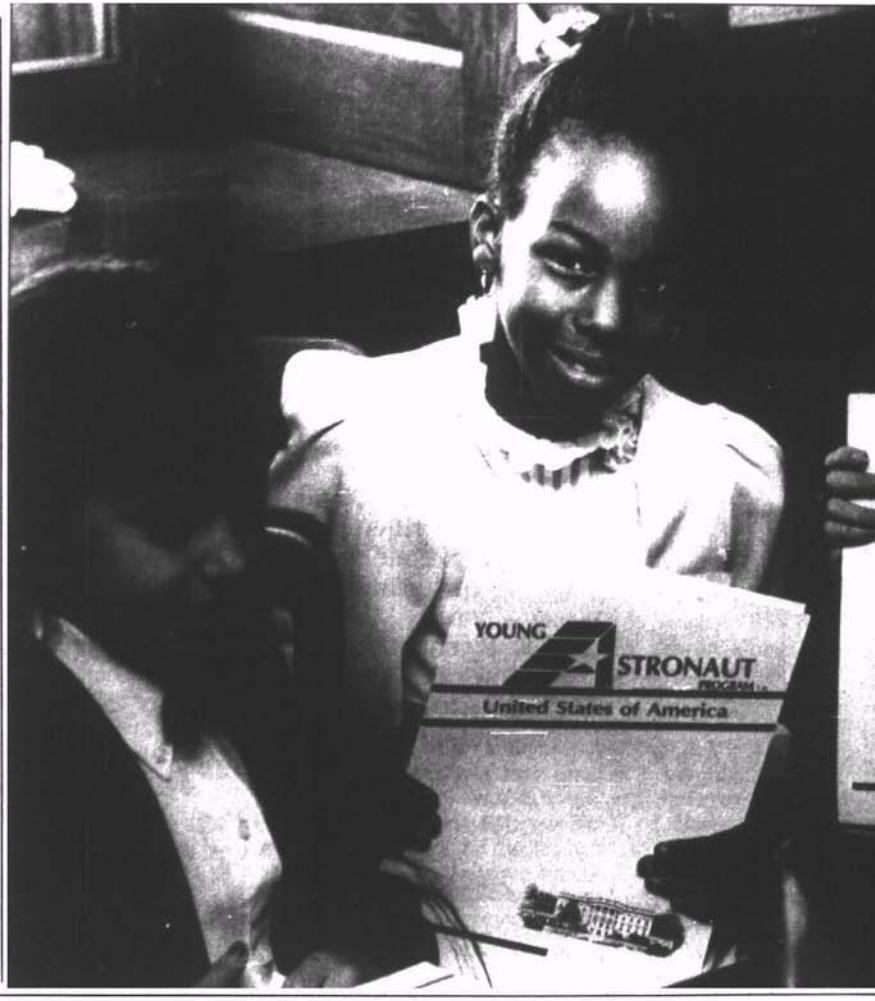
Children are becoming more interested in science and mathematics via the Young Astronaut Program, a public-private sector collaboration that can meet the goals of everyone involved.

No matter where you are in the U.S. as you read this, there is a good chance that you have seen evidence of the Young Astronaut Program. It might have been at a local McDonald's, or on a Safeway shopping bag, a Quaker Oats Company cereal box, or a Pepsi can. You might have read about it in Jack Anderson's column or seen it on a CBS Saturday morning children's TV program. Possibly your school is one of more than 4,000 with Young Astronaut chapters that regularly receives new mathematics and science curriculum materials, or you may know one of the more than 50,000 6- to 16-year-olds who have contacted the program for assistance.

What makes this public awareness remarkable is that a little over a year ago this program did not exist. In less than one operating year the program has reached over one million school-age children and has raised over $5 million through donations or licensing arrangements with 19 corporate sponsors. The story of how this happened has implications that go far beyond interest in science and mathematics. There may be clues for a process that educators at all levels can use to gain support and positive involvement from other sectors of society.

Three motivational principles underlie the program's initial success:

- Children in the early grades are attracted by the excitement of space-related activity.
- Teachers can capitalize on that

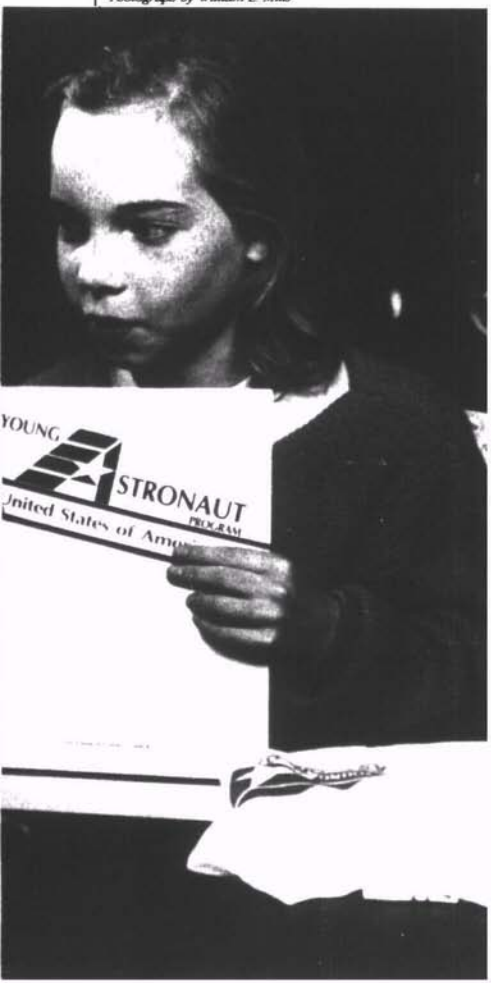


motivation if they have related resources that allow them to develop classroom activities around them.

- Adults are attracted by opportunities to collaborate in the solution of community problems.

The application of these principles in the Young Astronaut Program produced a "win/win" strategy through which teachers and children gained access to new educational materials and services, and the nation's business sector had the satisfaction of "doing good" while "doing well" in the marketplace.

Photograph by William E. Mills



Why the Program Was Launched

The program was officially launched at the White House in October 1984. Several months earlier a group of science, mathematics, and space educators had met to lay out the dimensions for a new (for education) type of public-private sector collaboration. This "blueprint" committee noted that while science and mathematics skills are essential to America's future, student competencies were dropping. Moreover, science and mathematics teacher-specialists in upper grades were leaving education for better paying jobs, and elementary teachers, who have children at the ages when interest in mathematics and science can be most readily developed, usually lacked the training, and time, to deal effectively with these subjects. This was not a new insight. During the previous two decades considerable effort had been expended through national mathematics and science curriculum development and dissemination projects. Although they had generated many high-quality materials, these efforts had failed to stimulate the broad-based kinds of interests in science and mathematics necessary to produce the educated populace needed in the high tech world of today. There appeared to be three reasons for this failure.

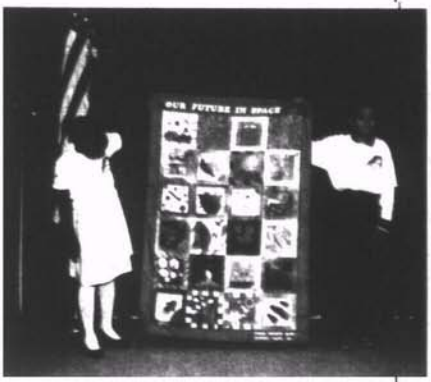
First, although the material itself was of high quality, it was geared toward those teachers and students who had already expressed an interest in space study and in science and mathematics, and therefore assumed a level of sophistication based on preexisting expertise. For the great majority of teachers and children, this interest and sophistication simply did not exist.

Second, dissemination of these materials usually suffered from a lack of marketing funds and expertise. The result was an in-house distribution system that reached only a fraction of the potential audience that might have requested the materials.

Third, the materials assumed a comprehensive approach involving detailed curriculum reviews, revisions, and retraining of teachers in each school district. This cumbersome process has the effect of screening out whole districts, which, for one reason or another, do not approve the curriculum nor have the time, funds, or inclination to retrain their teachers.

A final, and critical, factor in the initial analysis was that federal funding was no longer available to support these types of educational efforts.

The "good news" in that analysis came from both recent research and experience. New understandings of teaching suggested the need for flexible materials that could be used with



all students and also could be used by creative teachers to stimulate interest in *all* subjects, not just science and mathematics. From America's recent experience with the Olympics came a successful model for generating private sector support to deal with a critical public need. Through direct donations, or licensing agreements in which a corporation would get permission to use the program logo, funds and various in-kind support could be developed. Much as state lotteries that provide funding for schools capitalize on a basic human quality—the desire to win—this fund-raising approach also focused on a basic human drive: the desire to participate in collaborative problem solving. Accomplishing this as part of doing business soon produced a kind of "realistic altruism" that, if maintained, can ensure continued and growing support for a program.

A Recap of the First Year

While the small "blueprint" committee from several educational associations, NASA, and the Smithsonian met during the summer of 1984 to lay out the initial plans for developing the program's space-related science and mathematics materials, the Young Astronaut Council was formed and officed in space that had previously been occupied by the Olympic Committee and began contacting business firms. The council is composed of education, space, technical, and administrative experts largely loaned or volunteered by their respective governmental and industrial institutions.

The program's basic strategy is to use the schools, the largest existing and most viable educational vehicle, to provide access to the program. Thus, special scientific and space-based curriculums, instructional techniques, activities, contests, awards, and other materials were directed to teachers of all disciplines and students of every background. Whether urban or rural, gifted or handicapped, minority or not, public or private, Young Astronaut chapters would be formed throughout the nation. Chapters would be formed in grades 1–3, 4–6, or 7–9, consisting of 5 to 30 members each.

The rationale behind this plan involved the necessity of reaching young children before their attitudes toward science and mathematics are set and before they have participated in the fixed curriculum activities that are mandatory in many high schools. The purpose is to create a positive attitude and interest in science and mathematics as well as build a foundation of experiences and knowledge from which children can draw as they enter their high school years.

The program provides materials and activities in a form understandable to and usable by the nonscience or nonmathematics teacher or parent, avoiding the assumption of any preexisting expertise. Providing supplemental materials directly to teachers, chapter leaders, or students who want the information eliminates the need for a formal curriculum approval process. (Materials are supplemental to the existing and approved school curriculum.) Nonetheless, the program provides an extremely flexible curricular plan that emphasizes either co- or extracurricular use of materials.

During this first year, corporate sponsors whose names and products represent nonthreatening images of quality and responsibility have been used to develop public awareness of the program. Innovative methods for reaching potential members included advertisements in Marvel comics and articles in children's publications such as *My Weekly Reader* and *Junior Scholastic*. This method served to bring the program to the attention of thousands of children not previously interested in science, mathematics, or other academic areas. Originally focused on corporate contributions for the design and dissemination of chapter materials, the Young Astronaut Program now enters into licensing agreements with major corporations. National corporate sponsors and licensees included Commodore Computers, Rockwell International, Martin Marietta, Adidas, Marvel Comics, InterSat, Tymnet, Pepsi, Coleco, and Safeway Stores. Other sponsors include Motorola, Eaton Corporation, M&M/Mars, Westinghouse, and Lockheed. Not all arrangements are designed for profit. Xerox Corporation, for example, sponsored a five-day trip to Space Camp for 50 youngsters who otherwise could not afford to go.

Now an intellectual property, the program's logo and insignia are the trademarks and copyrights that make licensing arrangements possible. Proceeds from these contributions and agreements reduce the overhead costs of supplying participants with voluminous materials throughout the year. Rather than depending on government funding, the program uses its nonprofit status and managerial acumen to sustain its program thrust. Individual teachers, parents, and community or business leaders may form chapters consisting of between 5 and 30 students. Where no chapter is available individual children may become satellite members, participating in many, but not all, of the activities in which chapters are engaged. Chapter memberships cost $20 per year for materials valued at several hundred dollars, and satellite memberships cost $10 yearly.

Chapter and satellite memberships were generated by traditional and nontraditional means during the first half year of the program. Mailings to school superintendents and principals were completed, and the major professional associations were informed

John Denver talks with astronauts John Creighton and Buzz Aldrin at a White House briefing on the occasion of the first anniversary of the Young Astronauts program.

Young Astronaut Products

Adventure Series. Toys That Teach show how the action of familiar toys can lead to scientific investigations on Earth and in space. *Physics of Fun* uses children's experiences at amusement parks, playgrounds, and sports events to introduce physical science concepts. *Recycling Science* draws on common household items as resources for science experiments. *Spacewatch* uses the night sky as a celestial blackboard for in-class and take-home astronomy and computer science activities. Sent monthly.

Curriculum Posters. Full-color, high-motivation pictures connect space events with curriculum activities in science, mathematics, technology, and interdisciplinary fields for each grade level. Sent quarterly.

Curriculum Activity Packages. Hands-on manipulatives and extended print materials stimulate projects requiring longer-term involvement than poster activities. Sent twice a year.

Calendar Posters. Six-month calendars in full-color poster format allow children to track shuttle launches and celestial events. Sent twice a year.

Competitions/Contests. Competitions highlight achievement directly related to science and mathematics. Contests emphasize creativity in other areas, such as language arts.

Astronet(TM). A private telecommunications system provides astronomy and space program updates and materials to all chapters. The serialized Space Camp Alpha story, chapter news, and supplementary curriculum materials related to the posters are updated monthly. Access is available by computers with modem hookup.

Curriculum Activity Mini-Packs. Curriculum activity packages of special materials related to Young Astronaut chapter activities are periodically supplied by corporate sponsors.

Newsletters. Newsletters contain information about special chapter activities throughout the country as well as puzzles, computer activites, articles on space, a celebrity-of- the-month column, general news, and other materials for Young Astronauts. Sent five times a year.

of Young Astronaut Program purposes and activities.

A Program-in-Process

While it is clear that much has been accomplished in one year, Young Astronauts is still a program-in-process. A large increase in chapters and individual memberships as a result of several new corporate promotions will tax the program's capabilities to remain responsive. New curriculum materials continue to be developed and tested through a network of over 50 pilot schools (to be expanded to 100 during the coming year). These are public and private schools encompassing all demographic environments as well as overseas schools and several science museums. In return for free membership, pilot schools:

- review, classroom-test, and provide evaluations of all materials,
- provide information regarding chapter outreach activities and opportunities in the community,
- provide an informal contact network for other existing and potential chapters in their community, and
- provide an end-of-year summary and evaluation of activities, the results of which help to guide development of new materials and programs.

The program also uses an Education and Technology Advisory Board composed of representatives of the major professional associations and other related organizations. The board helps the program take into account the many interests that sometimes appear to compete in the school environment and to steer a realistic course among them.

In summary, the program has provided a unique response to a complex societal challenge to increase elementary children's interest in science and mathematics *and* provide initial support for their teachers to build on that interest. As opposed to programs that use top-down approaches for providing classrooms with access to new approaches, the Young Astronaut Program has found a way to begin at the classroom level.

The major challenge now is in the hands of educators at other levels who share the same concerns. Can an understanding of this process "trickle-up" to involve persons in a range of educational roles in buildings, central offices, state departments of education, and colleges who seldom have opportunities to collaborate around classroom issues in meaningful and effective ways?

For example, by openly attending to their own self-interest, principals might ask, "How could several Young Astronaut classroom chapters in my building provide a focal point for a combined school improvement and staff development effort?" A superintendent or board member might inquire, "How might Young Astronaut chapters provide positive vehicles for community interest in preparing students for technological futures?" A curriculum supervisor might ask, "How can I use the program to promote inter-building sharing and networking?"

One lesson stands out from an overview of the Young Astronaut Program's first year: a high level of change and ambiguity can be made tolerable when all parties can see clearly their personal relationship to common purposes and observe visible signs of progress toward them. The private sector has no singular claim on American ingenuity. Individual public educators now have the opportunity also to take part in a creative problem-solving process in which they can "do well" both professionally and personally.

As a partnership between the public and private sectors, Young Astronauts may be an example of a new form of "public" education. Until now the term "public" has indicated the source of fiscal support and control. What the Young Astronaut Program provides is a way for other "publics" (in this case, private enterprise) to play a meaningful and noncontrolling role in support of society's common interest in effective education.□

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