

A Strategy for Teacher Education

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PRESENT approaches to the education and certification of educational personnel should be radically modified. Forces must be unleashed which will foster the cultivation of individuals who can serve effectively as social interventionists in the development of children and youth during a period of rapid social change and accelerated technological progression. Such modifications cannot be accomplished unless creative and challenging proposals are accepted and tested which are designed to get teacher education "unmeshed" from the web of uncoordinated demands and divergent interests emanating from the various sectors which influence and control the nature of present programs.

At present, research efforts seem to be caught up in a labyrinth of micro-analyzing various aspects of "teaching" and "learning" in the traditional settings, which is more a pathologically descriptive enterprise than an imaginative and experimental venture. State agencies, universities, and professional organizations are still acting under the archaic assumption that four years of college (and one more for the master's), with the attendant accumulation of course credit, degrees, and "professional credentials," have some logical and demonstrable connection with teaching competence. Subprofessional and graduate students are beginning to question the relevance, meaning, and practicality

of long hours spent sitting in right-handed, wooden chairs.

Public schools are intensifying their charge that education departments produce individuals who can perform with some measure of reliability and predictive validity, without the necessity of on-site retraining. Yet, many of the same school systems maintain Spartan, lock-step, textbook-must-be-covered, and rigidly standardized types of instructional systems. And finally, many of the clientele whom this vast enterprise is designed to serve get "turned off" and "tuned out" early and, as yet, they are just beginning to get organized as a vested interest group.

The purpose here is not to attack the legitimacy and integrity of the concerns of these various spheres of influence. Rather, the intention is to suggest that the manifestations of such concerns are diffuse and, as a consequence, they often tend to confuse and freeze attempts at program modification. Thus, creative proposals must be advanced which identify, redefine, and include as their bases those elements found to be held in common among the demands of all the sectors concerned with the education of teachers.

It would appear that a focal point common among such vested interest groups cen-

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ters upon specifying and/or maintaining standards of teaching competence complemented by adequate programming. Consequently, if such competence were to be broken down and translated into discrete performance specifications characterized by varying levels of sophistication, a standard frame of reference might be achieved which could be adopted by all parties concerned.

The Purdue D-O-S-E Model¹

The proposal here is that one means of determining such levels of performance would be to advance a number of hypothetical models in which elements of both "teaching" and "learning" are integrated and postulated as a comprehensive system approach to defining the teaching-learning process. The Purdue D-O-S-E model described in the remainder of this paper is advanced as one

¹ The D-O-S-E model was developed by Drs. Bolen, Frederick, Ferris, Gardner, Knowles, and Shermis of the Purdue Education Department to act as a guide for the development of a simulation system for the training of elementary teachers. A gross estimate of 1,000 man-hours was involved in this development, which resulted in a 70-page document. Consequently, the discussion of the model is confined to the most salient attributes of its structure, function, and potential at the present stage of development.

possible systematized conception of the teaching-learning process which might act as a scheme for repatterning teacher education.

The D-O-S-E model is basically a theoretical construct. Yet, this does not imply that the elements of its structure were derived without considering previously accumulated empirical data and theoretical developments. On the contrary, a broad array of contemporary researchable variables and theoretical propositions concerning human development, learning, and teaching was reviewed in formulating the dimensions of the model.

Furthermore, it was felt that a model which attempts to delineate the structure and function of a hypothetical teaching-learning process must contain several inherent qualities.

Such a model must be: (a) *Comprehensive*—the potential for including all of the factors which might be introduced and brought under control in the formal educational setting; (b) *Systematic*—a provision for the capacity to systematically manipulate and interrelate such factors; (c) *Rational*—a provision for the rational manipulation and interrelating of such factors under a set of logics which permits meaningful sequence, control, and decision making; and (d) *Flexi-*

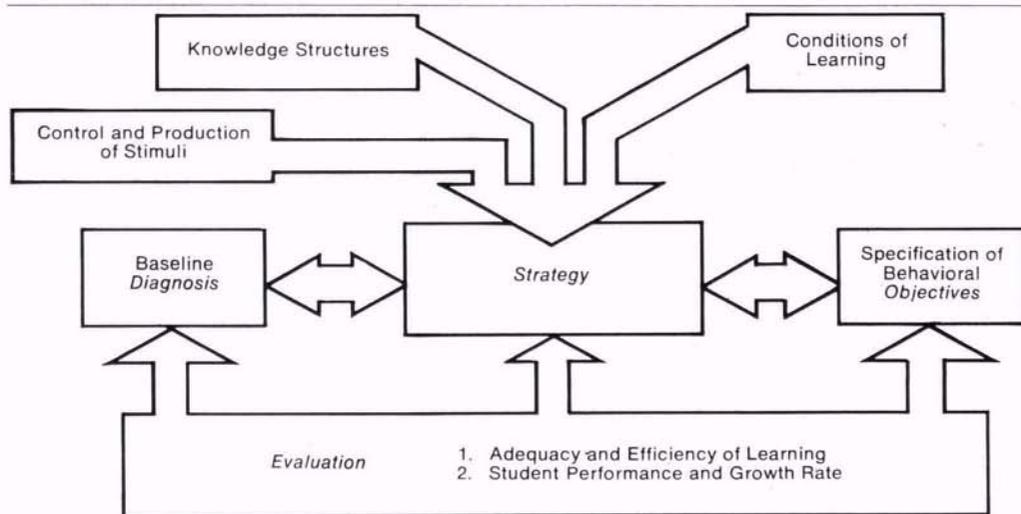


Figure 1. Relation of *Diagnosis-Objectives-Strategy- and Evaluation*

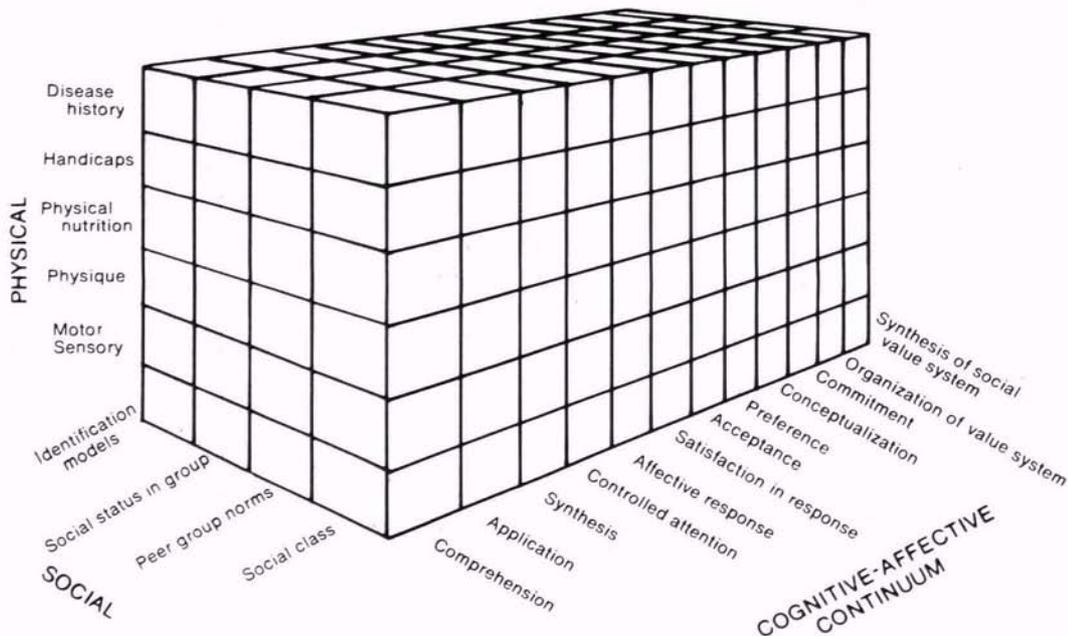


Figure 2. *Diagnosis Component and the Three Continua—“Cognitive-Affective,” “Social,” and “Physical”*

ble—the capacity for modification and expansion as a result of testing, feedback, and acquisition of new knowledge.

The four components of the model, in their simplest conception and interrelated functions (see Figure 1), attempt to establish a systematic method of providing solutions to the perennial problems inherent in the educative process: (a) What are the capabilities of a child at a given point in time?—*Diagnosis*; (b) By what sequence and to what successive higher levels of attainment can such capabilities be nurtured and developed?—*Objective*; (c) What environments or successive changes and arrangements of environmental stimuli are necessary to attain such higher levels of capability?—*Strategy*; and (d) To what extent can the validity and reliability of actions based on *D*, *O*, and *S* combinations be determined with respect to their initiation, their in-pro-

cess execution, and their terminal effects?—*Evaluation*.

Each of the *D-O-S-E* components can be further described as a tri-dimensional subsystem whose parameters are defined by three continua, for example, the “Physical,” “Social,” and “Cognitive-Affective” continua of *Diagnosis* (see Figure 2). The continua are capable of both outward expansion to include more space as well as being susceptible to increasingly discrete definition, beginning with the more global subclasses of capability, for example, “sensory,” toward more and more specific delineations and subdivisions, for example, “vision” within “sensory,” “binocular fusion” within “vision,” and so forth. The use of three dimensions permits the generation of any number of combinations of elements in describing an individual and/or in determining the parameters of a group of individuals. For example, data

concerning the capabilities of hypothetical pupil "C" might be generated in the following manner: "moderately impulsive cognitive style, social isolate, abnormally small stature, inferior self-image, unrealistic level of aspiration relevant to 'x' tasks," and so forth.

The authors are constructing each continuum to manifest a hierarchical arrangement of factors of increasing sophistication and complexity. An example of such a hierarchical arrangement is the cognitive-affective continuum, which runs as a pervasive thread through three of the components whose functions are closely related—D, O, and E. The rationale for the fusion and unique arrangement of these domains is based on the assumption that education in a democracy should be concerned with individuals maturing from a state of "knowing" to one in which a universally applicable value system can be created.

The dimensions of the *Objective* component are constructed to permit the generation of a system of objectives that will correspond to developing human capabilities as well as allow a logical relatedness to exist between immediate objectives and long range educational goals. *Strategy* functions as a subsystem that combines elements from D and O with subject matter concerns (the structure of knowledge in economics), the learning conditions (principle learning and problem solving), and the nature, manipulation, and control of stimuli (for example, children choose to visit a store to determine purchases for a party with a specified limitation on funds). Finally, the dimensions of *Evaluation* are constructed in order to provide in-process and terminal feedback to both the learner(s) and the educational agent(s) regarding the effectiveness of the generation and execution of particular D-O-S arrangements.

Although simple applications of the model might be implemented with minimal modifications of present instructional practices, the authors envision a more sophisticated approach, using computer applications to generate interrelationships within and among the various components. The hierarchical characteristics of the continua make

it possible both to construct simple order combinations of D-O-S-E elements and to generate complex interactions by employing many elements simultaneously.

Implications for Teacher Education

Thus, the capacity of the system to generate successively more complex and sophisticated configurations of elements also permits the specification of a corresponding hierarchical sequence of increasingly more complex levels of teacher competence easily transferable into behavioral and performance attributes. Subsequently, instructional modules containing various combinations of formal, simulated, and real type experiences can be designed as strategies for attaining different levels of capacity for operating within the D-O-S-E system.

Consequently, learning modules terminating in the demonstration of specified performance could be substituted at both the undergraduate and graduate levels in lieu of the traditional course-credit structure. Not only could general sets of performance criteria be used as alternatives to cumbersome certification schemes, but levels of performance and role specifications for paraprofessionals, "teachers," and master teachers could also be determined.

Students could then anticipate a sequential, meaningful, and functional progression toward becoming teachers, master teachers, or fulfilling differentiated staff roles. Research efforts could be provided with a broader conceptual scheme which would operate to guide investigation, to obtain greater intellectual mileage from findings, to provide a more direct means of acquiring feedback, and to transform such research into educational practices. Finally, public schools would have at their disposal a systematic framework that could be applied in attacking a large number of problems in addition to those of instruction.

Such models would provide the means for acquiring the ideal symbiotic relationship that should exist among the various sectors which influence teaching and the development of children. □

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