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AUTHOR Bruckerhoff, Charles
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ABSTRACT

A theoretical framework is proposed to guide the reflective thinking of practitioners in the classroom. In this paper, the teacher's work is considered to be a series of acts intentionally performed for the educational benefit of all individuals interacting in the classroom. A discussion is presented on the theory of personal knowledge developed by Michael Polanyi, and an explanation is given of what Polanyi's epistemology offers teachers. A concept of teaching is outlined that is based on Polanyi's theory of personal knowledge. This concept recognizes the teacher's concern for instructing students explicity in an existing body of knowledge, and the students' need for expression that enables each individual to make explicit in some way their personal perspective. A description is offered of a university program to help teachers choose and emphasize methods and activities for teaching in accordance with the intentional purposes of their lessons. Charts illustrate the models of teaching developed from the theoretical framework, and references are included. (JD)

Teaching and Intentionality:

How Models of Teaching May be Informed by Purpose

by

Charles Bruckerhoff

Assistant Professor

Department of Curriculum and Foundations

Cleveland State University

Euclid Avenue at East 24th Street

Cleveland, Ohio 44115

(216) 523-7127 office

(216) 751-2277 home

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ABSTRACT

Teaching and Intentionality:

How Models of Teaching May be Informed by Purpose

Teacher educators should provide a theoretical framework to guide the reflective thinking of practitioners in the classroom. In this article the writer considers the teacher's work to be a series of acts intentionally performed for the educational benefit of all present. The article proposes a concept of teaching based on Polanyi's theory of personal knowledge. A comprehensive plan offers an interpretive framework for decision-making that enables teachers and students to have meaningful, exciting, and enriching experiences in the classroom.

Teaching and Intentionality:

How Models of Teaching May be Informed by Purpose

It is a common understanding that four things are important to every person who wants to help others learn in school: know the subject matter, know the students, have a plan for teaching, and possess skill in the methods of teaching. The general public's awareness of these four, basic features lends support to the belief that teaching is relatively simple work. Teacher education programs sometimes reflect this outlook. Prospective teachers are run through the programs in a mechanical fashion, receiving a focus on any one feature of teaching separately, either in disregard of the others or with the assumption that the other three can be added latter in piecemeal fashion.

However, teaching is a complex activity in and of itself and the role of the teacher is becoming increasingly more vital for the transmission of knowledge, skills, and values to youth in contemporary society. According to William Doll (1986b, p. 15), "an immense responsibility is placed on the teacher." Consequently, the preparation of teachers is a difficult task, not only in terms of practical aspects (cf. Rosenshine, 1986), but also in terms of political and theoretical orientations of students (Wehlage, 1981), faculty (Metz, 1986), and colleges of education (Egan, 1983; Tom, 1985; and Zeichner, 1983).

Various reports in the literature suggest that each of the basic features of teaching enjoys an intimate relationship with the other three (See, for example, Adler and Goodman, 1986; Popkewitz, 1985; and Zeichner, 1983). The way one handles subject matter when teaching is influenced by the plan for teaching, which, in turn, is influenced by the teacher's

personal conception of knowledge, especially within a particular discipline (See McPeck, 1981, p. 93). Furthermore, the individuals present in a classroom continuously make and remake their understandings--the teacher as well as the students (See Becker, 1982 and Doll, 1986)--and always within the context of a larger social and political order (See Apple, 1979 and Giroux, 1983). From this perspective, knowledge is a socially constructed reality and the teacher is an agent of society who has potential to both create and sustain the belief systems of students.

This array of problems for teachers tends to baffle student teachers and to discourage both initiates and veterans from dealing reflectively with teaching (See also Lortie, 1975, May, 1986, and Wehlage, 1981). It is plausible that the interest expressed lately in models of teaching (See, for example, Joyce and Weil, 1986) will contribute to the frustrations of schoolteachers and exacerbate the sense of discouragement that feeds their conservatism. For similar reasons critical theorists face the prospect of alienating student teachers when attempting to infuse methods courses with "liberatory learning" (See Adler and Goodman, 1986, p. 6).

My concern here is with exploring the development of a concept of teaching that enables the practitioner to deal concurrently with the practical, political, and theoretical aspects of the teacher's work. For my purposes, practical refers to techniques of teaching (See also Lortie, p. 23); political includes the structure and function of authority experienced by students, especially through interaction in the classroom (See Apple, 1979, p. 85); theoretical concerns development of what Abraham Kaplan (1964, p. 304) calls an "explanatory shell" that offers the interested observer a "synopsis of the moves. . . and the rules of the game." The cultural aspect

of teaching--what particular subject matter to choose and when to teach this content--is also important, but limitations of space prevent adequate discussion for the present.

The intent here is to explore the implications of a comprehensive theory of knowledge for educational practice (Dewey, 1936, p. 464). A theory of knowledge in the service of educational aims should help the teacher select a method or an approach to teaching, explain which techniques or activities best support the methods, and suggest what results may be expected for students from the experience. Implied is the assumption that a theory of knowledge would not prescribe or dictate teaching activity, but instead would serve as an explanatory framework which describes and, what is more important, orients the ongoing educational activities of the teacher. In respect to the conduct of this epistemological analysis, I am concerned with developing a concept of teaching that is informed by the historical, structural, and operational characteristics of schooling in democratic society (See also Toulmin, 1983, p. 258).

In this paper, I present the theory of personal knowledge developed by Michael Polanyi (1958 and 1959) and explain what it offers to teachers. (Polanyi attributes the origin of his idea to the eighteenth century Italian philosopher, Giambattista Vico. See Bergin and Fisch, 1970). Then, I introduce a concept of teaching that is based upon the theory. In the end, I offer a plan and describe a university program to help teachers choose and emphasize methods and activities for teaching in accordance with the purposes of their lessons.

In support of this effort, Doll (1986b, p. 16) makes the following assertion: "Reality is not simple, spiritual, and uniform; it is complex,

temporal, and multiple. We need an educational model to fit this reality. We need a transformative, not a measured, curriculum." Implicit in a transformative curriculum are two basic concerns about the event of teaching: change and purpose. In an effort to meet this challenge, I present a concept of teaching that includes a variety of approaches to teaching and a rational basis upon which to make decisions about which approach to use in a given instance of teaching.

The Theory of Knowledge

Think of Figure 1 as representing the presence of ideas on individual and social levels in the modern world. Inside of Circle A is knowledge that is available to us presently. We arrive at this knowledge on our own or we inherit it from other persons who lived in the recent or remote past.

(Insert Figure 1 here.)

On the personal level this collection includes all of the ideas that an individual has in mind to make sense out of the world. On the social level this refers to the wealth of knowledge made by humans. Every person has some specialized knowledge in their memory--an "ideoverse" of cultural knowledge. There are encyclopedias and other reference works to consult for explanations. There are libraries and museums around the world that are filled with books, drawings, sculptures, etc. that constitute the record of all that we know--the universe of cultural knowledge. According to Polanyi (1958, p. 143), this is the "world as we see it." This is our cultural heritage--and it is considerable. This is basic knowledge.

However, there is more to the experience of knowing. The founder of pragmatism, Charles S. Peirce (1972), maintained that "thought is essentially an action" (p. 143) of the mind and that an idea is a conception

of the "sensible effects of things" (p. 146). When an idea is conceived or held in the mind, it is really a belief that has the same effect on the mind as a sleeping potion. Once a belief is established (fixed), the mind has "thought at rest" (See Peirce, 1972, p. 143). The poet, e. e. cummings, expressed a similar view: "Knowledge is a polite word for / dead but not buried imagination." The latter quotation brings together figuratively two types of creators: a person who makes an idea in response to some perceived need and a person who remakes the idea imaginatively in a new, problematic situation.

For Polanyi, like Peirce, the particular interest concerns how one goes about making or fixing beliefs. From their viewpoint, thought is a dynamic process and knowledge is its result. Knowledge becomes a valued entity to the extent that a person uses knowledge from the past as an instrument for resolving a problem in a present situation. In the book, How We Think (1933), the better known pragmatist, John Dewey, called this mental activity the habit of "reflective thinking." According to Dewey (1933, p. 118): "Ability to organize knowledge consists very largely in the habit of reviewing previous facts and ideas and relating them to one another on a new basis." In the process of reflective thinking, a person looks for relations between the facts (i.e., ideas) at hand, not to justify tactlessly a fixed belief and not to settle for 'any old kind' of relationship, but to explore carefully beyond appearances for a fruitful idea about what things seem to be now.

People from all cultures have contributed over time to the development of knowledge. Many people are making important and dramatic contributions now. If we put the sum of our personal understandings into Circle A, will

we say that, over time, our ideas will change? Yes. Some ideas we will develop further; some we will toss aside into a mental garbage can for retrieval at a later time. Ideas do not come to anyone in a perfect, never changing form. They are made and remade on personal and social levels. In reference to this point, Polanyi (1958, p. 103) writes that "the power of our conceptions lies in identifying new instances of certain things that we know." What we think about life at age 13 is different at 21, at 40, and so on. We undergo an experience, like quitting a job or dropping out of school or having a child, and we are on our way to making a whole new self. What once explained things for us may no longer suffice. Sometimes our ideas need minor revision; at other times our way of looking at things is reconstructed so fully, that the old way is no longer familiar.

We can represent this second aspect of knowing in the following manner: In Figure 1 take, for example, the thought that is falling into fragments to be our idea of teaching before the first field experience. Like every idea, this one had its deficiencies from the beginning. Although the idea or interpretation was once fully useful, something has happened to cause us to perceive it as partially adequate and partially inadequate for the facts. Its adequacies account for our commitment, but its deficiencies persuade us to "strive for a more correct experience" (Polanyi, 1958, p. 319). For the time being we hesitate and experience conflict between continued acceptance of the established idea and gradual conversion to a different way of looking at things or a new paradigm of thought (See also Kuhn, 1970).

What is called common sense enables the ordinary person to "think" their way through a problem and arrive at a solution. This suggests that chance or trial and error would suffice as mental techniques. Not so.

According to Dewey a controlled "coursing of ideas through our heads" is the essence of reflective thinking. Again to quote Dewey (1933, p. 4): "Reflection involves not simply a sequence of ideas, but a con-sequence--a consecutive ordering in such a way that each determines the next as its proper outcome, while each outcome in turn leans back on, or refers to, its predecessors." The "terms" or "phases" of thought are periods of mental work characterized by processes of inquiry uniquely suited to the emergent conditions of the problem.

This feature of the theory of knowledge, labeled critical thought in Circle B of Figure 1, calls attention to the hazards of reflective inquiry. Polanyi (1958, p. 318) argues that the pursuit of new ways of understanding human experience is important, but one must be mindful of the difference between a "competent line of thought, which may be erroneous, and mental processes that are altogether illusory and incompetent." The former will give us a mistake whose process of development is understandable. It may even provide clues which anticipate and disclose the impending error, thus, making allowance for corrections while only midway toward some end. The latter will lead us to results that are based upon "superstition, fatuity, extravagance, madness, or mere twaddle" (Polanyi, 1958, p. 318) and could prove disastrous in the end. The risks that are part of competent, reflective inquiry should not dissuade us from taking a chance on constructing a new and better idea.

This theory of knowledge assumes that the universe of human experience is made by humans and, so, is intelligible to them. The choice to participate in the development of understanding on a personal level serves not only the individual human being, but also the whole society of human

beings that is dependent for its survival upon the intelligent efforts at understanding from every individual. What John Dewey (1922, p. 243) has written about the nature of principles applies to virtually every field of endeavor today: "The question, again is not what our inherited habits lead us to prefer, but where the facts take us." A preference to fix beliefs immutably is the height of foolishness.

We know of many instances of change in the history of ideas and the fact of change with its attendant results should give us courage to establish new belief systems. In science, for instance, conceptions of the universe were changed by Ptolemy, Copernicus, Newton, and Einstein. Presently, David Bohm's quantum theory threatens to "turn physics around" (See Zukav, 1979, p. 305), while Ilya Prigogine's (1979) microscopic theory of irreversible processes extends physics beyond the theoretical limitations of classical and quantum physics. In the fields of sociology and health, alcoholism was once a nuisance, then a habit of drinking liquor, now it is a disease. Farming was once an occupation in agriculture that was passed down (land included) through generations of families. Now the family tradition of farming is nearly lost to a corporate interest in agribusiness. Behind these changes in conceptions are people whose work creates the new and potentially useful ways for others to understand and deal with human experience.

This theory of knowledge takes into account that people change their ways of thinking about things. The process, which we call critical or reflective thought, is used to examine, to inquire about the usefulness, the quality of an idea (See McPeck, 1981; Passmore, 1979; and Polanyi, 1958).

To do this effectively, one must possess both the curiosity of a child and the persistence of a perplexed, experienced traveler.

The questions that come natural to children from two to five years old are asked sincerely and are pursued endlessly. Why? How? What? are words that enable the inquisitive mind to probe further into an assertion about something, enriching both tacit and explicit dimensions of understanding. The experienced traveler has the best imaginable end in view and searches meticulously through maps and terrain for all of the means for attaining this idealized journey. In spite of encounters with perplexity, there is for this traveler a personal examination of the territory, an orderly arrangement of options, and decision making that is in accord with the purpose for the journey.

The difference between tacit and explicit dimensions of knowing is at the base of Polanyi's concept of personal knowledge (See Polanyi, 1983). Briefly, one's understanding of a thing in experience is informed both tacitly and explicitly. An explicit awareness concerns what is evident and verifiable to a person, such as a word printed on a piece of paper for the purpose of sending a message to someone. A tacit awareness involves the characteristic and numerous, but unspecifiable particulars that allow a person to make sense of a word. For instance, when the foreman of a jury hands the judge the verdict, guilty (or not guilty), this is an explicit statement whose meaning is understandable to all present, but only in terms of the knowledge held tacitly by everyone. Stated differently, what the plaintiff and the defendant know tacitly is far more than their best efforts can make explicit in words.

Whatever the result, knowledge has a prospective character. To quote Polanyi (1961, p. 54): "true knowledge is an aspect of a hidden reality which as such can yet reveal itself in an indeterminate range of future discoveries." Accordingly, it is absurd to think of an idea or an explanation as final or conclusive. Such a condition is, at best, only temporary, and, more than likely illusory, for the establishment of a belief sets up a problem with "undisclosed, perhaps as yet unthinkable, consequences" (Polanyi, 1983, p. 23) for holding this belief.

Critical thought is devoted to unpacking ideas in order to know more intimately the relationship between the idea and the facts that are available currently (McPeck, 1981, p. 7). This process is sometimes referred to as Socratic dialogue: not just one person speaks (a monologue), but two people exchange and examine ideas freely and equally (See Brown, 1971). In a word, these people have a "conversation" (Peters, 1979, p. 21). A dialogue like this may occur between any two people. But, it is not the same as saying hello to someone on the street. It is not the same as presenting a lecture. Critical or reflective thought is the cautious and methodical examination of an idea in the presence of supporting or detracting data and a concern for the ramifications of the new idea for other ideas.

There are some people who are wary of critical thought. Some even fear it. These attitudes are unfounded, especially today. "Our century," notes Prigogine (1979, p. 214), winner of the 1977 Nobel Prize in Chemistry, "is a century of explorations: new forms of art, of music, of literature, and new forms of science." Critical thought does not condemn ideas nor does it lead necessarily to a regress of reflection (Schon, 1983, p. 280). Rather

critical thought builds respect for the service that an idea performs for subsequent ideas, in the continuing development of new ways of understanding human experience.

Again to quote Polanyi (1959, p. 82): "Every act of understanding somewhat rectifies our being, and (we) may well accept therefore also that a conversion to a truer way of being a man will induce a better understanding of man". To engage in critical thought means we conduct an inquiry. We look at our interpretation of life to ask questions that allow us to probe where our assumptions may cover up important details that do not fit, somehow. The results, as the quotes from Prigogine and Polanyi indicate, have important implications for us personally and socially.

There are two points to be made about thought as a socially constructed reality. One is that an idea, any idea, must stand the test of critical inquiry--a process that leads to reinstatement, revision, or discarding of an existing idea--so that the best and right conduct of human affairs prevails. Another point is that the person engaged in critical thought has a responsibility to go beyond the criticism to offer an explanation (See also Huebner, 1966, p. 26.). Something must be done besides just criticize.

We need to know what to say at the end of the inquiry. Will there be a new way of seeing, of interpreting human experience (See, for example, Kegan, 1982, p. 247)? According to Dewey: "Demand for the solution of a perplexity is the steadying and guiding factor in the entire process of reflection" (1933, p. 14). In other words, a genuine concern for the quality of an end or result will have a peculiar, controlling influence on critical thought from the beginning, providing assurance that the process of inquiry and the solution of the problem are related and have an intimate and

morally justifiable association with the means. From this point of view, the successful conduct of critical thought is dependent upon the particular intentions or purposes of the persons who express an interest in solving the problem.

The third element of this theory of knowledge is called post-critical thought. As Circle C in Figure 1 indicates, something must be done after the criticism. For example, in reference to the discoveries of Newton, Polanyi (1958, p. 277) has written: "His genius was manifested in his power of casting these vaguely held beliefs into a concrete and binding form." The result outlined in the Principia enabled scientists and laymen alike to examine a different view of the world--Newton's view. In modern times, Hannah Arendt's Between Past and Future (1983) transforms philosophical thought based upon Newtonian physics into a system of political philosophy that anticipates social and scientific theory lying beyond quantum physics.

Regardless of the subject, if a new explanation is called for or is forthcoming, how will it be expressed? In a speech? Music? Sculpture? Literature? Formula? Movement? How can one person make an idea clear to himself or herself and express that idea in a meaningful way to another person? Not some memory, not a regurgitation, but an interpretation that is as fresh as it is personal.

For example, when students view a play like Arthur Miller's The Crucible, they begin to wonder individually about the meaning of the play--not to the group, but first of all to themselves, personally. What insight will a student have as a result of this experience in drama? How will a student's outlook on life change as a consequence of seeing this play? What will a student do to make this new point of view clear to others? How can

the teacher be assured that this student will express the new idea in the best form, so that it is understood and appreciated by all? (See also Eisner, 1985, pp. 120-123; and Greene, 1978, pp. 181-182.)

On the playing field, what does the coach do to help a player break loose from the routine of practice, so as to act spontaneously, creating movements that are personal and yet somehow connected to all that training? A coach does not want robots on the field, but players who can perform.

On the stage, what does the director do to bring out a portrayal by an actor, like Dustin Hoffman, of some character, like Willy Lohman? In the process Willy Lohman makes Dustin Hoffman a different man, for all of us.

This theory of knowledge views the development of ideas as a social and historical, human activity. In view of the implications of his theory for education, Polanyi (1958, p. 327) makes the following assertion:

> Any tradition fostering the progress of thought must have this intention: to teach its current ideas as stages leading on to unknown truths which, when discovered, might dissent from the very teachings which engendered them. Such a tradition assures the independence of its followers by transmitting the conviction that thought has intrinsic powers, to be evoked in men's minds by intimations of hidden truths. It respects the individual for being capable of such response: for being able to see a problem not visible to others, and to explore it on his own responsibility. Such are the metaphysical grounds of intellectual life in a free, dynamic society: the principles which safeguard intellectual life in such a society. I call this a society of explorers.

The above quote illustrates two ideas. One idea is that a person's action (thought is an action) is influenced by an intention or purpose, which is understood, at times, only vaguely. (Actions speak louder than words.) Another idea is that we must have respect for propriety in both the form and the substance of discourse in order to engender a commitment to democratic values. From this standpoint, intentionality is a form of cultural knowledge that plays a vital role in the conduct of human beings. Recognition of the normative aspect of intentionality, reminds us that the enjoyment of democratic life is contingent upon respect for and pursuit of particular values.

As Figure 1 suggests, this theory represents the development of knowledge for the individual and society on a personal basis, in a dynamic, continuing form. From this perspective the joy of discovering something new is not reserved for masters or scholars or scientists. The pursuit and enjoyment of cultural knowledge by truly different individuals is essential for enriching the acquisition and development of cultural knowledge for all. In the classroom, the purpose of teaching should be to have students participate in the development of understanding through social interaction that provides everyone with enrichment of personal knowledge and respect for democratic values. How can this be done?

The Concept of Teaching

We need a concept of teaching that recognizes (a) the teacher's concern for instructing students explicitly in an existing body of knowledge, (b) the teacher's and the students' concern for involvement with knowledge on individual and social levels that leads to personal understanding of issues

and problems, and (c) the students' need for expression that enables each individual to make explicit in some way their personal perspective.

This is not a polemic against training students in basic facts. Nor is this an argument for abandoning the teacher's role as primary decision maker in the classroom. This is a proposal for curriculum planning that gives the teacher a basis upon which to determine what method of teaching will serve best the purpose of the lesson, so that classroom experiences of students go beyond training in the basics of knowledge.

A discussion of planning in education leads eventually to mention of the word, objective, but the term deserves special attention because its definition has broad implications for the theory and practice of any educational activity. The present view of planning for teaching makes use of Dewey's (1922) position in regard to the conception and use of an objective. Dewey (1922) has argued as follows:

> Ends, objectives, of conduct are those foreseen consequences which influence present deliberation and which finally bring it to overt action. Consequently ends arise and function within action. They are not, as current theories too often imply, things lying beyond activity at which the latter is directed. They are not strictly speaking ends or termini of action at all. They are terminals of deliberation, and so turning points <u>in</u> activity. (p. 223)

From Dewey's standpoint objectives are defined as ends that serve a medial role in the treatment of problems. To be useful for a teacher an objective originates only within an educational activity and, due to the "genuine uncertainty of possibilities and consequences" (Dewey, 1922, p. 241), is

considered a construct having temporary importance and always amenable to change.

According to Herbert Kliebard (1977, p. 64), the implications for practice are clear: "the starting point for a model of curriculum and instruction is not the statement of objectives but the activity (learning experience), and whatever objectives do appear will arise within that activity as a way of adding a new dimension to it." From this viewpoint, the identification of an objective for a teaching activity is a result that occurs to the teacher as a consequence of perceiving the educational needs and interests of the students in the ongoing situation.

(Insert Figure 2 here.)

In what ways might this theory of knowledge inform the practice of teaching? Figure 2 presents a concept of teaching based upon Polanyi's (1958) theory of post-critical thought. Consider these terms--directed, process, and expressive--as identifying features of a comprehensive approach to teaching that allows one to make plans selectively for presenting lessons to students (cf. Eisner, 1985, pp. 114-123 and Scheffler, 1973, pp. 67-81). The dynamic or "transformative" (See Doll, 1986a and 1986b) character of this plan for curriculum manifests itself through the interaction of teacher and students. As already mentioned, the teacher is in the middle of things (even at the beginning of a lesson), is working from a plan that emerged from circumstances peculiar to this situation, and is using an approach that compliments the purpose for instruction. An important assumption is that there is always a preparedness on the part of the teacher to adapt, modify, or otherwise change the plans.

To explain further, the teacher selects a directed lesson to help students achieve an appropriate level of mastery with concepts or skills essential for participation in ongoing events. The purpose at some point in time is to establish, at least temporarily, a common base of knowledge. The substantiation of this base helps the teacher and the students to establish a condition of security in the classroom. Techniques that work well within the directed lesson include lecture, recitation, practice, and so on.

To illustrate, during a math period in the sixth grade the teacher plans to give her students direct instruction in the adding of decimals, specifically, in the setting up of algorithms. Using examples that she writes on the black board, the teacher carefully explains a step-by-step procedure for solving algorithmic problems where decimals are included. Afterwards, she assigns the students similar problems for practice and checks the work of each student to see that all respect the rule for lining up decimals. (See Appendix.)

A process lesson is used to help students re-examine and unpack ideas or skills. The focus of students' educational experiences during this lesson is on the process itself. The teacher recognizes that participation in an inquiry will enable students to achieve an enriched, personal understanding of subject matter. The condition of risk prevails because the process may lead the teacher and the students to reinstate, revise, or reject existing ideas. The process lesson, which may involve inquiry or problem solving, relies upon techniques such as Socratic dialogue, brainstorming, and analysis.

For example, at the beginning of a social studies unit on Egypt, the sixth grade teacher gathers the students around her table for dialogue. Her

first statement is this: "As we begin to study the ancient Egyptians, it will be good to ask ourselves, first, what we already know about this culture and the people who made it. Tell us: what do you know about these Egyptians from long ago?" As the students and the teacher volunteer information, one of the youngsters writes their statements on the board, making, as far as possible, an orderly arrangement. When no one has any more new information to provide, the teacher encourages the students to ask questions about this information. Which is accurate? What is most interesting or useful? How do we know this? and so on. As the unit on Egypt unfolds during subsequent weeks, these first thoughts are re-examined or reaffirmed in the light of readings, visits to museums, and guest speakers. Eventually, small research assignments stem from this initiation of inquiry about the ancient Egyptian culture.

The expressive lesson provides students with the opportunity to reconstruct their thought. When using this lesson a teacher recognizes the educative value of personal expression. A condition of danger exists, due to the unpredictable nature of the students' results. Everyone involved must be prepared to deal responsibly with personal contributions to both individual and collective understanding. Common activities or techniques encourage students to compose, design, and postulate.

As an example, for the language and literature component of the curriculum, the same sixth grade teacher assigns her students to read seven novels, all of which have something to do with the theme of survival. When the students finish reading a book (the project lasts several weeks), they work alone or in small, self-selected groups to create with mixed media their favorite scene from the story. As the scenes are completed, the

students take turns describing what happened in the story, explaining how they chose this manner of representing the scene, and discussing their personal understanding of survival as it was informed by this reading.

The examples presented above are authentic (planned and presented by a teacher in the local school) and illustrate how the three approaches to teaching apply to subject matter commonly found in the curriculum of the school. In each case the teacher has a particular purpose in mind which, in view of the circumstances, she believes is best accomplished through the particular approach chosen. By contrast, it is difficult to imagine promoting inquiry through a directed lesson. Instead of relying on this "one best way," the teacher plans to allow the choice of a form of presentation to influence the substance, and in the end accomplishes more nearly what she intends.

The lack of excitement about learning in classrooms may be explained by tendencies of teachers to have students dwell upon memorization of facts and follow a regimented curriculum, postponing from the first grade until graduate school the interest in critical inquiry or creative expression (See, for example, Apple, 1982, pp. 266-267; Giroux, 1984, pp. 190, and Greene, 1978, pp. 70-71). Some scholars argue that teacher dominated activities or skill and drill exercises take up as much as 85% of the time in the schooling of children (See Brophy, 1983, and Adams and Biddle, 1970). Others, like William Doll (1986a and 1986b) and Donald Schon (1971), for example, maintain (correctly, I believe) that the contemporary school curriculum, with its fixation on behaviorism, is driven by the outmoded, Newtonian conception of the universe. These observations indicate, at

least, that the teacher's activity may be constricted by a too narrow theoretical perspective.

Although it is tempting for many educators to believe that one must begin with the directed lesson, the examples above indicate, also, that a meaningful start can be made in either the process, expressive, or directed lessons. Two other myths are these: (1) that certain subject matter, for example, mathematics or chemistry, must be taught in a directed lesson and (2) that the use of a variety of approaches is appropriate only for the elementary level of education. My experience thus far indicates that a teacher at any level is limited (and limits students) only by a resistance to explore the possibilities afforded by this concept of teaching.

A Plan for Teacher Education

In response to a concern for the preparation of teachers whose work promotes democratic values in the schools, a university course of instruction titled, "Curriculum and Methods," introduces undergraduates to the concept of teaching discussed above and provides these students with opportunities for recognizing the implications of this theory for the practice of teaching.

A team of two instructors presents the subject matter of the course in accordance with the plan for teaching, so that students see no discrepancy between the way they are told to teach and the performance of teaching given by their university instructors. At the beginning of the quarter, the students are told:

> "Curriculum and Methods" has to do with teaching, which is the work one has to do in any classroom to present subject matter. We are not teaching about chemistry, English, or history. What you see

us doing is what we are talking about; what we ask you to do is what we are doing and talking about: teaching. The subject matter of this course constitutes a "looking back on itself," rather than out at something unrelated to what exists in the place we call a classroom.

To illustrate, when the instructors present the topic in the syllabus called the directed lesson, they use techniques of lecture and recitation. The classroom is outfitted with a rostrum, standard desks arranged in rows, and materials to provide whatever control of operations is deemed necessary for the teacher directed activity.

When presenting the process lesson, the instructors ask students to volunteer for roles in a play. The script for the play is an excerpt from the text of Plato's Meno. A round table discussion takes place after the play and concerns the interpretation of the Meno, the nature of inquiry, and the effects of inquiry on students, teachers, and the community.

For the expressive lesson the students are divided into small groups and are given responsibility to represent graphically (i.e., transparency) their conception of the place of art and aesthetics in the education of youth. Readings and problematic situations are provided for assistance. In the end a member of each small group presents to the whole class an explanation of the small group's results.

After an introduction to the concept, the students are guided through a series of practice sessions, including two that involve video taping, in which each student must show to their peers and to the instructors a proficiency with each type of lesson. Afterwards, the instructors and peers provide critiques of these exercises. A field experience requirement of 36 hours enables the university students to gain familiarity with actual

classroom operations and to present to their students the different lessons practiced at the university. Near the end of the course the university student prepares a unit of instruction and teaches this subject matter in the public school for one week. A seminar session is held on Fridays for the purpose of discussing these approaches to teaching and the perceptions gained by the students about their attempts to practice teaching in a real school setting.

Some Reflections on Practice

The model offered here is intended to help teachers select a manner of handling subject matter in relationship to students in order to promote learning of basic knowledge, development of personal understanding, and experience with contributing fresh ideas for explaining or interpreting life. For purposes of implementation, this plan for teaching draws upon Herbert Kliebard's (1972, p. 403) metaphor of travel for curriculum design. From this viewpoint teaching is not a linear process and is not based on a hierarchic arrangement of subject matter. Instead, the teacher makes a great effort "to plot the route so that the journey will be as rich, as fascinating, and as memorable as possible" (Kliebard, p. 403). The problem of where to begin and what to emphasize at some point in time (i.e. directed, process, or expressive lesson) is handled by the teacher, whose decision is based upon an understanding of the ongoing classroom situation.

(Insert Figure 3 here.)

The model offered here encourages the teacher to stop and think in the midst of practice. The two dimensions of Figure 3 enable one to recognize at a glance the characteristics of the different approaches to teaching and how one's "reflection-in-action" is informed by this concept of teaching.

Reflection-in-action, according to Donald Schon (1983, p. 241): "consists in on-the-spot surfacing, criticizing, restructuring, and testing of intuitive understandings of experienced phenomena; often it takes the form of a reflective conversation with the situation." Constant vigilance in this manner prevents the teacher from succumbing to uninformed practice or allowing the ends to justify the means.

The centroid represents the problematic starting point of teaching. To the extent that the teacher takes ownership of decision-making and establishes beforehand what content must be covered, the lesson will follow the behavioral orientation indicated in Section I.

The arrows indicate the possible influence of the teacher's continual reflection on action. While the episodes of the classroom unfold, the teacher is continuously on the lookout for opportunities to reconstruct plans so that the unfolding events (always perceived to be in the state of becoming) are more nearly in conformity with intentions.

When the teacher allows students to take some ownership of the decision making process and recognizes the importance of their different backgrounds for continuously establishing content, the lesson follows the problem solving orientation shown in Section II. When the teacher grants the students opportunity to take ownership of decision making and acknowledges the emergent character of personal understanding and self-expression, the lesson follows the artistic-aesthetic orientation represented by Section III.

A concept of teaching would not be complete without recognizing the unpredictable occurrences typical of every classroom. When something happens without planning (e.g., accident, humor, tragedy, etc.), the teacher

takes some ownership of the decision making process and realizes that the content of this "lesson" will emerge eventually. However, as Section IV indicates, it is in the teacher's best interest to refrain from conducting for too long an excursion into unfamiliar or irrelevant territory.

A Program for Reflective Teaching

I have argued that a rigid subscription to one approach to teaching fails to accomplish what the teacher intends. I have also argued that a rational, consistent ordering of the three approaches may offer variety in models of teaching, but would not occur as a response to exigencies of the immediate classroom situation. For this concept of teaching to work, the practitioner also needs (1) a framework for planning before class that illustrates the variety of approaches, (2) a strategy for dealing with the constraints of time, and (3) a model of decision-making that demonstrates how reflective thinking occurs routinely in practice.

(Insert Figure 4 here.)

Figure 4 contrasts a static with a dynamic interpretation of teaching. At times a single approach to teaching is usefully maintained to accomplish a purpose. More often, the teacher must plan to use a variety of approaches. Figure 4 lists all of the possible choices for double, double-repeat, and triple options. One notices immediately the array of available choices. Plans are made before teaching to use the one combination that seems to offer the most promise for the next lesson.

(Insert Figure 5 here.)

The latter point calls attention to time as an important factor in planning for teaching. Figure 5 shows how the teacher's choice of a combination of approaches may be plotted tentatively on a time line, by

class period and by semester or quarter. The possible variations are limitless. The teacher would decide in advance how much time to devote to a particular approach to the subject matter--directed, process, or expressive. Example 1 illustrates the author's choice of approaches to teaching for a graduate course he teaches regularly at the University. The results are based upon the author's personal intentions and the observations made by students during the past year of work. Example 2 shows the approach to teaching one typically finds in high school and university classrooms--directed, that is, lecture. These examples also suggest that the results (i.e., activities) for both students and teachers are starkly different.

As every teacher knows, the best laid plans are just that--plans. When the work begins, the teacher must deal intelligently with the responses of the students. "What are they thinking?" "What are they doing?" "What have they missed?" "Why?" "What else must I do to help them understand?" Questions like these occupy the attention of the teacher throughout a presentation. As Figure 6 indicates, the information a teacher gathers during class time is important for making a decision about which approach to use next.

(Insert Figure 6 here.)

For the example provided in Figure 6, the teacher's shifting from the directed lesson to the process and expressive lessons is based upon perceptions of the effect on the students. Reflective thinking about these results produced alternate plans that led to qualitatively different conditions for study and classroom experiences for the students.

There are times when a teacher must make a change in approach immediately because the approach planned for the period is failing to

accomplish its purpose. At other times a teacher reconstructs the plans between class periods or over night, in order to use an approach that is best suited to a particular interest. In other instances, the order of approaches may remain the same as planned, but the teacher finds that the students' latest responses suggest that a more intense experience in, for example, the upcoming process lesson, will be necessary to assure understanding before moving on to the expressive lesson.

(Insert Figure 7 here.)

A graph of the teacher's use of approaches to teaching over a period of time reveals what I call the style of teaching. Figure 7 illustrates the pattern of approaches used by one teacher for fourteen related lessons. The arrow indicates the direction in which the teacher intended to proceed with the lesson and the length of the arrow approximates the extent to which the teacher accomplished work in a particular variation of one approach.

The intent with Figure 7 is not to measure in a "scientific" manner the style of a teacher, but to provide a device that promotes reflective thinking about teaching. The graph enables the teacher and supervisor to describe and explain the way in which work is done over time. Both of these educators will want to question why there is avoidance of either of the three approaches. Similarly, they will want to know why there is a dependence on one approach to teaching. An astute observer will notice an excess of activity called "winging it" in a teacher's tendency to recount numerous stories of irrelevant personal experience. Mapping out approaches to teaching in this manner shows which options are available and where and why changes are made. Teachers and supervisors can study the patterns of

teaching behavior for appropriate choice and sophisticated use of approaches.

Every teacher knows the importance of lesson planning in contemporary school systems. If the plans are not written to help direct the teacher's own work in the classroom, they are made to satisfy the expectations of the principal and to meet the requirements of the state. In view of the history of teacher education in this country, the latter is an understandable, but regrettable fact. I believe that plans for teaching should be devised to serve the needs and interests of the practitioner--the teacher. This program for teaching intends to promote reflective thinking among teachers, particularly in reference to the purposeful use of approaches to teaching.

Concluding Remarks

The theory of knowledge borrows from and builds upon Michael Polanyi's conception of post-critical thought (See Polanyi, 1958 and 1959). The plan for teaching attempts to bring the student's personal experience with gaining understanding, into relationship with the subject matter of the school. A teacher's use of the comprehensive plan enables both the student and the teacher to participate in a process of knowing that is as personal as it is social, and as dynamic as life itself. What attracts people to teaching is the belief that learning is life. A true understanding of this concept is what makes the best teachers.

Beginning and experienced teachers may note the possibilities within the plan for conceiving and organizing subject matter in a variety of combinations for instruction. Curriculum planners may see potential in the plan for providing the schools with balanced and informed methods of teaching. Teacher educators may recognize within the plan additional means

for encouraging their teachers to view their work problematically and reflectively, so that the teacher's work respects the practical, political, and theoretical aspects of the job.

This plan for teaching is in an early stage of development at my institution. In its present form I hope that it will help teachers vary their approaches to teaching through reflective inquiry and instill in them the confidence that their classroom experiences can be meaningful, exciting, and personally enriching--for the teacher as well as the students.

References

Adams, R. and Biddle, B. (1970) Realities of Teaching: Explorations with Video Tape. New York: Holt.

Adler, S. and Goodman, J. (1986) Critical Theory as a Foundation for Methods Courses. Journal of Teacher Education, 36, (4), 2-8.

Apple, M. (1982) Curricular form and the logic of technical control: building the possessive individual. In M. Apple (Ed.) Cultural and Economic Reproduction in Education: Essays on Class, Ideology and the State. London: Routledge and Kegan Paul, 247-274.

Apple, M. (1979) Ideology and Curriculum. London: Routledge and Kegan Paul.

Arendt, H. (1983) Between Past and Future: Eight Exercises in Political Thought. New York: Penguin Books.

Becker, H. (1982) Culture: A Sociological View. Yale Review, Summer, 71, 513-527.

Bergin, T. and Fisch, M. (1970) (Trans.) The New Science of Giambattista Vico. Ithica, New York: Cornell University Press.

Brophy, J. (1982) How teachers influence what is taught and learned in classrooms. Elementary School Journal,83, 1-13.

Brown, M. (1971) (Ed.) Plato's Meno. Trans. by K.C. Guthrie. New York: Bobbs-Merrill, 1971, 17-66.

Dewey, J. (1933) How We Think. New York: D. C. Heath and Company.

Dewey, J. (1922) Human Nature and Conduct. New York: Henry Holt and Company.

Dewey, J. (1936) The theory of the Chicago experiment. In K.C. Mayhew and A.C. Edwards. The Dewey School: The Laboratory School of the University of Chicago, 1896-1903. New York: D. Appleton-Century, 463-477.

Doll, W. (1986a) Curriculum beyond stability: Schon, Prigogine, Piaget. A paper presented at the Bergamo Curriculum Conference, Dayton, Ohio.

Doll, W. (1986) Prigogine: A New Sense of Order, A New Curriculum. Theory into Practice, 25, (1), Winter, 10-16.

Egan, K. (1983) Education and Psychology: Plato, Piaget, and Scientific Psychology. New York: Teachers College Press.

Eisner, E. (1985) The Educational Imagination. New York: Macmillan.

Giroux, H. (1984) Public philosophy and the crisis in education. Harvard Education Review, 54, (2), 186-194.

Giroux, H. (1983) Theory and Resistance in Education: A Pedagogy for the Opposition. South Hadley, Mass.: Bergin and Garvey.

Greene, M. (1978) Landscapes of Learning. New York: Teachers College Press.

Huebner, D. (1966) Curricular language and classroom meanings. In J. Macdonald and R. Leeper (Eds.). Language and Meaning. Washington: ASCD, 8-26.

Joyce, B. and Weil, M. (1986) Models of Teaching. Englewood Cliffs, New Jersey: Prentice-Hall.

Kaplan, A. The Conduct of Inquiry. (1964) San Francisco: Chandler Publishing Company.

Kliebard, H. (1972) Metaphorical roots of curriculum design. Teachers

College Record, February, 73, (3), 403.

Kliebard, H. (1970) The Tyler rationale. School Review, February, 78, (2), 259-272.

Kuhn, T. (1970) The Structure of Scientific Revolutions, 2nd edition. Chicago: University of Chicago Press.

Lortie, D. (1975) Schoolteacher: A Sociological Study. Chicago: University of Chicago Press.

May, W. (1986) Teaching students how to plan: The dominant model and alternatives. Journal of Teacher Education, 37, (6), 6-12.

McPeck, J. (1981) Critical Thinking and Education. New York: St. Martin's Press.

Metz, M. (1986) Different by Design: The Context and Character of Three Magnet Schools. New York: Routledge and Kegan Paul.

Passmore, J. (1979) On teaching to be critical. In R.S. Peters (Ed.) The Concept of Education. London: Routledge and Kegan Paul, 192-212.

Peirce, C. (1972) How to make our ideas clear. In E. Moore (Ed.) Charles S. Peirce: The Essential Writings. New York: Harper and Row.

Peters, R. (1979) What Is an Educational Process? In R.S. Peters (Ed.) The Concept of Education. London: Routledge and Kegan Paul, 1-23.

Polanyi, M. (1961) Notes on Professor Grunbaum's observations. In H. Feigl and G. Maxwell (Eds.) Current Issues in the Philosophy of Science. New York: Holt Rinehart and Winston, 53-55.

Polanyi, M. (1958) Personal Knowledge. Chicago: University of Chicago Press.

Polanyi, M. (1959) The Study of man. Chicago: University of Chicago Press.

Polanyi, M. (1983) The Tacit Dimension. Glouchester, MA: Peter Smith Press.

Popkewitz, T. (1985) A Comparative Perspective on American Teacher Education: Being a Stranger in One's Native Land. The Journal of Teacher Education, 2-10.

Rosenshine, B. (1986) Synthesis of research on explicit teaching. Educational Leadership, 43, (7), 60-69.

Scheffler, I. (1973) Reason and Teaching. New York: Bobbs-Merrill.

Schon, D. (1971) Beyond the Stable State. New York: Random House.

Schon, D. (1983) The Reflective Practitioner. New York: Basic Books.

Tom, A. (1985) Inquiring into Inquiry-oriented Teacher Education. The Journal of Teacher Education, 35-44.

Toulmin, S. (1983) The Uses of Argument. Cambridge: Cambridge University Press.

Wehlage, G. (1981) Can teachers be more reflective about their work? A commentary on some research about teachers. In R. Tabachnick, T.

Zeichner, K. (1983) Alternative paradigms of teacher education. The Journal of Teacher Education, May-June, 34, (3), 3-19.

Zukav, G. (1979) The Dancing Wu Li Masters: An Overview of the New Physics. New York: William Morrow and Company.

Figure 1. The Development of Knowledge in Historical Perspective, Personal and Social.

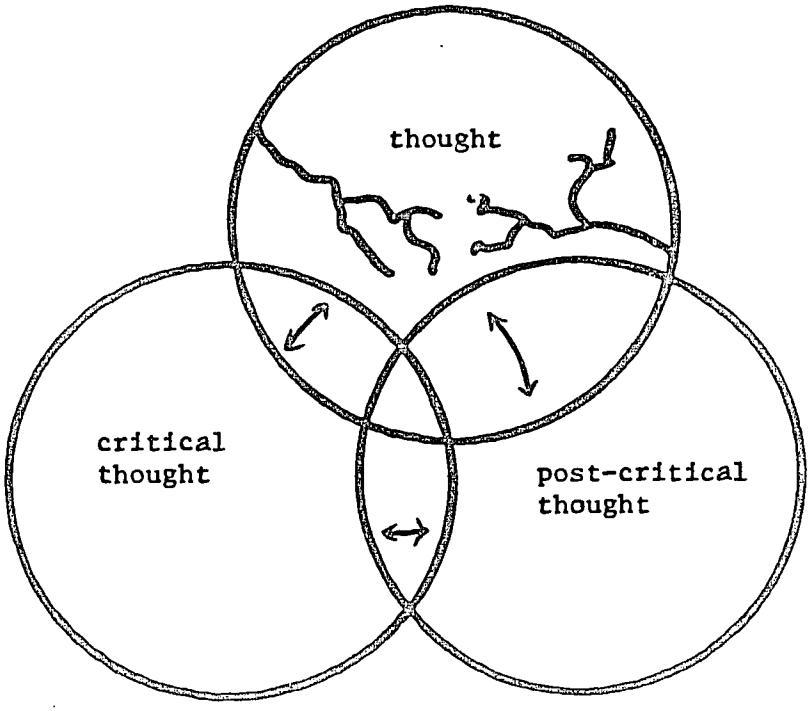


Figure 2. Model of Teaching.

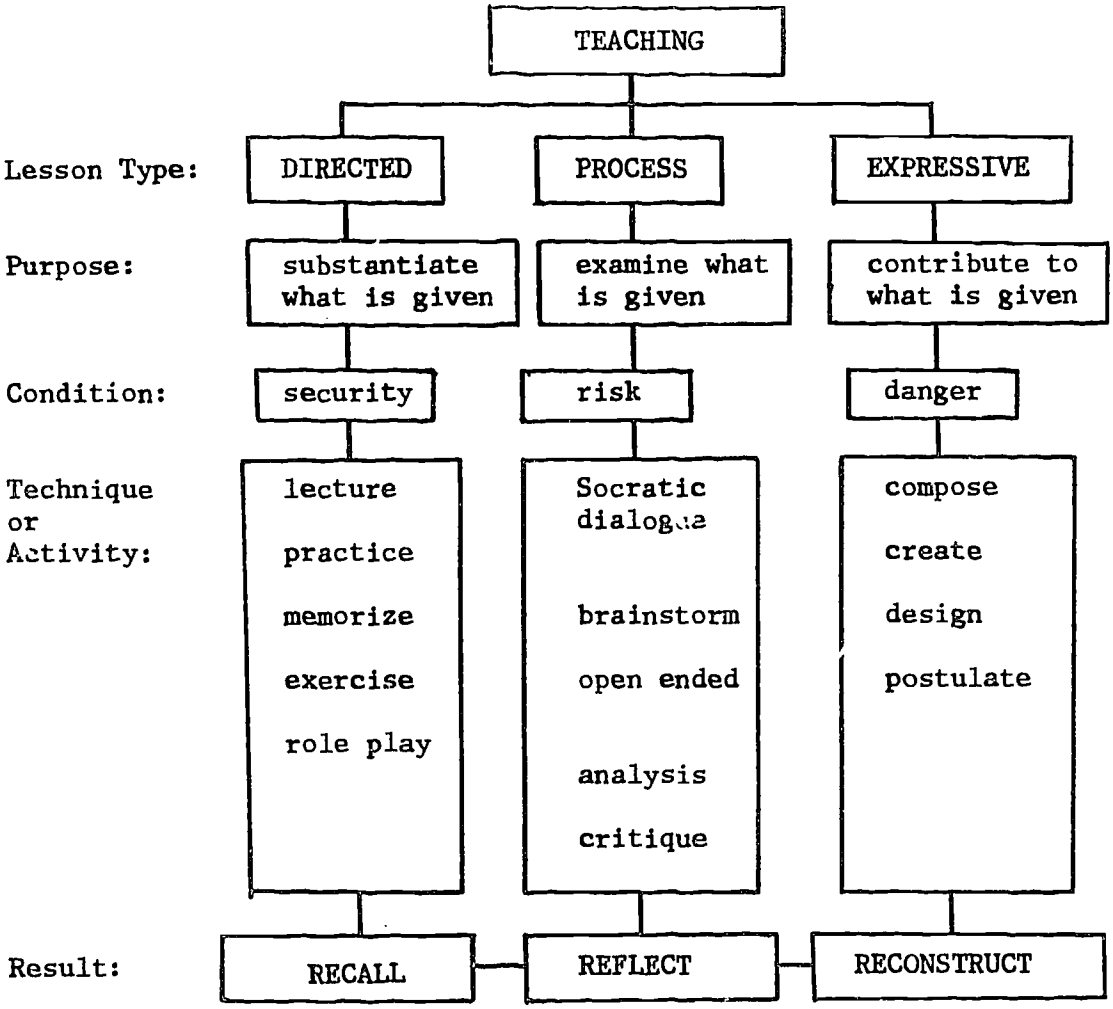


Figure 3. Summary of Four Approaches to Teaching.

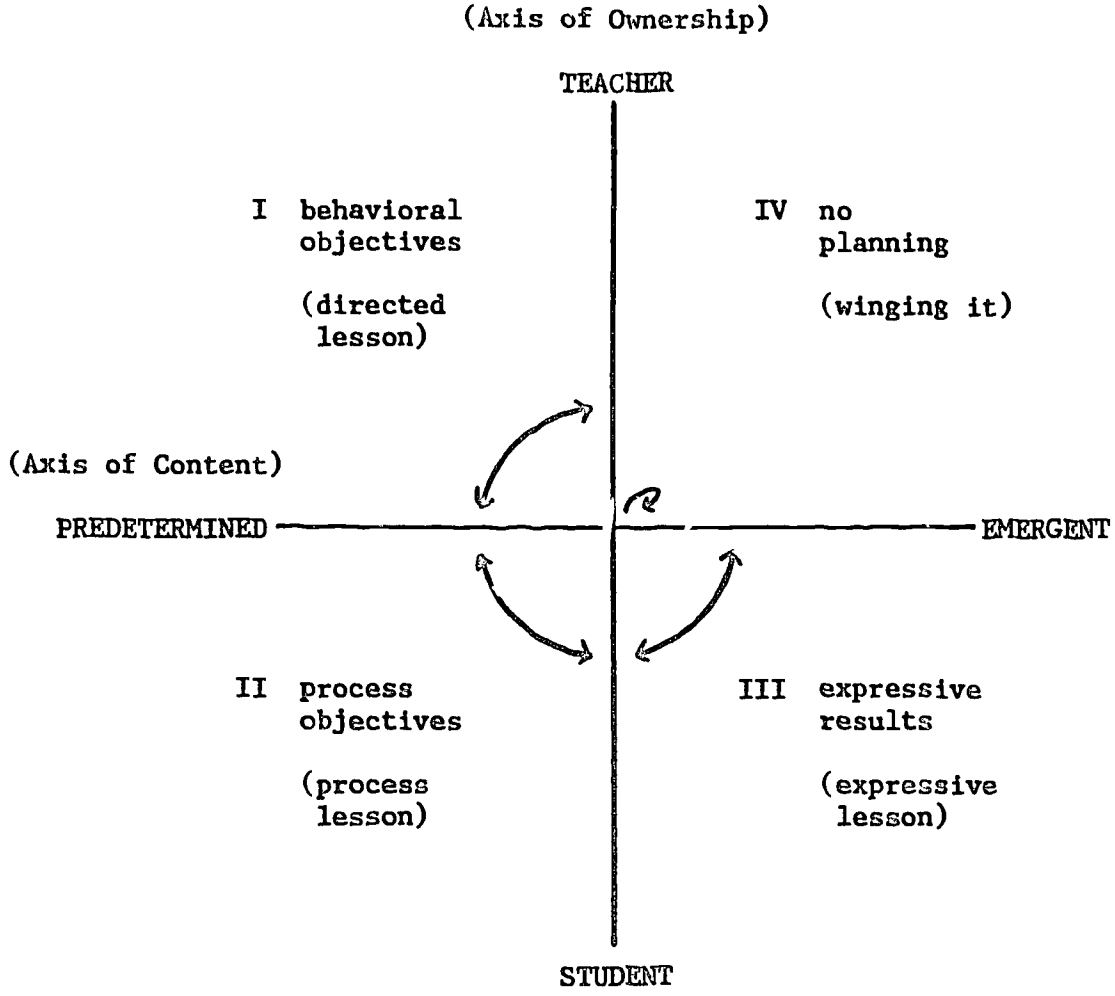


Figure 4. Optional Configurations for Approaches to Teaching.

Static	Dynamic		
(single)	(double)	(double-repeat)	(triple)
DL	DL - PL	DL - PL - DL	DL - PL - EL
PL	PL - DL	PL - DL - PL	PL - DL - EL
EL	EL - DL	EL - DL - EL	EL - DL - PL
	DL - EL	DL - EL - DL	DL - EL - PL
	PL - EL	PL - EL - PL	PL - EL - DL
	EL - PL	EL - PL - EL	EL - PL - DL

Note: DL, PL, and EL stand for Directed Lesson, Process Lesson, and Expressive Lesson.

Figure 5. Approaches to Teaching and Relative Emphasis.

By Class Period

Approach	Duration	Total Elapsed Time
DL	(45 min.)	45 minutes
PL	(45 min.)	45 minutes
EL	(45 min.)	45 minutes
DL – (10 min.) → PL	(35 min.)	45 minutes
EL	(35 min.) → DL (10 min.)	45 minutes
PL	(40 min.) → DL (5 min.)	45 minutes

By Semester or Quarter

Example 1

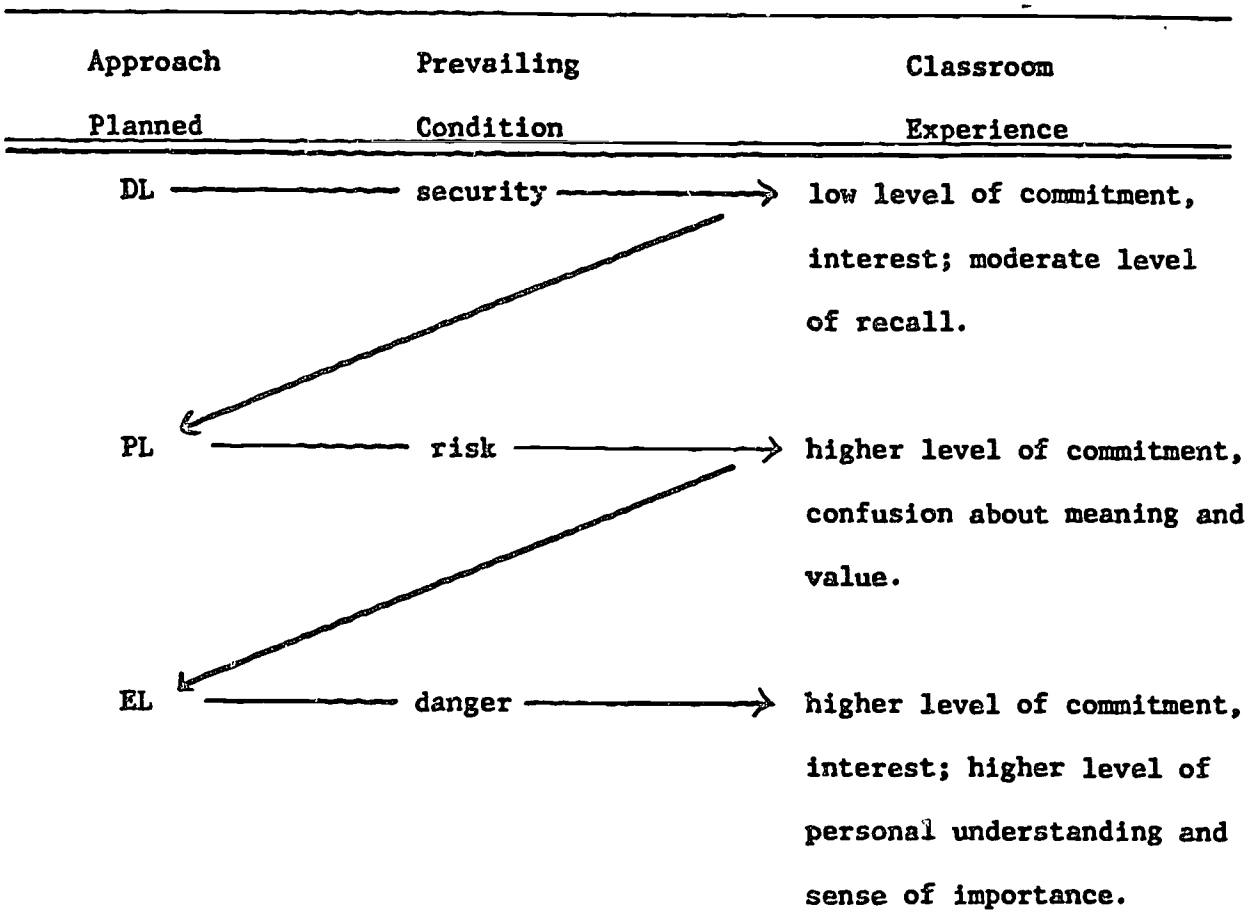
DL → PL → EL → DL → EL → PL → DL – EL → PL → DL

Example 2

DL →

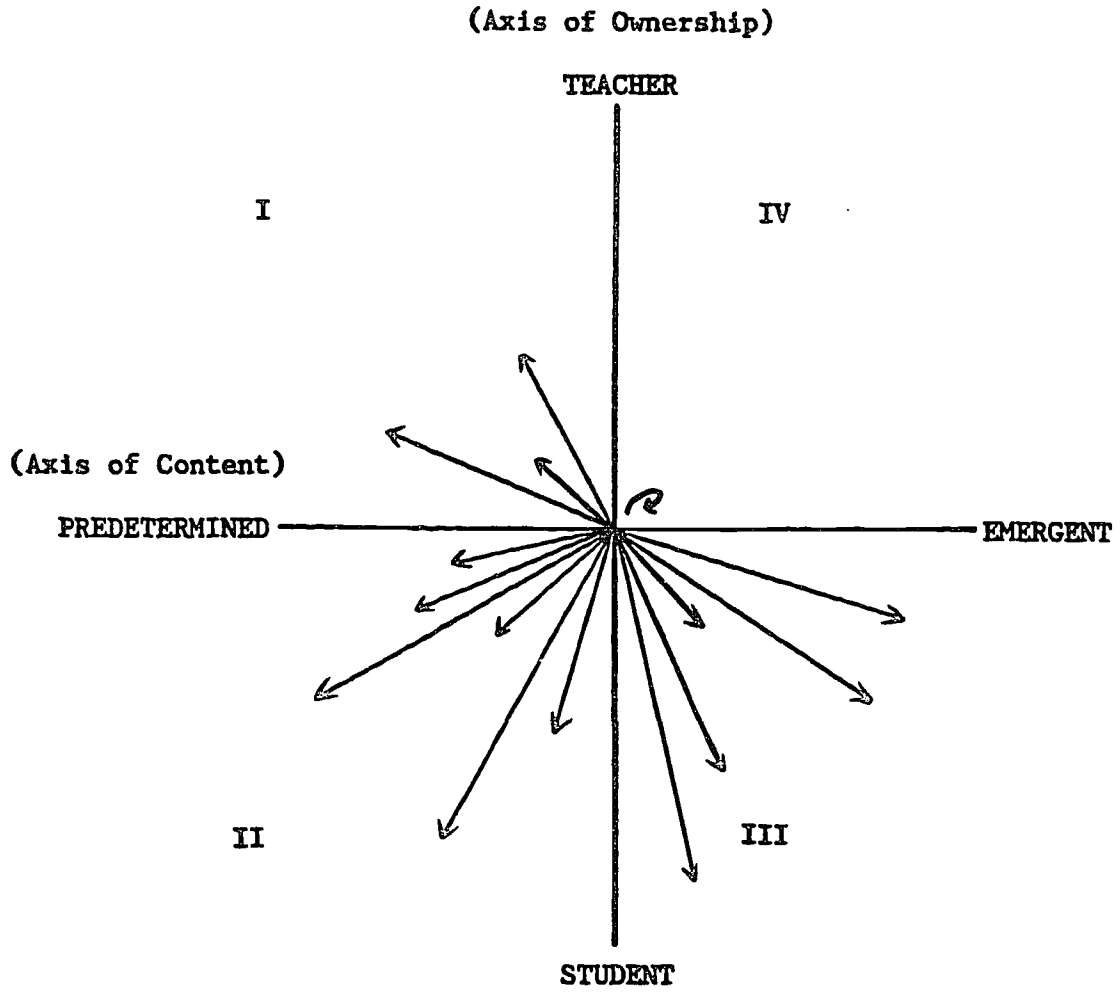
Note: DL, PL, and EL stand for Directed Lesson, Process Lesson, and Expressive Lesson.

Figure 6. Teaching as a Result of Reflective Thinking.



Note: DL, PL, and EL stand for Directed Lesson, Process Lesson, and Expressive Lesson.

Figure 7. Interpretive Graph of the Teacher's Style.



(Appendix)

DIRECTED LESSON

When teachers are sure of exactly what they want their students to learn, and, if the teachers demonstrate explicitly the steps needed to accomplish a particular academic task, the students learn this particular subject matter.

* * *

We call the procedure stated above a "directed lesson." It is a lesson in which the results or outcomes are controlled mostly by the teacher. There is an important assumption behind the use of the directed lesson: allowing students to deal with the subject matter on their own or with limited direction from the teacher may lead to their subsequent failure to grasp specific knowledge or skills.

Directed lessons take students through a sequence of steps in a systematic manner, helping them see the purpose and result of each step. As a result, students tend to learn not only the content of the lesson but also a systematic method for dealing with the content.

The basic components of the directed lesson are:

- setting clear goals for students and making sure they understand those goals,
- organizing the subject matter in a logical, sequential order (typically using a taxonomy or hierarchy),
- presenting a sequence of well-organized assignments,
- giving students clear, concise explanations and illustrations of the subject matter,
- asking questions to check the students' achievement of the goal,
- providing ample opportunity for students to practice what they have learned.

Directed lessons need not involve the students in monotonous repetition or practice with uninteresting subject matter. As with the use of other models of teaching, the teacher selects activities and techniques that are suitable for the content and appropriate for the students.

The directed lesson enables the teacher to control the selection and handling of content so that particular, predetermined results may be obtained by students.

Other terms which are used in reference to this model of teaching include: behavioral approach, direct instruction, executive approach, and training.

PROCESS LESSON

When teachers recognize the possible dimensions of interaction between students and subject matter, and, if the teachers are willing to allow students some control in the selection and handling of the content, the students learn how to construct knowledge for personal understanding and know the perspectives and values that are embedded in the various disciplines of thought.

* * *

We call the procedure stated above a "process lesson." An assumption of the process lesson is that a student's understanding is enhanced through activities that provide ample opportunity for sustained involvement in discourse on personal and social levels.

In a process lesson the teacher wants to encourage the students to engage in a "conversation" about the topic or subject matter--with one another and with themselves. In this way it is possible for each student to develop an intimate acquaintance with the patterns of thought and methods of inquiry that have served human kind throughout time.

The basic components of a process lesson are as follows.

The teacher:

- helps the students to see the significance of some topic,
- establishes the parameters for exploring or examining the topic,
- takes the role of guide (rather than director) whose familiarity with the territory provides assurance that
    + the goal will be reached,
    + miseducation will not occur,
    + the activities will be rich, fascinating, and memorable for all involved.

The use of a process lesson does not imply brevity of planning or lack of attention on the part of the teacher. In fact, to the extent that the process lesson succeeds, the teacher's involvement--from the planning stage through to evaluation--is more intense than when using a directed lesson. The teacher must work continuously at helping the students to recognize and articulate their perceptions, so that a coherent statement emerges eventually.

The process lesson enables students to make some decisions related to choosing and handling subject matter. Personal involvement of students in this way encourages their sense of ownership and responsibility for schooling.

Other terms which are used in reference to this model of teaching include: inquiry approach, problem solving, reflective thought.

EXPRESSIVE LESSON

When teachers acknowledge the possibilities for individual expression among students, and if the teachers are capable of sustaining reasonable decorum while allowing the students to determine to a great extent the nature and character of results, then the students will learn how to deal with the subject in terms of artistic and aesthetic perspectives.

* * *

We call the procedure stated above an "expressive lesson." The use of this lesson assumes that each student develops an individual and personal perspective relative to a particular topic, and, when there is opportunity for expressing this viewpoint in one or another of the modes of expression (i.e, sight, movement, listening, etc.), a concrete expressive result is available for critical examination and appreciation--by the individual student, other students, and the teacher.

In an expressive lesson the teacher wants each student to bring into "view" the best possible expression of thought, feeling, or attitude relative to the topic. The independent (or collective) work on the part of the student leads to creation of an artistic result (e.g., drawing, poem, or sculpture) or an aesthetic experience (seeing, feeling, or touching something beautiful).

The basic components of an expressive lesson are as follows.

The teacher:

- enables the students to become aware of their personal understanding of the topic,
- provides opportunity for students to use a variety of materials for recording or otherwise representing their perspective,
- points out as guidelines the basic standards of form and style that are peculiar to each mode of expression,
- allows each student ample freedom of expression within the particular mode of expression chosen, so long as the result shows respect for basic standards,
- guides each student's work so that the results are acceptable in in terms of content validity and morality.

The use of an expressive lesson does not imply that students are set free to do whatever they wish. On the contrary, the teacher must know the subject and students well enough to realize the latent possibilities for artistic or aesthetic expression among the particular group of students. The teacher must guide the students' work so that it stays within the standards and reaches fruition within a reasonable period of time.

Other terms for this model include: art, aesthetics, and creativity.