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EFFECTS OF THE USE OF FOUR TYPES OF TEACHING MODELS ON
STUDENT SPECIFIC SELF-CONCEPT OF ACADEMIC ABILITY
AND ATTITUDE TOWARD THE TEACHER

by

Royal W. Van Horn

A DISSERTATION

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Department of Secondary Education

Under the Supervision of Professor Alan T. Seagren
and Associate Professor Donald W. McCurdy

Lincoln, Nebraska

June, 1974

TITLE

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PREVIEW

CHAPTER I

INTRODUCTION AND THEORETICAL DIMENSIONS

Introduction of the Problem

"There is no neutral observational language, and experience cannot be described independently of theory [Petri]." "Our interpretation of experience is dependent upon a theory used to explain it [Anonymous]."

Instructional theory has often been expressed in the form of teaching models. The term teaching model has been defined in a number of ways. Nuthall and Snook (1973) defined a teaching model as consisting of "those interpretative frameworks which can be used in directing activities and structuring data [p. 81]."

Speaking more specifically of models in the scientific sense, Snow (1973) claimed that it is

. . . most useful to consider models as well developed descriptive analogies used to help visualize, often in a simplified or miniature way, phenomena that cannot be easily or directly observed. Each model is thus a projection of a possible system of relationships among phenomena, realized in verbal material, graphic or symbolic terms [p. 81].

Joyce and Weil (1972) stated that ". . . we teach by creating environments for learning." They further stated that a teaching model may be thought of as an ". . . approach to creating environments for learning [p. xiii]."

Nuthall and Snook discussed models as consisting ". . . of

a set of associated ideas and concepts more or less organized around a larger conception of what teaching ought to be and how it ought to be viewed [p. 49]."

In their discussion of teaching models, Nuthall and Snook further asserted that:

At a more sophisticated level, several of those involved in research on teaching have designed descriptive symbolic models of teacher pupil relationships which are intended to co-ordinate in a single picture those elements of observation, research and educational folklore which they consider significant. Since these models seem to have characteristics of simplicity and abstraction and the promise of explanatory and predictive significance, they appear to be very like the popular notion of a model in physical sciences.

Recent writers on the history and philosophy of science have pointed out that one of the major functions of a model in the development of science is to persuade and foster the conviction that one way of looking at and structuring data is better than any alternative view.

These models serve as interpretative frameworks and tend to carry with them their own concepts, their own rules for collecting and structuring data, and most significantly their own criteria for deciding which research questions are worth asking.

If there is any single characteristic which defines these models, it is that they each have, at their center, an assumption that all significant variation is along a single dimension [p. 49].

Prior to Nuthall and Snook's discussion above, Kaplan (1964) had previously written of "formal models" as models which deliberately omit some essential variables (p. 265).

Many different models of teaching have been proposed in the literature. The "Socratic method" advocated by Plato several thousand

years ago in The Republic was a teaching model. Other teaching models which have appeared in the literature include: John Dewey's (Michaelis, 1963) "Group Investigation Model," Glasser's (1969) "Classroom Meeting Model," and William Gordon's (1961) "Synectics."

There appeared to be some agreement within the literature that most models could be classified into three or four major categories. The most frequently used classification scheme has been one which classified teaching models on the basis of ". . . the sources of reality which theorists drew on as they focused on the learner and his environment [Joyce and Weil, 1972, p. 8]." Nuthall and Snook, for example, have classified teacher models as "behavior control models" (which they later called behavior modification models), "discovery-learning models, and rational models [p. 49]."

Joyce and Weil (1972) have published a compendium of teaching models. Only models which they considered "communicable and rationalized" were included (Joyce, Weil, Wald, Gullion, Feller, McKibbin, Kelly, and Rube, 1972, p. 2). Joyce and Weil used categories similar to Nuthall and Snook's categories. The models Joyce and Weil classified and the classification scheme they used were:

- I. Behavior Modification Models
 - A. Skinner's "Operant Conditioning"
- II. Information Processing Models
 - A. Bruner's "Concept Attainment"
 - B. Taba's "Inductive"
 - C. Suchman's "Inquiry"
 - D. Schwab's "BSCS Inquiry"
 - E. Ausubel's "Advanced Organizer"
 - F. Piaget's "Developmental Model"

III. Social Interaction Models

- A. National Training Laboratory's "Lab Method"
- B. Thelen and Dewey's "Group Investigation"
- C. Massialas and Cox's "Social Inquiry"
- D. Oliver and Shaver's "Jurisprudential"

IV. Person Models

- A. Roger's "Non-directive Teaching"
- B. Glasser's "Classroom Meeting Model"
- C. Gordon's "Synectics"
- D. Schultz's "Awareness Training"

Clearly numerous models of teaching (probably hundreds) have been proposed. Furthermore, several authorities have agreed that models could be classified into three or four major types. The classification scheme these authorities have proposed has reflected the major aspect of teaching each model considered paramount.

On June 26-28, 1973, a conference was held at the University of Nebraska for the purpose of describing three recently developed teaching models: the Mid-Continent Regional Education Laboratory's Inquiry Model (the McREL model), the Nebraska University Secondary Teacher Education Project Model (the NUSTEP model), and the Training Teachers of Teachers Model (the TTT model). Each of the three models presented and discussed at the conference had been well developed, had numerous supporters or proponents, and each suggested somewhat different pedagogies. The conference participants were not directly involved in activities which compared or contrasted the three models. Comparing teaching models is generally considered more difficult than understanding and applying a single teaching model.

Nuthall and Snook (1973) explained why educators have had difficulty comparing models.

Since there is little, if any, established data about teaching which is widely accepted, they [the models] compete with each other as alternative ways of viewing the practical activity of teaching. For this reason there are few logical or empirical connections between the models [emphasis added]. No one has asked the question which of the three models [actually families of models] is the correct model? Nor has anyone attempted to collect evidence which might indicate that for example the behavior control model ought to be replaced by the rational model [information processing model]. By virtue of adopting one model in preference to another, those involved in research made it impossible for agreement to be reached on what evidence would be relevant to answering such questions.

The important quality of this research and argument is that it is intended primarily to persuade the educational community. It is prejudiced research because those who undertake it delineate not only the view of teaching which they favor, but also the alternative traditional method of teaching they are against.

No matter how impeccable the research designs, nor how sophisticated the statistical analysis, the research remains for the most part, tied to the models [p. 71].

Studies depicting the quandry discussed by Nuthall and Snook above have been abundant in the literature. For example, Guthrie (1967) concluded after reviewing four studies that when speed of learning and retention have been used as criteria, instruction containing rules has proven superior to instruction without rules. On the other hand, Guthrie pointed to evidence which suggested that when transfer of learning has been used as the criterion, guided discovery learning has a demonstrated superiority. (Guided discovery

learning, as discussed by Guthrie, did not use rules.)

Given any one particular student outcome, there are only three logical possibilities. One, the various models produce equal gains on the outcome. Two, the various models produce unequal gains on the outcome. Or three, the models cannot be equated or compared on the particular outcome, i.e., one model could not be expected to produce gains on the outcome.

A historical example illustrates the fact that the comparison of models depends greatly upon the choice of criterion measures. Pre-Sputnik science curricula were largely "content oriented." After the advent of Sputnik, American educators, with large sums of money provided largely by the National Science Foundation, began to design curricula which were more "process oriented." Teachers who were instructed in the use of the new curricula were encouraged to utilize "inquiry" teaching models. (See Rutledge, 1973, for a discussion of these historical developments.) Numerous research studies were consequently undertaken to compare the effects of "inquiry" teaching models to the effects of "informational" (lecture or recitation) teaching models. Not having criterion measures appropriate to the task, most researchers chose to use two criterion measures: one dealing with student content achievement; the other with student process attainment. Needless to say, many of these researchers had difficulty drawing conclusions since each of their criterion measures was appropriate to only one of the teaching models they compared.

A very important point to note about many studies is that the researchers have largely chosen criterion measures which were tests of student achievement. Had the same researchers chosen

criterion measures of a different type, for example developmental or attitudinal measures, perhaps the results would have been different.

Theoretical Dimensions

Comparison of Models

Hosford (1973) generated a very convincing argument to explain why it is futile to use student achievement as a criterion measure when comparing teaching models. His hypothesis was:

Within any established, supervised instructional program inaugurated to implement acknowledged curricula [not hidden curricula] employing teachers who meet all necessary standards of the organization, only a very small part, if any, of differences among scholastic achievement scores can be explained by differences in the teachers [p. 119].

He used an equation to explain that most important point.

$$SA = G \times E$$

$$E = (aS + bF + cP + dO)$$

Where SA = student's achievement

G = a student's genetic inheritance

E = a student's environment

The environment (E) being made up of:

S = the school component of the environment

F = the family component of the environment

P = the peer component of the environment

O = other components

Where a, b, c, and d are constants.

Genetics is three to four times more determinant in explaining variance in IQ scores than is

environment within any given school society. Because IQ scores have demonstrated their capacity for predicting scholastic success and have a high intersection of content with achievement tests, we could say as a general synthesis that the variance in achievement test scores is a function of inheritance and environment [p. 123].

Shockey (1972), in his comprehensive discussion of heredity versus environment, seemed to agree with Hosford on the amount that genetics contributes to variance in achievement test scores.

Hosford further claimed that:

Attempts to demonstrate the superiority of one organization technique for instruction compared to another on the basis of the present day achievement test scores will continue to produce conflicting conclusions or findings of "no significant differences [p. 123]."

Hosford theorized that there were, however, components of the developmental process which were less tied to genetic determiners. Among them is the one he termed the "Human Relations Quotient."

$$GI = IQ + PQ + HRQ +$$

Where:

GI = general intelligence

PQ = physical qualities

HRQ = human relations quotient

Differences in teachers and teaching models will explain a significant portion of learner differences in "non-content" areas of improved self concept, desire for learning, and respect for others [p. 133].

Education has seemingly begun to place a higher priority on non-achievement student outcomes. The advent of "value education" and the recent popularity of affective objectives would seem exemplary.

For example, Coleman (1966) said:

If a child's self-concept is low, if he feels he cannot succeed then this will affect the effort he puts into the task and thus, his chance of success. It is true, of course, that his self-concept is affected by his success in school and it is thus hard to discover the effect of self-concept upon achievement. But, as a factor in its own right, it is an important outcome of education [p. 281. emphasis added].

As Hosford stated: ". . . a forced Q-sort of objectives of public schools will rank "non-content" area goals as equal to or more important than the three R's [p. 153]."

Scrutiny of several doctoral dissertations (such as: Frogge, 1963, Lieske, 1967, and Thomas, 1969), written in the last ten years, yielded an interesting observation. Frogge's (1963) dissertation is worthy of note. In his study he compared two methods of teaching--reflective and authoritarian. He noted three nonsignificant hypotheses dealing with achievement. The only hypothesis of the six tested which received statistically significant results was one dealing with the students' attitudes toward the teacher.

Self-Concept and Self-Concept of Academic Ability

The literature concerning the constructs subsumed under self-concept is voluminous. Numerous recently prepared reviews are extant. The reader is referred to Wylie (1961), Reiss (1966), Silver (ERIC-RIE), Purkey (1970), and McGinnis (1972). Several aspects of the self-concept theory have been reviewed and discussed below because of their pertinence to the present study.

Numerous definitions of "Self-Concept" have appeared in the literature. Purkey (1970) synthesized the view of Combs, Snygg, Jersild, Lecky and Rogers and defined self-concept as: "The complex and dynamic system of beliefs which an individual holds true about himself, each belief with a corresponding value [p. 7]." His definition stressed two characteristics of the self: the self is both organized and dynamic.

McGinnis (1972), after his review of the literature, concluded:

Agreement seems to exist among writers that the self concept is a complex, dynamic and organized psychological construct formed through the process of socialization: that is, through the individuals' interaction with, and feedback from, his environment. The self concept is the sum total of all that one holds true about himself. In addition, it determines the perception one forms of his environment. It provides the lenses through which the individual sees his world and this provides the basis for judgments regarding the degree of relevance, or lack of relevance, of that world, or parts thereof. Thus, the self concept is both the product of, as well as the producer of experience. New experiences provide opportunities for self concept growth and development [pp. 13-14].

Wylie (1961), in her review of the literature, stated that:

The self-concept is developed and modified through learning. A number of investigators have been concerned with this relationship between S's self and his behavior in experimental learning tasks. The assumption is made that self concept characteristics are antecedent to cognitive behavior. Sometimes it is explicitly assumed that this relationship is basically a matter of the influence of motivation on learning. There does seem to be some evidence that RR connections of this kind are worth exploring [pp. 199-200]. Such concepts as self-actualizing, self-differentiation, and self-consistency have not led to enlightening research. By contrast, constructs such as self-acceptance or self-esteem, especially when referring to specified attributes

have yielded more manageable and fruitful procedures [p. 319].

The literature of education has often discussed the influence of the teacher as a "significant other" in student self-concept formation. There seems to be little conclusive evidence regarding the teacher's influence on student self-concept. Many educators, such as Sybil Richardson (1968), have stated the belief that the teacher plays a significant role.

By the time he enters school a child has internalized a variety of experiences and appraisals which are reflected in his perceptions, ideas, and feelings about himself and the way others see him. Some children have developed a positive self concept--they view themselves as generally adequate, worthy, and accepted. Many, however, because of an inappropriate environment or as a result of unreasonable expectations by adults, have developed a negative self concept--they think of themselves as inadequate and disappointing to others. Those with a positive view of themselves are open to new learning. Their self confidence enables them to move into new experiences and relationships with interest and zest A positive concept of self is crucial to success in school and life long learning.

The decisions which teachers make either consciously or unconsciously offer support to children's feelings of self doubt.

The teacher is in control of several aspects of learning which have a direct impact upon each child's perception of himself as adequate - worthy or inadequate and unworthy. While the parent has influenced the child's self concept earlier, the teacher has a more powerful influence, especially in aspects of the self concept relating to intelligence and competencies [pp. 108-113].

Brookover and associates (Brookover, Paterson and Shailer, 1962; Brookover et al., 1965; Brookover, Erickson and Joiner, 1967) were concerned with a subset of the self-concept they termed "self-

concept of academic ability."

Self-concept of academic ability refers to the evaluating definitions an individual holds of his ability to achieve in academic tasks as compared with others in his school clan. Self-concept of academic ability as used in this research should not be confused with other definitions of self or self-concept. It has not been our intention to measure or infer a self as a subjective phenomenon. Rather, self-concept of academic ability refers to a category of symbolic behaviors, and as such, to empirical events [pp. 139-40].

Concerning the influence of teachers on student self-concept of academic ability, Brookover and associates (1965) said:

Although teachers are identified as significant others by a much smaller proportion of students than are parents (but more often than peers), teachers may have major impact on those students' self-concept. Research designed to test this is desirable.

There is, moreover, sufficient evidence to warrant the position that enhancement of self-concept of academic ability should be a crucial concern to educators striving to assist students to achieve at the highest level of achievement possible [pp. 208-09].

Summary

- I. Numerous models of teaching have been formulated. Each model has been primarily concerned with manipulating the learning environment along one major dimension.
- II. Teaching models are frequently classified into four major categories.
 - A. Information Processing Models
 - B. Social Interaction Models
 - C. Person Models
 - D. Behavior Modification Models
- III. Several authorities have expressed a need for research which would compare the models.

- IV. According to the theories of Hosford and others, models could be compared if non-achievement criterion measures were used. Self-concept and, more specifically, self-concept of academic ability, has been suggested to be such a criterion measure. It has been considered to be an important outcome of the school experience.
- V. Teachers have been considered to be "significant others." While teachers are not mentioned by students as often as are parents, they are believed to exert considerable influence on students' development of self-concept of academic ability.
- VI. The self-concept (and self-concept of academic ability because it is a subset of self-concept as herein defined) has been seen as a dynamic process which shapes experience and is modified by experience.

PREVIEW