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Movement Away from a Technological Conceptualization of Curriculum

by Sandra J. LeSourd

Current professional discussion of curriculum and instruction issues is dominated by a technological curricular orientation. Instructional planning and implementation are characterized by procedures believed to be effective in bringing about manifest signs of learning. Some implicit assumptions can be identified in the technological conceptualization. One assumption is that learning proceeds best in an ordered progression. Another is that the occurrence of desired learning can be detected. Finally, efficiency is the assumed primary rationale for the methods of design and delivery of instruction.

Technological Conceptualization

Curriculum materials and practices which exemplify the technological conceptualization are common in schools. Entire descriptions of intended teaching and learning consist of a set of precise specifications of instructional routine and sequence. A main component of a technical curricular design is the state of behavioral objectives or performance competencies. Deliberately executed instructional sequences are planned to ensure progress toward objective or competency attainment. Learning is deduced from students' ability to perform the behaviors stated in the objectives. A system of measurement, such as a test, is necessary. In the technological conceptualization, learning is conceived as a progression through discrete, sequential steps. Students' mastery of precisely specified tasks is regarded as the ultimate aim of teaching.

Educators, who subscribe to the technological conceptualization, view the curriculum as a mechanical system controlled by the aim of efficiency. Primary attention is devoted to the link between the means of instruction and the often unquestioned, discrete skills which are cited as the intended ends of instruction. Estimation of the value of the objectives as worthy educational ends is not a priority in technological curricular considerations. The fundamental paradigm is scientific and psychological, not humanistic and philosophical.

Tyler's seminal work in curriculum design provided the foundation for the scientific, technical conceptualization (1950). Tyler recommended a planning procedure which emphasized the relation of means to ends. His simply-stated steps including clarification of purpose, selection and organization of supporting learning experiences, and evaluation to determine if purposes are achieved, provide a basic framework for a technological procedure. Recent work in instructional system design represents amplification and refinement of the means-ends orientation (Gagné and Briggs, 1979). The strategies of instructional system design introduce a high degree of precision using psychological learning theory and concomitant instructional technique as the base for managing learning.

Rationale for Technological Conceptualization

There are plausible pragmatic explanations for the popularity of the technological conceptualization. For example, concurrent development of psychometrics as a science has enabled precise statement and measurement of learning outcomes. Clearly, reliance upon proof that means have effectively led to ends requires valid and reliable measurement tools.

Another contributing explanation may be derived from the conservatism of the recent national sociopolitical climate. There is an apparent public demand for knowledge of teaching results in subjects which are interpreted as basic to functional citizenship (Herchinger, 1981). A systematic curriculum design with explicit specification of exact skills and knowledge to be learned, and proof that the specified learning has occurred, is a convenient response to the public request for accountability in education.

Aside from the professional expertise or societal attitudes of the time, an explanation drawn from deep and lasting sources should also be entertained. Fundamental ideological beliefs are inherent in the assumptions of the technological conceptualization. The rationale for the operational procedures of technical curricular design illustrates endemic precepts of a scientific culture. Western reason and explanation depend upon knowledge of what is real. Real phenomena are expected to be observable or verifiable. In addition, the existence of orderly relationships among real phenomena is assumed. A common relationship, which is sought repeatedly for its explanatory power, is the order of cause to effect.

The conviction that phenomena which are verified can be regarded as real is consistent with the tradition of logical positivism (English, 1983). The domination of this ideological tradition in the culture is commensurate with the prominence of the technological curricular approach. Materials and classroom instruction of the technological curriculum age exemplify attempts to make learning verifiable. Educators assume the phenomenon called learning can be demonstrated by the learner, observed by the teacher, and verified through assessment. The behavioral and skill performance aspects of schooling are emphasized to make verification possible. It is believed that effective measurement instruments provide proof of the existence and degree of learning. Educators' attempts to make learning manifest resemble the cultural aspiration to verify reality.

A second characteristic of the western system of rationality is the assumption that phenomena are ordered and

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that the order can be discovered and described. This cultural precept is represented in means-ends curricular design. Instructional designs, the means, are conceived as causal agents in the production of test results, which are the ends of instruction. Thus, educators affirm their belief in the cause-effect relationship. If reality can be understood by description of events which bring about certain other events, then so can learning. In fact, the direct cause-effect relationship between identifiable variables is a statement of logic which is habitually both in and out of school. It is basic to the methods of scientific investigation which control professional inquiry into the universe of reality.

Teachers' Commitment to the Ideological Rationale

If we accept the proposal of a link between the tenets cited and the operation of a technological curricular conceptualization, we may question whether teachers share a commitment to those tenets. Does the thought that education in practice is a reflection of the convictions of teachers represent a valid presumption? It seems reasonable to expect to detect the tenets of logical positivism in the thinking of teachers who customarily implement means-ends curricular designs. Presumably, good instruction is more likely if curricular rationale and teacher beliefs are similar.

To conduct an informal consideration of the correspondence between curricular precepts and teacher beliefs, I administered an ideological questionnaire of my own design to 15 inservice teachers who were enrolled in a graduate course in curriculum. During class discussion the teachers reported using behavioral objectives, controlled management of skill practice, and frequent measurement of learner progress. They shared a history of implementers of means-ends curricula in various subjects and at various grade levels.

The responses to the questionnaire suggest some ambiguity in the group. All the teachers agreed with a statement that there is a direct link in reality between the occurrence of observable events and some preceding events. Thus, an acceptance of the notion of relationship between events was uniformly supported. However, the uniformity of the group was not maintained in reference to other questionnaire items. Seven of the 15 teachers agreed that order among the elements of reality can be discovered, while five responded that reality is controlled by forces which are beyond human understanding. Eight agreed with the suggestion that events have rational causes is a defensible base for curriculum design. While the teachers in the class indicated support for a belief in order between events, the group was less inclined to agree that the order could be discovered or that it should constitute the rationale for curriculum. They all gave some indication of belief in an ordered universe, but some did not accept the notion as verifiable or as a suitable guide for curriculum practice.

Two of the 15 teachers agreed with a statement that schools should convey only knowledge which is verifiable. Apparently, the majority of the teachers in the class view worthwhile knowledge as including more than the observed elements of reality. This leaves the curriculum open to subject matter which does not satisfy logical positivism's criterion of verification.

Despite their reservations about some tenets expressed in the questionnaire, the teachers claimed to be active practitioners of technological curricular procedures. The questionnaire responses suggest the hypothesis that teachers may carry out operations which are not completely supported by their personal ideological stance.

Movement to Alternate Conceptualization

The technological conceptualization has sustained an impressive period of entrenchment in American education. One explanation for its popularity may derive from the close relationship to the ideological tradition of logical positivism. A dramatic break from the technological conceptualization and proposal of an alternate envisioned approach would require substitution of a new rationale. The contention that the current technological rationalization has roots in the cultural ethos implies that alternate justifications will come from the same source.

One recent presentation of an alternative to the technological emphasis turns attention to an appeal for more comprehensive school learning (Eisner, 1982). Eisner criticizes the technological conceptualization for its strict governance of design and consequent limitation of content. He maintains that the means-ends priority, concentration upon basic literacy and numeracy requisites, and concern for confirmation of progress in discrete skills, have produced a narrow conceptualization of the substance of learning. The result is an inadequate education in the variety of forms of human endeavour which contribute to an intelligent life guided by the pursuit of meaning. Eisner presents an expanded version of curriculum which allows expression of meaning through multiple forms of representation which include the fine arts.

Critical reaction to the technical emphasis invites a philosophic examination of what learning is worthy of attainment (English, 1983). Decisions of this nature will require a search for value priorities. To be consistent with the hypothesized existence of a relationship between the means-ends rationale and the cultural dedication to logical positivism, an alternate conceptualization proposes a need for a new cultural foundation. It will be necessary to determine which cultural precepts will guide an alternate conceptualization of curriculum.

It is unclear whether there is a need for teachers to possess a strong positive conviction toward the tenets of a curricular conceptualization. Perhaps in the technological period, the prescriptive nature of instructional design has precluded teacher identification with the ideological tenets. Teachers may simply implement a means-ends plan regardless of the power of the rationale in their own thinking. Perhaps teachers are practitioners in an exclusive sense. Possibly, the rationalizations which influence the selection and design of learning experiences are irrelevant to the teacher's main task of actually conducting the experiences.

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