Annual Study Conference in Miami Beach next April, "The Individual in Changing Cultures."

April will look at trends and forces in our society that are today "Changing Childhood and Youth."

"Personal and Social Values" will be the topic of the May issue. With this number the "coming of age" volume will be completed.

—ROBERT R. LEEPER, *Editor*, Educational Leadership.

The Nature of Instruction: Needed Theory and Research

James B. Macdonald

FOR well over a decade there has been a renewed effort to understand the nature of instruction. Sparked by intellectual curiosity and practical needs, and fanned by the winds of recent pressures, the scientific study of instruction has grown proportionately larger than most other research concerns in education during this period.

Supervision, teacher pre- and in-service programs, and administrator judgments about teachers are examples of educational concerns that are especially dependent upon our knowledge of instruction. The knowledge about instruction that we possess will be closely related to the adequacy with which we engage in these tasks; and there is considerable evidence and agreement that we do not yet have a great deal of common knowledge about instruction. Knowledge, in this context, refers to the information obtained by empirical or scientific methods which provide valid and reliable explanation, prediction and control of the process of instruction.

In order to clarify terms, a useful distinction can be made between curriculum, instruction, and teaching. Whether it is possible to hold these boundaries in actuality is another problem, but for the sake of sharpening our focus here a distinction will be made.

Of the three, curriculum has the greatest scope. Our understanding of curriculum extends from the politics of legislative bodies through the curriculum setting and developing activities in the school year itself. Ideally, curriculum finds its fruition in student learning, but in actuality there is a considerable segment of what we talk about in curriculum that is prior to and/or removed from classrooms.

The concept of teaching is the most restricted of the three terms. Teaching may take place without related learning; that is, a person may be said to be performing the act of teaching whether or not there is resultant student learning. The teacher behavior in the classroom has been, can be, and is being studied as a separate function.

Instruction, then, would be the active process of goal-oriented interaction between pupils, teachers, materials, and facilities. This is meant to describe the ongoing classroom situation in its entirety, which includes teacher behavior and reflects curriculum decisions and activities.

Needed: Adequate Models of Instruction

Instruction, like any human activity, is a complex phenomenon. In order to understand this activity it is necessary to conceptualize its boundaries and describe the relationships of the variables that have been identified. Some model of instruction needs to be used to locate

behaviors and relationships that can be described.

At present there are no generally accepted research models for the analysis of instruction. Each researcher appears to have an implicit or explicit model which he uses to collect descriptions of the process of instruction.

One of the earliest of our more recent models conceptualized instruction in terms of authoritarian versus democratic behavior and its resultant effect on pupil behavior. This trend has moved to more neutral terminology such as direct and indirect, structured or flexible, etc., teacher behavior in the past few years.

Some models deal with verbal behavior only; others attempt to include gestures, voice tones and other nonverbal behavior. Models often seem to be centered upon teacher behavior with less emphasis upon pupil initiated situations, peer group interaction, curriculum or the tasks involved.

Certainly one pressing need for furthering our understanding of instruction is the task of developing theories, paradigms or models for conceptualizing instruction. These models, to be adequate, ought to provide for the description of the crucial elements and their relationships in the instructional process. It is difficult to conceive how adequate models can be proposed without accounting for purpose, media and materials, teacher and pupil behavior.

Needed: Empirical Analysis and Theory Sifting from Other Areas

Models usually do not spring solely from spontaneous intuition. More than likely a usable model will suggest itself from models used in the behavioral, biological or physical sciences; and/or a model may appear out of the empirical analysis of the instructional activity itself. The instructional process is being examined from both orientations at the present time.

Models have appeared during the past few years utilizing the basic biological science concept of homeostasis; from primarily physical science concepts of objects, systems and interactions; from primarily behavioral science concepts of human development, learning, perception, group dynamics, etc.; and from philosophical sources carrying heavy psychological overtones. At the present time there is a confusing mixture of overlapping and/or unrelatable terms and concepts from these sources. One greatly needed task in the near future most certainly is the systematic application of these conflicting models and the resultant sifting out of overlapping concepts and the clarification of common units or referents for model construction.

More than a few researchers seemed to have thrown in the towel on this task and returned to the raw data of experience. Using a minimal group of concepts they have begun cataloging the nature of instruction as they find it. Although it is difficult to see how this activity will be profitable in the long run without the concomitant activity of model building as they go along; it does have a valuable place at the present time. The attempt to systematize our way of thinking about instruction in an objective manner is in itself a major step forward.

Needed: The Identification and Description of Criterion Variables

Sooner or later the modern resurgence in research will need to concern itself with evaluation of instruction. From the practitioner's standpoint the valuing of behaviors and practices is of central importance. As crucial as this may be there

appears to be a task of clarification needed before this step can proceed with any certainty.

It has always been assumed that the basic criterion of instruction is the learning which takes place in the classroom. As difficult as it is to move away from this conviction, there may be sound reasons for calling it to question. This conviction may in fact be the major reason why we have gained so little usable knowledge about instruction over the years. In our hurry to evaluate instruction in terms of student learning we have overlooked some basic possibilities concerning the reasonable relationships among instructional elements, and in the process have discarded fruitful ideas in a penny-wise, pound-foolish manner.

An illustration of this might be the study of teacher behavior. Why, for example, do we expect teacher behavior to be directly connected with student learning? With so many other relevant factors intervening between the teacher and student, it does not seem reasonable to expect learning to be directly affected by teacher behavior to any considerable extent.

What we need to find out is what we can expect to be directly effected by teacher behavior. We need, in other words, a whole set of criterion variables (perhaps intermediary variables in the long run) that can be looked at directly. From the practitioner's viewpoint, rather than slip into a "my opinion about teacher behavior is as good as yours" situation, we need to identify and look for those things which are directly effected by teacher behavior. There *is* "gold in them-thar hills"; but we will never find it unless we know where to look. As abhorrent as it may be to evaluate teaching in terms of the "discipline" (quiet, order, etc.) in a classroom, this practice does illustrate the recognition of the possibility that some criterion other than student learning may be a more reasonable expectation. What is needed now are the identification and description of a variety of usable criterion variables.

These criterion variables will have to emerge from the development and testing of theories through researchable hypotheses. Meanwhile the practitioner needs to be honestly willing to face the uncertainty of not knowing and to participate actively in the development of theory and research in the field of instruction.

Needed: Answers to Questions

Needed theory and research in the field of instruction should eventually provide answers to some of the following questions as well as many others not mentioned here. As a summary these questions may help to focus our thinking upon the task ahead.

—How can we conceptualize the process of instruction? What are productive sources of concepts for use in our analyses?

—What actually goes on during an instructional sequence? What are the important elements or variables and how are they related? What are the criterion variables in instruction?

Until we have discovered commonly accepted answers to these and other questions, we must recognize our limitations and do everything within our power to facilitate the search for knowledge.

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