



New Jersey Teaches Its Children to Invent

A grass-roots effort led to the first state-sponsored contest for invention and innovation for children.

Peter's six-year-old brother, Christian, was a sleepwalker. Each night Christian would create problems for himself and his family by his wandering. How to help him? What could the family do? Ten-year-old Peter and his friend, Danny, had an idea. Why not make an alarm that would go off each time Christian began to move from his bed?

Peter and Danny heard about an invention contest for young people from their fourth-grade teacher. They found out that the contest did not give you a problem to solve; you had to come up with a problem *and* a solution. You had to find a new, better way to do almost anything.

Five months after Peter and Danny started to work on their sleepwalking alarm, they won first prize in their division of the Mini-Invention Innovation Team (MIIT) Contest. Nine months later, the boys and their parents flew to California to be videotaped with Christian and the sleep-

WESLEY PERUSEK

walking alarm for NBC's television program, *Small World*.

Advancing a New Idea

The MIIT Contest is cosponsored by the Technology for Children (T4C) program of the New Jersey Department of Education's Division of Vocational Education and Career Preparation, and the Office for Promoting Technical Innovation (OPTI) of the New Jersey Department of Labor and Industry, and presented through Educational Improvement Center-Central. It all began with classroom work in one school district.

Through her participation in the T4C program, Joan Barbagelata, a resource teacher for Middletown Township, created a teaching resource unit on invention. The unit rotated among interested T4C teachers and their children in the township's participating elementary schools.

The growing interest in children's inventions culminated in a statewide workshop for teachers at which the Middletown teachers and students presented their ideas and work. The

T4C staff also invited OPTI to present its work and resources on invention and innovation. The purpose of the workshop was to provide a springboard for teachers to generate invention activity in their classrooms.

OPTI's Executive Director, inventor Richard Stockel, spoke to the students and teachers who gathered at the workshop, as did communications inventor John Prager, the Manager of Technical Relations for the RCA David Sarnoff Research Center.

Student inventors from Middletown displayed and discussed their original ideas: a printing device made from common materials, an intrusion alarm, a mechanical arm and hand, a conveyor system, an automatic plant waterer, a card game device for automobile passengers, a rain shield for bicycle riders, and more.

The teachers of these young Edison's shared insights into the classroom environment, resources, and general climate in which their students worked. For example, tolerance for mess and noise was a part of each teacher's classroom style. A media specialist offered a comprehensive bibliography on invention, inventors, and the patent process.

Following the workshop, Stockel

Wesley Perusek is Associate Professor, Department of Industrial Technology, Ohio Northern University, Ada, Ohio. He was Associate Director, Technology for Children Program, New Jersey Department of Education.

suggested a contest to encourage more young people to develop solutions to problems. The T4C staff recruited teachers, principals, and supervisors; representatives from industry and colleges; and several inventors as a working committee to formulate a plan for the Mini-Invention Innovation Team Contest. As a first effort, every district in the state received an invitation to participate in the fall of 1979.

The contest committee devised a kindergarten-to-third-grade division, a fourth-through-sixth-grade division, and a seventh-through-ninth-grade division open to all children in the state. The committee set no limit on type of invention or innovation—and the dollar amount invested in an idea had no bearing on judging.

Each applicant was required to have an adult sponsor and present a preliminary sketch or written description with the application. Entrants also kept a log of their work and a record of all materials they used. At judging, they either presented their ideas in physical form or gave an oral discussion of the problem and its solution, along with a drawing, their work log, and a short descriptive paper.

The first-year program established guidelines and a center in Edison, New Jersey, for disseminating information to sponsors.

The OPTI cosponsors contacted state business and industry for award contributions. Twelve firms contributed savings bonds, plaques, and certificates for regional and state finalists.

In the first year, 329 students from all over the state participated. The next year there were twice as many.

Regional winners had such ideas as the Sleepwalking Alarm, Nonamey Math Game, Scanner Cart, Solar Powered Car, Battery Powered Duster, Automatic Jack, Tailgate Warning Light, Portable Burglar Alarm, Tubular Transport Jet, Energy Saving Bicycle, and Recorder Sterilization Box. Last year's ideas included Natural Apple Soda, Computer to Control Energy, greeting cards for the blind, Thermo Converter, Clock Arithmetic Table, Breath Alcohol Sensor, Sock Warmer, and the Papertak.

Teachers are being presented with a system for teaching children how to seek out and solve problems by

means of a systematic approach to inventing. The long-range program will encourage wider participation and teach inventing in successive years so that children will advance in thinking, problem solving, and technical competencies. Goals are to help more children become more technically competent to solve problems generally and, more specifically, to be able to produce inventions of significant merit.

A 1980 U.S. Department of Commerce Report, *Learning Environments for Innovation*,¹ states the case for integrated technical and academic learning. The report supports weaving science and technology into the fabric of primary and secondary education, observing:

... that the present trends of "back to basics" and "dispense with the frills" more and more eliminate the hands on experience which may be necessary to develop

right-brained skills which we believe are essential to innovation technologists and managers as well as creative artists (pp. 24-25).

The act of understanding and being able to handle problem solving in a broad, "real world" sense makes children more self-reliant and confident of their abilities in our competitive economic system. ■

¹ U.S. Department of Commerce, Commerce Technical Advisory Board, *Learning Environments for Innovation—A Report of the Commerce Technical Advisory Board*, Washington, D.C.: U.S. Department of Commerce, May 1980.

Note: Readers interested in invention education or in beginning an invention-innovation contest and program should call (201) 985-7769, or contact: Technology for Children Program, T4C Teacher Center, Building 871, EIC-Central-Edison, Plainfield Avenue, Edison, NJ 08817.



\$45/SET

Send prepaid orders to:

CENTER FOR POLICY RESEARCH
475 Riverside Drive
New York, NY 10115

A SET OF FOUR NEW-SCHOOL GUIDES
FOR PLANNERS AND IMPLEMENTERS

1: SETTING THE STAGE FOR PLANNING

Group composition, tasks of planning, dealing with uncertainty, timetabling, team building, using consultants and information feedback

2: DESIGNING YOUR SCHOOL

Goal setting, designing the social system of the school, reality checking the goals and design

3: MAPPING YOUR SCHOOL'S ENVIRONMENT

Getting resources and endorsements from the new school's environment, using strategies of circumvention, cooptation, bargaining, buffering

4: MAKING YOUR SCHOOL WORK

Linking plans to action, staffing the new school, diagnosing and troubleshooting after start-up, self-renewal

Copyright © 1981 by the Association for Supervision and Curriculum Development. All rights reserved.