

Dr. Donald G. Lux, professor emeritus of technology education at The Ohio State University, is a trustee of Alpha Chapter of Epsilon Pi Tau.

IACP—An Innovative Project of the 1960s

The Industrial Arts Curriculum Project (IACP) was a massive effort to modernize the traditional industrial arts curriculum by moving it from its 19th century manual training base to a basic liberal education curriculum component rooted in contemporary industrial technology. It was seen by its developers as serving the same purpose in preparing youth for life in a world largely shaped by industrial technology, much as science classes would prepare youth for understanding and living in the natural world. Both would be required of all students as core components of the curriculum.

IACP conceptualized, produced, field tested, and revised and retested for three years two complete courses age-graded for early adolescents.

Agreements were made with field test center schools in Chicago, Illinois; Trenton-New Brunswick, New Jersey; Dade County, Florida; Austin, Texas; Long Beach, California; and Cincinnati, Ohio. To be participants, the school systems each had to provide two certified industrial arts teachers and two classes of students, both boys and girls and of varied abilities, in each of two schools. The teachers were to teach a normal full load exclusively in industrial arts.

IACP provided the schools (a) an opportunity to participate in a research and development project of national scope; (b) receive in-service education for their teachers; (c) complete instructional software and hardware both for all teachers and all students, with the latter receiving age-graded textbooks and laboratory manuals; (d) detailed teacher's guides with daily performance-based outcomes, standardized periodic and term tests, and all the necessary instructional aids and devices for activity-centered instruction; and (e) consumables also were provided. Most important, teachers had the opportunity to be partners in the ultimate design of the complete program, and, as it worked out, most became teacher educators during summers, at the program's end, at teacher education institutions, teaching other teachers the content and methods of the new programs.

Where the Ideas Came From

Both the faculties at the University of Illinois and The Ohio State University knew that if there was to be modernization of industrial arts instruction it was going to have to come from some relatively small group that had the dedication and could have the great amount of time required to provide the necessary leadership and could demonstrate that the new could in fact be better and was needed. Originally Willis Ray and Edward Towers of Ohio State and Jacob Stern and myself from the University of Illinois wrote some brief papers on the problem and what could be done about it. Ad hoc meetings to discuss these papers and to improve them eventually led to more formal meetings and proposal writing. During the proposal writing stage, Rupert Evans contributed significantly though he never was a working member of the IACP staff. He also was a working member of the National Advisory Committee that contributed significantly to the project.

In 1963 a proposal was submitted to the U.S. Department of Education for a multi-year research and development project that was to be funded out of the career education portion of the Vocational Education Act of 1963. If fully funded, it would run to millions of dollars. Of course, it was funded annually, based upon the quality and timeliness of the preceding year's work. It was fully funded, though one year the funding for the student texts was cut \$25,000. When that became known to the Associated General Contractor's Chapter of Denver, Colorado, they passed the hat and came up with the balance. This is simply indicative of the support the project had from the communities involved in it. There is no end to the list of supporting individuals and groups. The Society of Manufacturing Engineers, Building and Construction Trades Department of the AFL-CIO, The Associated General Contractors of America, and many others contributed advisors for days and even weeks when requests were sent to them. The president of the International Brotherhood of Electrical Workers authorized a movie, *Genesis of a Giant*, to be produced by Disney Studios to introduce the several days devoted to electricity. Then copies were sent to every IBEW Chapter with directions to make it available to local schools. It teaches a lot about electricity in 30 minutes, from house wiring to generating station and everything in between.

The first year's work was extremely critical because it required a written rationale and structure for the subject matter of the two 1-year courses. All of the technological expertise and philosophical help we had identified had to be scheduled and organized to help us be as sure as we could be that we had a sound foundation before going any further. Concurrently, it was necessary to establish the nature and format of our instructional materials, including lab manuals and texts and teacher's guides and evaluation schema. Sample materials had to be developed and tried out to gain a sense of unit time requirements, schools and teachers had to be gathered and briefed on the grand design and their part in it, etc., ad nauseum. Work also had to be done on materials for the fall term of the next year. This then required an accelerating and expanding demand for even more materials of every description. When Labor Day came each year, we had to be certain that the truck loaded with all the materials for teachers and students would be at the loading docks all over the United States at least a week before the start of classes. While this was going on, dozens of graduate research associates had to be recruited and oriented and personnel changes had to be taken care of. Jacob Stern left the University of Illinois and was replaced by perhaps the hardest working man on the team. Dean Hauenstein became the production coordinator and the field liaison on deliveries and problems. Ed Towers left OSU, causing Willis Ray and me to each take management responsibility for the World of Manufacturing and the World of Construction, respectively. We also became codirectors and principal investigators with regard to management of the project with the OSU Research Foundation. Professor James Buffer also was added to the staff as director of program and pupil evaluation.

Much of the work of the project was done by the cooperating teachers in the field test center schools. Daily they made notes on what went well, what did not, and of what changes, if any, needed to be made in timing for the daily activities. On Saturdays the construction teachers and the manufacturing teachers met and discussed their recommendations and consolidated their daily reports into a weekly one. These were then sent to the eagerly awaiting graduate students working on revisions. Each year during the mid-year break, the teachers were

brought to Columbus to a conference of the whole to see what things other schools were suggesting for changes, and when they came to the second of these conferences, they were much more avid participants, as they now had experienced that what they wanted changed mattered, and the materials were improved as a result of their feedback. These sessions grew more like family affairs, year by year, as the team spirit saturated the group. In addition, after the project ended the project staff worked with requests from the field to provide field test teachers as directors of workshops for teachers who had bought the materials and wanted help to use them effectively. This ultimately led to many of the field test teachers becoming teacher educators. Some also wrote new textbooks.

Clearly the field test center teachers were, collectively, the most significant contributors to the final products because they were the ones with their "feet to the fire" and were the real authorities regarding what the learners needed and wanted. Wouldn't it be lovely if all instructional materials could be developed in like manner?

Getting the Methods and Products to the Field

As the project was ending, distribution of the products to the field became the next concern. IACP never produced or employed the use of any "kits." Instead project goals sought to provide youth with hands-on experiences and individual problem solving with industrial design, architectural, engineering, production, and city and regional planning technologies of lifelong values in many ways, such as home maintenance skills, career interest development, hobbies, etc. Kits were anathema, and to the extent that any of the hardware products were saleable, entrepreneurs would produce and sell the items, as the marketers of the "Land Speed Record Assault Vehicles" originally designed, fabricated, and customized by individual IACP students ably demonstrated. The software was another matter. Recognizing the problem, the U.S. Department of Education came up with the idea of a limited copyright for books and other written matter, produced with public monies and in the public domain, were not attractive to publishers who would have to spend much money for pre-production work on materials that could be copied and sold by anyone. IACP invited several leading publishers to a bidding conference to test their interest in a

limited copyright with 50% of the royalties going to the U.S. Department of Education and 50% to the OSU Research Foundation, for use in extending the impact of the project and development of others. The proposal was taken to the U.S. Department of Education and the first of its kind limited copyright was issued to IACP, with royalties quickly generating hundreds of thousands of dollars before the limited copyright expired.

Project Impact on the Field

It can fairly be claimed that IACP did, in fact, accelerate the modernization of industrial arts. All of the field test school systems adopted the two-year offerings in their junior high schools. Many states also adopted the courses within their junior high school standards, but perhaps the largest impact was in having teachers adopt and adapt new teaching methodologies as well as new content to move into the 21st century.

Another peripheral gain was in the nationwide establishment of new and very helpful contacts within communities and states with leaders in construction and manufacturing technologies.

There was no intent to replace industrial arts. The overall goal was to provide two 1-year courses to the junior high school that would provide comprehensive knowledge and practical skills needed for living in the technological world in much the same way as general science prepares students for life in the natural world.

From the outset the envisioned two 1-year courses were seen as part of the liberal education core for all junior high school youth, with the same type of textual and laboratory guide materials, organized instruction, and periodic testing as for other basic school subjects.

Much research has been done on the impact of the program on student learning and the junior high school program. It casts a very favorable light on the accomplishments of IACP.

The significance and impact of IACP is even more dramatic in light of more than a dozen curriculum projects of varying scope but focused on changing or updating industrial arts during the 1960s and 70s. These are reported in detail by Householder (1972). But, IACP is unique in several ways. It is the only major industrial arts curriculum effort that has been rooted in an analysis of the structure of knowledge. It is the first

project to produce instructional materials and a sequence of courses correlated with a taxonomic classification of a body of knowledge. The intensive field testing and in-service teacher education which accompanied the development have been unequalled. Finally, IACP is the only program that has produced a substantial group of integrated instructional materials and made them available through a commercial publisher. In view of these attributes, IACP is considered by many to be the outstanding accomplishment of past decades in industrial arts curriculum development.

Reference

Householder, D. L. (1972). *Review and evaluation of curriculum development in industrial arts education*.
Bloomington, IL: McKnight.