

# Curriculum Developments

Column Editor: Melvin W. Barnes

## Curriculum Research: The Leading Edge

IN the spirit of Dewey's *Logic: The Theory of Inquiry* and Judd's *The Cultivation of the Higher Mental Processes*, the eighth annual ASCD Research Institute (Western Section), held in Anaheim, California, December 1-4, 1962, addressed itself to several current research themes: inquiry as a form of learning, cognitive structures and styles, concept formation, and the motivation of curiosity. Pursuing the topic, "Intellectual Development: Another Look," three researchers, J. Richard Suchman (University of Illinois), Patrick Suppes (Stanford) and Donald M. Johnson (Michigan State), reported research findings from several disciplines and translated their meaning for classroom practice.

The major papers the scholars presented showed an instructive blend of the old and the new in curriculum theory and research. The significance for teaching practice is obvious and compelling. If we are going to apply the lessons of this research to the classroom, we have our work cut out for us.

The researchers told the conference that learning in one of its major forms is a process of the learner's gathering and processing data to serve *his* own purposes. In interaction with his environment, he discovers increasingly useful ways of selecting and using data. Man's

capacity for continuous "reconstruction of experience" makes possible the conceptualization of the external world. Equipped with a stock of conceptual structures, the learner finds himself equal to the task of dealing with at least some of the complexities of the real world.

### Assimilation and Accommodation

Suchman analyzed the act of inquiry into the twin processes of "assimilation" and "accommodation." Assimilation refers to the perception of what one already knows and understands. Confronted by a strange object, for example, a person interprets its nature and character in the light of his own conceptual system. As Herbart perhaps would have put it, he relates the new experience to the "apperceptive mass." Assimilation proceeds without interruption as long as the new experience can be successfully integrated into what is already known. When the discrepancy between the known and the unknown is too great, the process of assimilation fails. The learner has encountered a "discrepant event," one that to him is inexplicable on the basis of his existing store of conceptual models. Engineering the conceptual reorganization necessary to handle the discrepant event is, needless to say, an important function of teaching. Lacking a

teacher, the learner may achieve it for himself.

The process of remodeling conceptual structures, Suchman calls "accommodation." Inquiry involves both assimilation and accommodation. The conditions favorable to these processes have been analyzed in several research ventures.

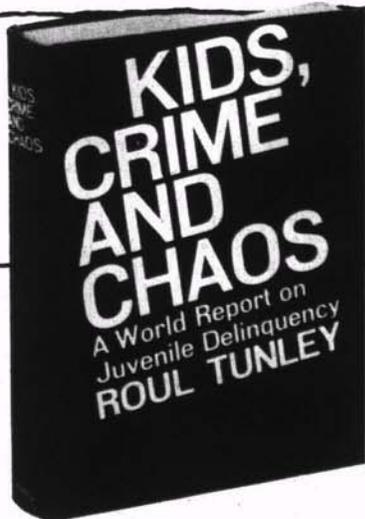
A key idea in the consideration of the nature of inquiry is the autonomy of the learner. The processes of gathering, analyzing and appropriating data to one's own purposes are individual, unique and self-directed. Free to pick and choose his data, the learner ministers to his own needs, guides his own education, programs his own learning. The mode or style that characterizes the building of concepts is highly individual. Each goes about it in his own particular way.

#### Inquiry Training

Since 1957, the Inquiry Training Project directed by Suchman has explored the conditions favorable to inquiry and the possibilities of teaching children the skills of inquiry. Working in groups, intermediate-grade pupils are confronted with a puzzling problem presented in a film or a physics demonstration. Their task is to devise an acceptable explanation of the event or episode. One of the rules of the game is that the class may ask only questions that can be answered by "yes" or "no." Such an inquiry session must supply three conditions: (a) the problem is real and meaningful; (b) freedom to gather data in any fashion is permitted; and (c) a responsible environment is provided, which means that information is furnished quickly and accurately as the children need it and ask for it.

This line of research is tracing certain features of the developmental course of

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concept-building in children. The results make clearer the distinction between "engineered" teaching and self-directed, self-perpetuated inquiry. Additional light is being thrown on the possibility and desirability of moving certain cognitive structures down from more advanced to earlier levels. Strong indications are found that children need teachers in new and different ways to facilitate the processes of intellectual maturation.

#### Meaning for Curriculum

The pay-off in this research, of course, lies in the lessons it provides for curriculum. At the present stage of the exploration the autonomy of the learner appears to be crucial. Control of one's own learning is vital to motivation. In satisfying his informational needs the learner himself is the safest guide. He alone senses the most desirable ways to modify his conceptual structures.

It would seem that those who have long been advocates of the problems approach in teaching have been standing on good ground. Research is vindicating and reinforcing our faith in self-directed, self-dependent study.

Learning has to be motivated and inquiry has a sort of built-in guarantee of motivation. Intrinsic satisfactions come into play as the learner finds himself on his own in managing his learning experiences. The research suggests one of the earliest ventures with a teaching machine which confronted children with a problem and for a correct response paid off with a windfall of coins or candy after the fashion of a Harvard pigeon hitting a jackpot of corn. The kids, however, were observed to ignore the rewards and to press forward to the solution of the next problem. Asked for an explanation they said it was so much fun to solve the

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problems that they forgot the rewards.

Human nature is squarely on the side of the teacher who would promote inquiry. The human being seems naturally to pursue meaning. Man's mental equipment acts as if it were made for gathering and processing information and, thus functioning, produces a pleasurable emotional concomitant.

Current reforms in the subject fields that stress the "discovery" method are psychologically sound. Many workers have contributed to this conclusion including Bruner, Getzels, Torrance and a number of others. Apparently the prospect of a rewarding experience in discovery lures the learner on. His sense of frustration or blocking upon encountering a problem changes to a feeling of satisfaction when the situation is rendered "assimilable." Current researches describing this element of learning are reminiscent of the "Aha phenomenon" to which

the Gestaltists called attention a generation ago.

Among the conditions conducive to inquiry, freedom from threat is very important. It seems that the willingness to take a chance on a solution requires a climate that provides security from pressure. External controls are inimical to the creative quest. Getzels and Johnson, among others, have stressed this point.

If schools were to take this point seriously, what could they do to create a climate friendly to inquiry? Alpert has suggested the interesting possibility that the school might try its hand at motivating curiosity by the way it shapes the child's self-image. If the teacher acted toward the child as if he were a curious person, he should grow to see himself as such a person and act according to this concept of self. Regardless of the merit in this idea, most schools could do a great deal to make more use of inquiry.

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To most people, teaching is a process of building concepts in learners by something that others do to them. We talk to learners or require them to read someone else's talk, to remember it and to write it down. Education is dominated by definitions, by facts and answers. Early in life children thus acquire a corresponding image of teaching, learning and the school. What we can do to change our pedagogical bent, and how fast, is important to contemplate. Increasingly research and the support of accepted authority are allied with those who would try.

—MELVIN W. BARNES, *Superintendent of Schools, Portland, Oregon.*

#### People

(Continued from page 320)

like it, perhaps you should look for another job. Now if it will make you feel better I can quote many experts who verify the fact that setting up a course of study is the only way."

"The devil can cite Scripture for his purpose." William said softly as though to himself.

"All right. All right. Look. If all the students were at different places, if every teacher just covered what he felt like when he felt like it, the school would be in chaos. The next teacher would never know where to begin or what had been covered. It's the only wise course."

"The fool doth think he is wise, but the wise man knows himself to be a fool. I think it is an unwise course, and I cannot bring myself to follow it. I must let each student decide where he is and where he is going. Your course of study would preclude my doing so."

#### The Basic Struggle

Mr. Topp, who had obviously thought the new teacher a little stupid and rather

shy, expressed amazement at his evident resoluteness and determination. "You mean you will quit your job rather than follow what we have outlined for you? Frankly, if you will forgive me, you just don't seem that sort of fellow."

"The time of life is short; to spend that shortness basely were too long. I must to mine own self be true. I cannot confine myself to a pen which seems to have few logical reasons for being built—and certainly not the best reasons for the best interest of the students. If the next teacher does not know what my students have studied, let him ask. But let him ask each one separately, only then to pick up from there: I find no objection to the setting down of the requirement that all study *The Merchant of Venice*. But it is afterward that each teacher must move ahead by his own selection of what is best."

Mr. Topp seemed suddenly to think of a new argument. "Can you name the basic struggle of this play? Can you name the modern applications of the character and situation of Shylock? Can you name where the play has been acted and how recently? Do you know the theme?"

William shook his head sadly. He could not answer any of the questions put to him. "Aha," Mr. Topp said with sudden assurance, "you see why a course outline is necessary? These are the things which must be discussed."

"Lord, what fools these mortals be! There's more to life and *The Merchant of Venice* than this."

"Mr. Shakespeare, you are obviously unfit to teach this play. Now I regret this deeply, believe me, but I must ask for your resignation."

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