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Modeling Relationships in Instruction

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Dr. Clark asks what are the essential attributes of the teaching-learning situation. His model identifies the factors and, even more importantly, illustrates the relationship between the two concepts.

modeling relationships in instruction

Earl D. Clark



After teaching in the Detroit public schools for ten years, Earl Clark took his Ed.D. at Wayne State University, majoring in teacher education and curriculum development. His continued interest in the synthesis of these two areas has led him to write and research in the areas of teacher education curriculum and student teaching. Dr. Clark has taught as an instructor at Wayne State University and has been on the faculty of the University of Missouri — St. Louis, Dakota State College, and is presently an associate professor in the Department of Curriculum and Instruction at Kansas State University where he teaches courses with a curriculum emphasis in language arts for elementary school teachers at the graduate and undergraduate level.

While working on my master's degree in education I became intrigued with an apparently simple educational concept. Without knowing it at the time, more than ten years ago, I had begun a quest into one way to explain some basic concepts in competency/performance education.

I became interested in the meaning of the concept, "The Teaching-Learning Situation." But even more astonishing, the hyphen itself became the focus of my questioning and study. My questions concerned the relationships of teaching and learning implied by the hyphen. I asked practicing teachers in my graduate classes and in my own school in what ways teaching was related to or connected with learning.

It was rather amazing the types of answers I received; the answers varied from "get lost, I am too busy teaching to waste my time with such silly questions about teaching," to lunch-time long arguments in which my lunch bunch released their teaching tensions yelling at each other about aspects of teaching. It was surprising how many arguments a week I could get going without becoming too much of a bore.

These arguments on the connection of teaching and learning were helpful and gave me many leads in my epistemological quest but answers were rather vague and in wooly-mouthed jargon. At the time, I acted like a graduate-student-in-training ought to act. I wanted specific answers on how teaching and learning were related. Teaching is to make "kids learn," or "teaching is learning," did not seem a sophisticated explanation for someone making their living at a professional level.

The discovery that reasonable definitions (like K.B. Henderson's "Teaching consists of behavior intended to result in the acquiring of knowledge by students.") were a good start but were really a very low level of knowledge and were difficult to translate into practice, led me to consider the value of conceptualization; the consideration of conceptualization was really the result of realizing that the use of words in definitions is an attempt to name the essential attributes of concepts. And a conceptual approach gives more freedom to an individual to manipulate factors in a situation because no value structure is implied in establishing attributes of a concept.

I began to see that in looking at the teaching-learning situation I had to get at the generic, essential attributes or factors that made up the two concepts, teaching and learning. In the context of the massive sponsored research on teaching, this seemed rather presumptuous. I now realize

that encouraging graduate students in education to seek solutions to basic, generic problems is not only an end-in-itself, it is also a means because analyses skills developed and the "spin off" studies that are related to basic concepts are numerable and profitable.

Concept of Method

To conceptualize a relationship, I learned I had to have a more generic concept than either teaching or learning. To show that they were related or show the existence of no relationship, the concepts needed to be looked at and modeled using the same ground rules for both concepts. I hit upon the concept of method, not methodologies that were examples of method, but the generic concept itself.

Method, as a concept, as loosely as it used in education circles, refers to four basic attributes of intelligently attempting to reach a goal. Note that if any educational enterprise is intelligent, it can be analyzed and talked about by using the generic attributes of method. If it can not be put into orderly form using the concept of method, then it can not be an intelligent process. My understanding of the basic concept of method was one of the "spin off" competencies added during my inquiry into the teaching-learning concept.

The first attribute in method is the establishing of an objective. All intellect acts (we prefer "intellect" because it would include all forms of methodic functioning i.e. cognitive, affective and psycho-motor processes) are cases of going toward a pre-set end-in-view. There can be accidental adding of knowledge to a person's store of intellect, but we can't say that it was methodic. It may be good but not methodically acquired.

To be methodic one must reflect on future events or results. In other words, for teachers to plan methodically for the learning activities of their students, they must have a clearly delineated objective, and teacher and student acts must be related to the objective. This basic concept in competency/performance education is a psychological principle that has been written about for decades. Thus, to consider objectives, to consider acts and to consider that there must be a *relationship* between acts and ends is to have considered three aspects of method.

To engage in acts in order to realize an end-in-view without some sort of content is really impossible. In the same manner, it is rather difficult to discuss content without putting it in a context of some useful purpose.

A teacher can unmethodically guide students toward a goal. To be methodic the teacher must consider the connection between the acts, content and end-in-view. These are the four, not three, attributes of the concept of method.

Modeling

Without knowing it at the time I was establishing the basis for understanding the competency/performance approach to designing learning programs. At about the same time I found that representing the attributes of a concept pictorially or model form was not only easy, it was sometimes fun because it facilitated understanding. I created a very simple analog model of method which I have used to create a model of teaching and learning.

Note that the analog model pictures a connection between acts, content and ends-in-view. This would apply to a lesson

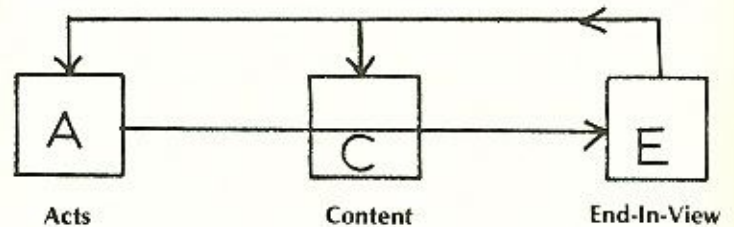


Figure 1. Analog Model of Concept of Method.

plan or an entire learning program. Note too, that the end-in-view feeds back to both acts and content for purposes of adjustment while making progress toward the end.

Connections of Teaching and Learning

We can translate the concept of method into a large model that helps explain why aspects of competency/performance philosophy make good pedagogical sense.

In a quest to find the connections between teaching and learning I developed a model of instruction which pictures the connections for which I was looking. The attributes of method can be translated into attributes of teaching and learning if we make one basic assumption; teaching and learning are methodic processes. If we accept this assumption, we can say that teaching can be *conceptualized* as teaching acts, teaching content, and teaching ends-in-view. Learning can be conceptualized as learning acts, learning content and learning ends-in-view. These simple conceptualizations reveal no startling new information to hardly anybody. They become helpful when we start connecting the concepts to form a larger model as pictured in Fig. 2.

"What is the purpose of teaching?" became my next lunch-room bomb. (It is true that teachers will get away from talking about kids at lunch if given a favorable psychological context). The transmission of knowledge answer came up but was rejected for psychological reasons because of the very nature of coming to know. Language can be transferred but not the concepts that the language represents. These types of discussions caused a great deal of cognitive dissonance in some teachers but we agreed that "teaching," as a specific, pedagogical term could only refer to language behavior and later we changed this to symbolic acts to include verbal and non-verbal acts.

Learning is an individual affair and can only be done by the person doing the learning. We agreed that the purpose of teaching was to encourage students to become involved in learning activities or student acts. This is one relationship between teaching and learning. The end of teaching is identical with the beginning of learning. In putting together a concept model of the connections of teaching and learning, the attributes of teaching ends and learning or students acts would have to go into the same slot. (Fig. 2) My first connection in modeling the relationships of teaching and learning required teachers to be designers of learning programs, not transmitters of knowledge. This role is basic to competency/performance education programs.

The second connection came from another question which is quite an old one. What is the difference between teaching and talking? This is an interesting pedagogical problem which

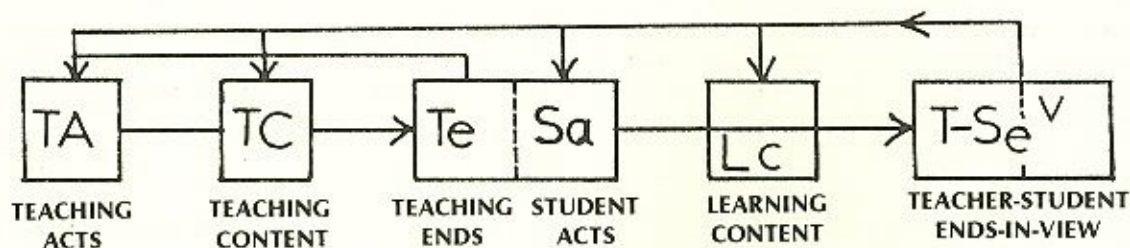


Figure 2. Attributes of Teaching and Learning and Suggested Relationships.

can be related to the competency/performance philosophy. To fully understand the answer and how it relates to competency/performance we must carry through and construct the concept model of the relationship of teaching and learning.

We can only delineate between talking and talking as teaching when the person as teacher has established an objective with the receiver of teaching acts. In other words there must be a teacher-student end-in-view. This synthesizes teaching and learning into one methodic whole which we call instruction. Consider these points:

1. There is an explicit understanding on the teacher's part as to the end-in-view. This structures his teaching acts, teaching content and sets up the nature of the student acts. Random conversation is not teaching. Neither is talking to a group about an area without having a pre-determined end-in-view shared with the group.
2. In keeping with the nature of methodic or intelligent learning acts, the student can not engage intelligently in learning activities unless there has been established a pre-determined end-in-view. This is good pedagogy and good learning theory.
3. What has come increasingly apparent to me is a growing sophistication on the part of the teachers and students concerning the value, relative to contemporary culture, of the knowledge or objectives being learned into today's curriculum. For this reason there must be greater decision making on the part of teachers in developing sequences of

objectives as to whether they can communicate the worth or value of the objectives they encourage their students to seek. For this reason, in another version of the model presented, I have translated the teacher-student end-in-view into T-Se^v. This symbolizes the concept that the commonly held ends-in-view of a curriculum must have an exponent of value.

These are the two major areas of intersection of teaching and learning and they are an integral part of the emphasis in a competency/performance education philosophy. Teachers are encouraged to plan learning activities and allow student freedom to learn effectively. Also modeled is the connection between teaching and learning which makes the student and teacher one methodic working unit by establishing a common, communicated end-in-view. Of course, what I really ended up with was more than a model of the intersections of teaching and learning. With the addition of two aspects emphasized by my teacher, the late Ole Sand, in his curriculum courses, that of *assessment* in a non-value judgement context at the beginning of instruction and *evaluation* to see how close students came to realizing the end-in-view, I had created a simple analog model of the essential components to consider when thinking of the total classroom instructional situation. Without knowing it, the model was the beginning of my ability to understand many aspects of competency/performance education. Competency/performance education is not new; professional educators have been working on it for a long time.

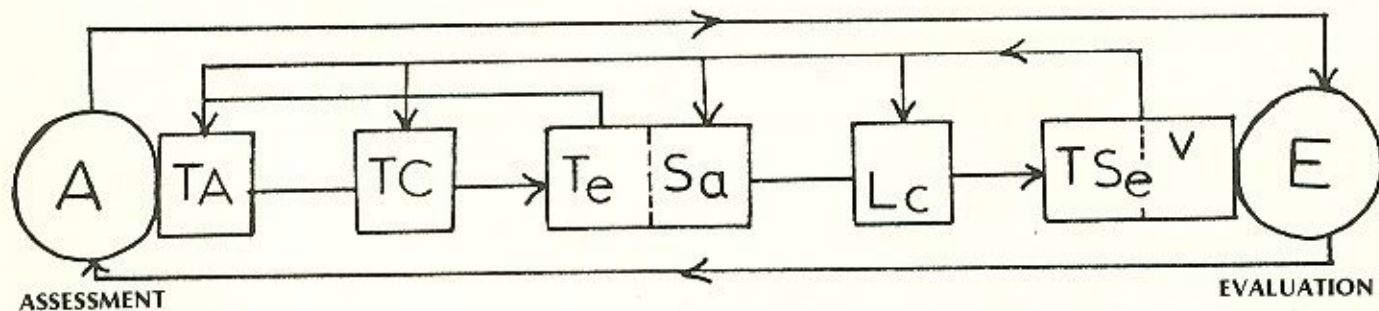


Figure 3. Analog Model of Components of Classroom Instructional Situations To Be Considered in Explaining Competency/Performance Education.

ANALYSIS CATEGORIES IN A CONCEPT OF INSTRUCTION

1. ASSESSMENT (A) Reference is made to measurement and diagnostic activities data which will be the basis for establishing learning objectives (teacher-student end-in-view) and selected pedagogical means (student acts and learning content) for making progress toward and/or realizing the instructional objectives. No value judgements relative to students' potential development are imputed in the assessment process.

2. TEACHING ACTS (TA) Reference is made to lingual and non-lingual symbolism that serves as communication to influence students in realizing teacher-student ends-in-view. Teaching as a discrete concept is subsumed within the concept of instruction.

TA-T Theoretical (Lingual)

TA-Q Qualitative (Non-lingual)

Teacher Acts (Tr-a) Reference is made to acts of teachers that are outside of instructional context where a transaction between teacher and student exists. Teacher acts would be activities that are related to influencing the realization of ends-in-view by the student but which remain outside of instruction, i.e., correction of student work, program planning, building of instructional materials, counseling with students.

Teacher behavior (Tr-b) Reference is made to those activities by a teacher that are detrimental to realization of ends-in-view by students. Classification would include activities during instruction.

3. TEACHING CONTENT (TC) Reference is made to types of knowledge as the content, in some modality, to be added to student's intellect. Knowledge is result of student acting upon content to some degree. Teaching content is the semantic element in the symbolic, syntactical structure of the teaching act.

TC-p pedagogical knowledge

TC-Q Reference is made to knowledge that is encoded by people but is non-lingual; it is knowledge of the world that is used by people but which can not be put into language or theoretical modality. Such knowledge must be expressed in performances other than lingual. This is qualitative knowledge. Three broad sectors of qualitative knowledge may be categorized.

TC-Qs qualitative senses

TC-Qa qualitative affective

TC-Qpm qualitative psychomotor

TC-T Reference is to conceptual knowledge that can be symbolized by language. Language is used as a cuing device to meanings that have been encoded as concepts by people.

TC-Tal Reference is made to oral modality of language, the theoretical auditory linguistic.

TC-Tvl Reference is made to the written modality of language, the Theoretical visual linguistic.

TC-mm Reference is made to material manifestation of content used as a vehicle for presentation, i.e., visuals, models, film.

4. TEACHING PURPOSE (TP) Reference is made to a mental construct on the part of the teacher; to an intention that is identical with acts of students. The purpose of teaching, as a communication act, is to influence students to become involved in student acts or learning acts.

5. STUDENT ACTS (Sa) Reference is made to acts by students in which they are acting on learning content to realize an end-in-view. Acts may be mental operations or overt behavioral performances. Teaching purpose is identical not equal to student acts in that teaching purpose is a mental image of what is manifest in student overt performance.

6. LEARNING CONTENT (LC) Reference is made to types of knowledge as outlined in teaching content category. Learning content is not necessarily equal to teaching content.

Lc-mm Reference is made to material modality of subject matter used in the learning act.

7. TEACHER-STUDENT END-IN-VIEW WITH EXPONENT OF VALUE (T-Se^v) Reference is made to a commonly established end-in-view between teacher and student which is an increment to the intellect of the student. Pedagogical ends-in-view are assigned degrees of value resulting in motivational drive relative to end-in-view.

8. EVALUATION (E) Reference is made to measurement activities in which there is an establishment of the present development of student relative to predetermined end-in-view. A value judgement may be made as to worth of output energy reflected by distance between present development and predetermined end-in-view.