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Conceptualizations of Jackson's Mills

In the early 1980s, 21 professional educators in the discipline of industrial arts education were brought together to accept the challenge of synthesizing information concerning trends within the discipline with the goal of reaching consensus on the rationale and direction for the future of industrial arts (Snyder & Hales, p. ii). The results of this effort became known as the Jackson's Mills Industrial Arts Curriculum Theory (Snyder & Hales, 1981).

This article offers a personal perspective helped by the recollections of other participants who participated in the project that took place 21 years ago. The following describes the genesis of this project, its philosophical contributions, and its impact on the discipline. Those who contributed will understand that the passage of time may have embellished their recollections and will therefore also forgive that these have been mercifully edited.

Cultural Context

I believe that curriculum development cannot succeed if those involved fail to recognize the cultural context in which it exists. In that connection, I am compelled to say that the leaders in industrial arts education failed to recognize the trends and indicators that mandated radical change within content and instructional strategies. This failure endured in the face of evidence in the general literature and industrial arts literature. This might be best illustrated by saying that the study of technology can be traced back to the 19th century with Wilson's (1855) classic lecture entitled "What Is Technology" delivered at the University of Edinburgh.

The development of technology following World War II was quite dramatic. A large number of landmark developments developed that radically altered our way of life (e.g., ENIAC, synthetics, nuclear power). The 1960s and 1970s produced a significant increase in analyses of the consequences of what Ways referred to as the "era of radical change" (p. 19). Table 1 provides a representative sample of a number of these classic references. Pytlik (1987), at West Virginia University, conducted a study funded by the CTTE that resulted in a paper entitled "Great Books in Technology." Of the 52 books identified by scholars in the profession, 28 were published in the 1960s and 1970s. I would be remiss if I were to fail to state that a significant number of other classic references appeared prior to the 1960s (i.e., Wiener, 1950; Mumford, 1954; and Ellul, 1964).

Table 1. Classic References on Technology and Change Representative Sample

Burke, J. (1978). *Connections.* Boston: Little, Brown.

DeVore, P. W. (1972). *Education in a technological society: Access to tools.* Morgantown, WV: West Virginia University.

DeVore, P. W. (n.d.). *Technology: An intellectual discipline.* Oswego, NY: Oswego Teachers College.

Ellul, J. (1964). *The technological society.* New York: Vintage Books.

Ferkiss, V. (1969). *Technological man: The myth and the reality.* New York: Braziller.

Ginzberg, E. (1964). *Technology and social change.* New York: Columbia University Press.

Harvard University. (1968). *Program on technology and society: Fourth annual report.* Cambridge, MA: Author.

Helmer, O. (1966). *Social technology.* New York: Basic Books.

Kranzberg, M. (1964). *Technology and culture: Dimensions for exploration.* Washington, DC: American Industrial Arts Association.

Morse D., & Warner, A. (1966). *Technological innovation and society.* New York: Columbia University Press.

Olson, D. W. (1973). *Technol-o-gee.* Raleigh: North Carolina State University.

Toffler, A. (1970). *Future shock.* New York: Random House.

Warner, A. W., et al. (1965). *The impact of science on technology.* New York: Columbia University Press.

West Virginia University. (1970). *Industrial arts teacher education fellowship program.* Morgantown, WV: Author.

West Virginia University. (1970). *Proceedings of the West Virginia University industrial arts development conference.* Morgantown, WV: Author.

Wilson, G., MD. (1855). *What is technology?* Edinburgh, Scotland: Sutherland & Knox.

Both lists of books focused on a common theme, that is, technology as a primary determinant of social change. Within this context, we were facing a society characterized by new and recurring themes such as:

- Post-industrial
- Knowledge-based
- Futurism
- Technological forecasting
- Global village
- Technological assessment
- Information age
- Finite resources-infinite demand

Discipline Response

The 1960s and 1970s saw the emergence of new curricular approaches within the discipline of industrial arts education. It was becoming abundantly clear that two primary foci were surfacing for curriculum development. To illustrate this, reference is made to the IACP curriculum at Ohio State University (IACP, 1968) and the American Industry project at the University of Wisconsin-Stout, both of which focused on industry as the content base. At the same time, DeVore (1966) offered his ideas on the study of technology as a discipline base while at Oswego. Olson (1963) also called for the study of technology. It should be noted that an even earlier pioneer, Warner (1947), called for the study of technology as a more defensible content base. Maley (1973) offered his approach, which called for the study of technology, industry, and the problems and benefits resulting from the industrial and technological society. The call for change came from individuals outside of our discipline. For example, in 1964 noted historian Melvin Kranzerg delivered his landmark paper to the AIAA, entitled "Technology and Culture: Dimensions for Exploration."

West Virginia University, with the leadership of Thomas Brennan and Paul DeVore, offered the first major research effort for the study of technology as a discipline base. This was accomplished in 1969–70 with a funded project that involved 10 industrial arts professionals studying for a full year. This resulted in a document entitled "Industrial Arts Teacher Education Fellowship Program" in 1970. That same year another seminal document appeared entitled "Proceedings of the West Virginia University Industrial Arts Undergraduate Program Development Conference." It was these efforts that led to the development of the first undergraduate technology education program in the United States at Eastern Illinois University in 1976 (Lauda & Wright, 1983).

Change was in the proverbial wind and sufficient enough to warrant a major study that would assess the discipline. The preface to the Jackson's Mills document placed this in perspective.

> The literature in our field over the past few years has been replete with concerns and warnings about the direction and future of industrial arts. Committees within the AIAA structure have issued reports with the same conclusions. It is, therefore, time to translate debate into action. It is time to assess the relationship of industrial arts to comprehensive education. It is time to rededicate ourselves to a common professional cause. Hence the purpose of this document is to provide a rationale and direction for the future industrial arts from which we might all find a point of view. (Synder & Hales, n.d., p. ii)

The Jackson's Mills Experience

Directors: James Snyder, Coordinator, Instructional Learning Systems, West Virginia Department of Education; James Hales, Director, Division of Technology, Fairmont State College.

Funding: West Virginia State Department of Education

Location: Jackson's Mills, WV. Jackson's Mills State 4-H Conference Center is centrally located in the heart of West Virginia. Jackson's Mills became a well established landmark in the early 1800s, having been settled by the grandparents of General Thomas J. "Stonewall" Jackson in 1801. After changing hands many times, five acres were donated to the state by the Monongahela Traction Company for a West Virginia 4-H campsite. It was placed under the care of the Extension Service of West Virginia University. The isolated location in beautiful surroundings made a natural location for the Jackson's Mills Conference.

Selection of Participants: A modified delphi technique was utilized in which the directors identified two leaders in the discipline as participants. They then asked these two to identify the next two leaders. This process was repeated until the same names began to reappear, thereby reaching consensus. Twenty-one individuals were identified with the following composition: teacher educators (16), public school personnel (3), state department personnel (1), and the AIAA director.

Participants: See Table 2

Table 2. Participants in Jackson's Mills

Joseph E. Basile, West Virginia Department of Education
Myron Bender, University of North Dakota
M. James Bensen, University of Wisconsin-Stout
Paul W. DeVore, West Virginia University
William E. Dugger, Jr., Virginia Polytechnic Institute
Frank R. Field, University of New Mexico
James E. Good, Greece Central School District
Normal Heasley, Summit Board of Education, Ohio
Daniel L. Householder, Texas A & M University
Everett N. Israel, Illinois State University
Donald P. Lauda, Eastern Illinois University
Les Litherland, president, American Industrial Arts Association (AIAA)
Gary E. Lintereur, Northern Illinois University
G. Eugene Martin, Southwest Texas State University
Charles A. Pinder, Virginia Polytechnic Institute
Willis E. Ray, Ohio State University
John M. Ritz, Old Dominion University
Alvin E. Rudisill, Eastern Michigan University
Earl E. Smith, Oregon State University
Kendall N. Starkweather, executive director, AIAA
Thomas Wright, Ball State University

Meetings: Jackson's Mills 4-H Camp (2) and Oglesby Park, Wheeling, WV (1)

Final document: Snyder, J., & Hales, J. (n.d.). *Jackson's Mills industrial arts curriculum theory.* Charleston: West Virginia Department of Education. Reprinted by AIAA (1982) and Ball State University (1986). Available in ITEA archives, Millersville State University.

Process: The charge presented by the co-convenors (Snyder and Hales) was open-ended, that is, the group was asked to assess the relationship of industrial arts to comprehensive education, seek new models if appropriate, and hopefully reach consensus, realizing that the outcome would be "work in progress." Self-introductions revealed a wide range in experience (teaching and professional association), philosophy, biases, exposure to ideas, institutions attended, current employment, etc. By design, the group had representation from teacher education, the state department of education, and the public schools, albeit the latter two had a very small representation.

The group initiated its efforts with a broad discussion of societal trends, our heritage, curricular models in the discipline, efforts in other disciplines, needs of children, etc. This served as a "warm-up" exercise and a chance for positioning among the participants. It would be naive to think that individuals came without bias, preconceived notions, or ego involvement. But these would have to be set aside as much as possible and compromises would have to be made if the group was to meet its goals. Following lengthy discussions, an outline began to take form which included:

- A base for curriculum derivation which became a discussion of society and culture, including their evolution.
- Domains of knowledge (sciences, humanities, technologies, and formal knowledge).
- Human adaptive systems (technological, sociological, ideological) that exist in our natural and human-made environment.
  The interaction between Items 2 and 3 above led to:
- A universal systems model (input-process-output) which has allowed a means to bring order to human actions. This included an analysis of the source of inputs (people, knowledge, materials, energy, capital, finance).
- Implementation (learner, program levels, learning models, state and local models).
- A definition of the discipline.

At the risk of personal bias or possible senior moments, the following observations are proffered:

At the outset, five major "hurdles" provided potential roadblocks for discussions: (a) that our own discipline might restrict our thinking, (b) that the group might be reluctant to look at interdisciplinary possibilities, (c) that the group may attempt to be/do all things for all people, (d) the obvious division in philosophy with one coming from a "study of industry base" and the other a "study of technology base," and (e) that the discussion of the sociological and ideological elements of the human adaptive systems might meet intense resistance since traditionally industrial arts educators had not focused on values, norms, institutional responses to change, and their relationships.

The group was in agreement that a primary "driver" of deliberations should evolve around the realities of society and culture. Attention to the realities of the primary references included in Table 1 was obvious.

The domains of knowledge were also accepted based on input from the literature (sociology, anthropology).

The human adaptive system discussion was lengthy because industrial arts educators who had traditionally focused on materials and processes had little or no training in handling discussions evolving sociological concepts. The end result was a high level of emphasis on the interaction between the domains of knowledge and the human adaptive systems. It seemed to me that this was the point at which the group solidified and the basis for the curricular theory was founded.

The adaptive system conversation was further enhanced with the acceptance of the universal systems model, which was advocated by some from an engineering perspective. This clearly reinforced the notion of the interaction between knowledge and systems, and perhaps, most important, offered an interesting instructional strategy for the classroom. From these discussions it was inevitable that interdisciplinary relationships surfaced and provided additional opportunities for content and instructional strategies.

The definition adopted came from Maley's work incorporating both technology (evolution, utilization, and significance) with industry (organization, personnel systems, techniques, resources, products, and their social/cultural impact). This was a significant compromise in the group and it ameliorated the two philosophical viewpoints.

Vigorous debate ensued over the fundamental technological systems with one group advocating production, transportation, and communication and the other advocating manufacturing, construction, transportation, and communication. Others that were considered were power and energy. Bio-technology was discussed tangentially but never seriously considered as one of the primary parts of the system. Ultimately, the group compromised and accepted manufacturing, construction, transportation, and communication.

The implementation section, although offering unique insights, had to be hastily crafted due to a lack of time.

Overall, the discussions were in-depth and of a highly professional nature. This is not to say that there were no moments of agitation. Different philosophical positions bring inherent dangers when presented since invariably there are those who think otherwise. Having said this, I felt that closure came with the feeling that the group had coalesced and generated a curricular "theory" that had great potential for leading to a sustained conversation to help the discipline of industrial arts retain and improve its position in the educational system.

Impact

The "proof of the pudding" comes from a demonstrated use of one's efforts. Did the Jackson's Mills Project make an impact? Did it change the discipline? Was it worth the effort of 21 professionals who contributed endless hours of their time and energy? I believe the answer is "Yes!" for every question. Much of the proof is difficult to document, and it is anecdotal evidence that is the curse of solid research. However, there is ample evidence, albeit some implied, in the literature. For example, the Jackson's Mills document has been cited in a large number of seminal documents including the Standards for Technological Literacy (2000). Table 3 includes a sample of citations.

Table 3. A Representative Sample of Citations Using Jackson's Mills Industrial Arts Curriculum Theory

1983 - Eastern's Technology Plan (Eastern Illinois University)
1988 - Industrial Teacher Education in Transition (MVITEC)
1990 - A Conceptual Framework for Technology Education (ITEA)
1990 - Communication in Technology Education (39th Yearbook, CTE)
1992 - Transportation in Technology Education (41st Yearbook, CTE)
1993 - Manufacturing in Technology Education (42nd Yearbook, CTE)
1993 - A Decision Maker's Guide to Technology Education (ITEA)
1994 - Construction in Technology Education (43rd Yearbook, CTE)
1995 - Foundations of Technology Education (44th Yearbook, CTE)
1997 - Elementary School Technology Education (46th Yearbook, CTE)
1999 - Advancing Professionalism in Technology Education (48th Yearbook, CTE)
2000 - Standards for Technological Literacy (ITEA)
2000 - Technology for All Americans (ITEA)

Sanders (2001) in his research on the status of technology education practice in the United States provided highly useful information. His research shows that little change has occurred in the ranking of the top 10 courses taught in 1999 and those found 40 years ago (i.e., wood technology, metal technology). However, the second top 10 included courses identified as manufacturing, communications, construction, and transportation, with biotechnology almost nonexistent. Although he did not cite the Jackson's Mills Project, the author feels that the following questions must be raised. Was it the Jackson's Mills Project that laid the groundwork for landmark subsequent efforts (i.e., "Conceptual Framework for Technology Education," from AIAA to ITEA including the changes in all councils, ITEA standards)? Might have these efforts been delayed or forestalled had Jackson's Mills been nonexistent?

The luxury of speculation is left to the original participants; however, it leaves ample room for a more detailed analysis of the literature. In addition, the Jackson's Mills Project, as well as all subsequent projects, has left ample room for debate on the definitions, organizers, strategies, etc. After all, we cannot afford to be blindsided by the realities of the inevitable changes yet to come, can we?

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