THE PLACE OF COGNITION IN EXPLANATIONS OF TEACHING:
A DIALOG OF INTERPRETIVE AND COGNITIVE APPROACHES

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Abstract—This debate contrasts interpretive and cognitive approaches to explaining teachers’
thoughts and actions, exploring epistemological and ontological assumptions that broadly underlie
research on teaching. Fundamental to the discussion is whether cognition should be construed as
individual mental processing of privately held information structures or as a social event in which
thinking is situated, shared, intersubjective, and practical. Also addressed is whether an effective
explanation of teaching can rest mainly on an account of a teacher’s cognition or whether it must
attend equally to an examination of the place in which the teaching occurs and, if the latter, how
place exerts its influence.

What is Cognition—Situated Activity or Mental
Processing?

Martin Packer: Phil, I hope in our discussion
here to sketch some of the general outlines of an
interpretive approach to teaching and to teacher
cognition. I don’t claim any special research
expertise with the topic of teacher cognition but
I shall, given my general understanding of inter-
pretive research, consider how this phenomenon
might be viewed from an interpretive perspective.
By that, I mean research that has drawn upon
semiotic and hermeneutic theory in both the
social sciences and philosophy (cf., Bleicher,
1980; Dallmayr & McCarthy, 1977; Packer &
Addison, 1989; Rainbow & Sullivan, 1979), and
grappled with the fact that human action is
always already understood and interpreted in a
manner both pragmatic and semantic by the
people who produce it, before it is analysed by
a researcher (cf., Taylor, 1971/1979). These
“emic” interpretations are a necessary, if not
sufficient, consideration in social scientific ac-
counts or explanation of any phenomenon (cf.,
Geertz, 1983). My own research has taken a
hermeneutic–phenomenological direction, using
interpretive techniques within a phenomenologi-
ical account of the social world, social agents,
and the institutions and artifacts they have
dealings with (cf., Packer, 1985a, 1985b, in press;
“Packer & Scott, 1992”).

Interpretive research is part of a widespread
rethinking of the nature of cognition taking place
in psychology and elsewhere. For example, a
number of authors have started to describe how
cognition is socially distributed or situated (e.g.,

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Coly & Scribner, 1974; Lave, 1988; Rogoff, 1991; Wertsch, 1985). Here I shall not highlight the social character of cognition, important though it is, but will focus on the manner in which cognition in general, and teachers’ cognition in particular, is materially situated. An interpretive approach to teacher-cognition, I will assert, must consider the fact that the activity and practices of teaching always take place in a setting that is already interpreted and understood; a setting, in fact, that has typically been designed and produced to support and sustain a particular mode of teaching-and-learning. (My hyphens here are a nod to this social activity’s essentially socially distributed character.)

I can illustrate some of what I mean with a play on the words of our paper’s title: The Place of Cognition in Explanations of Teaching. When it comes to explaining teaching, I suggest we consider that teacher cognition is indeed in its place—in its element, so to speak—in the sense that it is typically situated in a particular kind of place. This then is my modest proposal—that one needs to take serious account of the place in which teaching happens.

Teacher cognition research seems not to have paid very much attention to the setting in which instruction occurs. Why would this matter? Well, because a setting exerts what Dreyfus (1991) has called a “governing” or “constitutive causality” on the activities that take place there. (The word “causality” is a little misleading, though, because the effect is not one of material or efficient causation, as I’ll explain.) Setting both constrains those activities and provides resources for them. What goes on in a kitchen most smoothly is cooking, not washing or cleaning; but most of the resources required for surgery just aren’t there. Clock-repair doesn’t go very well in a shoemaker’s workshop. The way in which setting facilitates particular structures of activity is not through the influence of a material causality, in the sense of determining behavior through causal operations. Nor is it a correlation or a probabilistic causality, merely increasing the likelihood of some activities and reducing that of others. A constitutive causality amounts to defining possible courses of conduct, amongst which the person—the shoemaker or cook—can choose (or need not be a deliberate, reflective, planful one).

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**The Place of Cognition in Explanations of Teaching**

P: What does it mean to use a description of cognition in explaining teaching or learning to teach? I believe it means:

1. The teacher thinks.
2. The teacher’s behavior reliably depends on that thinking.
3. Someone (teacher, student, observer) describes the teacher’s behavior as teaching.

M: Phil, you’ve made no reference at all to place here. In your account, behavior is “determined” entirely by internal cognitive processes.

P: Ah, yes, perhaps I began my description too abruptly. Place enters into my characterization because the topics about which the teacher thinks, in the first element of my description include information that re-presents qualities of place—of how the textbook presents curriculum, of a student’s behavior, of noise in the hallway, of students’ grouping, and so forth. Information the teacher thinks about is a joint function of what is in the place of teaching and what the teacher is capable of recognizing or perceiving about the place.

Can we suspend for the moment the obvious question about criteria to use in determining whether what a teacher does is “really” teaching?

M: It’s more a matter of what counts as “cognition,” not what counts as “teaching.” But yes, please continue.

P: Very well. My four-part analysis leads to three main questions when I address the place(s) of cognition in explaining teaching.

1. How does the teacher engage in or carry out thinking?
2. What thoughts constitute immediate processes of processing, or of the pupil’s perceptions within dynamic thinking processes? This is the dualism of cognition as process-and-product that I mentioned earlier.
3. Are there relations between teacher’s thinking and the teacher’s behavior? If yes, what are those relations? Parenthetically, I should note that some would consider the thinking itself to be behavior. I would agree, but for our present conversation, I prefer to treat as separate categories the thinking a teacher does and the behavior we can observe a teacher to enact.

My third question implies an important property of cognition, namely, that we have no direct access to its processes or its immediate products. I’ve implicated a second dualism beyond that in which thinking-as-process produces thoughts-as-products. Thoughts give rise to, that is, may be represented in behavior.

I view these relations among the elements of a teacher’s (and student’s) cognitive and behavioral systems as recursive. In a recursive system, output of a prior phase is input to a following phase. In the dualism of thinking—thoughts, products created by cognitive processes become inputs to subsequent cognition. In the dualism of thinking—behavior, behavior can change the setting in which behavior was enacted, the “place” of teaching and learning. The results of that input to the setting can be perceived, thus entering into thinking a bit down the time stream. In this sense, the place of cognition—a classroom and students, for instance—is elemental in explaining what the teacher does and is a basic element in how the teacher thinks.

P: I like your suggestion that we each describe what we mean by an “explanation.” In part, explanation is a matter of understanding something that was previously strange. But a sense or experience of understanding, while it surely is what we would ask of every explanation, scientific or otherwise, is not sufficient. What is also required—I fully agree with you—is an articulation of the structures and processes that are involved. In explaining, the structures and processes to be considered are not purely cognitive ones in the sense of being internal and mental. The processes about which I am concerned don’t depend on information. Rather, they are social processes that are interpretive: processes that are distributed (to borrow a term from the cognitive realm) across the people involved—teacher, students—and across the setting in which they are involved. Such processes operate not on information but on symbolic and semiotic items: on meaningful speech, texts, artifacts, and people’s actions.

M: Aren’t social processes cognitive at their root? From a cognitive perspective, aren’t they labeling the behavior that results when people share sufficiently similar cognitive structures that prescribe norms for behaving in a particular place or setting?

P: I don’t believe so. You are again putting all structure inside the head. What I am referring to is the practical and material structure of places such as a classroom. Although one can interpret all this as in-the-head cognition, one loses explanatory power by doing this, and finds oneself with a series of logical and conceptual conundrums I shall try to point out as we go along. The structure of a place is not reducible to the structure of people’s mental representations of that place.

The generative source for a materialist interpretation of spatiality is the recognition that spatiality is socially produced, and, like society itself, exists in both substantial forms (concrete spatialities) and as a set of relations between individuals and groups, an “embodiment” and medium of social life itself. As socially produced space, spatiality can be distinguished from the physical space of material nature and the mental space of representation, each of which is used and incorporated into the social construction of spatiality but cannot be conceptualized as its equivalent. (Boja, 1989, p. 120)

P: This would seem to be the key to our differences. Would you help me see its significance from several different vantage points?

M: I’ll certainly try. Central to interpretive research is the belief that any study of people’s activities must begin with a reading of the everydayness of everydayness, with an analysis of “the ways in which symbolic forms are interpreted and under-
stood by the individuals who produce and receive them in the course of their everyday lives" (Thompson, 1990, p. 279). The cognitive researcher seeks to bypass this stage of analysis by treating symbolic forms—utterances, actions, texts, artifacts, and places—as simply "information," which the researcher can describe in just as much detail as if not better than, the participants. The interpretive researcher maintains that semiotic material is not merely "information," and that the participants have special ways of grasping and understanding it that the researcher must try to figure out by means of a variety of ethnomethodological techniques. You seek, I believe, a "lower level" explanation in the sense of reducing behavior to mental operations you presume generate it. I seek a "local level" of explanation, at least at first; that is, I seek an explanation that makes reference to the local situation, to the semantic character of the behavior and the elements it deals with.

P: Your intuition is sharp, my friend. Yes, a hallmark of my cognitively oriented approach to explaining a teacher's teaching is re-presenting it in terms of basic processes and elemental cognitive structures. But, before I proceed that case, please continue. I'd like to understand more about your notions of everydayness and semiotic material.

M: Let me provide you with an example of what I mean. A class I taught recently in a typical classroom, and I'd like to use it as an example of the way in which a teacher's cognition is situated. The classroom has an array of desks—actually tables—and chairs, enough to seat 40 students. I recall walking into this room at the beginning of the year, finding myself faced with what appeared to be 40 students seated in neat rows, all facing forward, with their papers out in front of them. Consider the disciplinary order this kind of seating arrangement entails—the way in which it defines the students as a mass, a group, a crowd, who must be addressed, for the most part, as a group and not individually. If I speak in conversational tones to one student at the front of the class, the others at the back can't hear me. If I sit down, I cannot be seen. So, I choose what is perhaps my one option available to me. I stand up and shout. At one point during the term, we investigated the organization of turn-taking in the classroom. It amounted essentially to the structure that Mehan (1979) has documented in primary classrooms. The teacher (myself or my co-instructor) assigned turns to individual students and used an initiate–reply–evaluate sequence: We called for an answer, listened for the student's reply, and then took back the floor by commenting on (and evaluating) that reply before assigning the next turn to a different student. In large part this organization of interaction was a solution to the imperatives of a seating arrangement where students can see only a few of their peers at a time. Only the teacher, the person at the front of the room, can see them all and, so, is in the most effective position to assign turns. Students come to raise their hands to request a turn, to catch the teacher's attention. And interaction between the students is problematic in this kind of setting. Students face the front, and face the person at the front, so that when they turn and talk to one another—and of course they do, for who wouldn't?—it is hard not to understand this as off-task behavior or as a lack of "proper" attention.

The instructor's place, I've said, was at the front of the class. In fact, the room defined two types of position, and two kinds of agency, with different resources and different constraints, and so two distinct but complementary modes of conduct. One of these, of course, was "teaching," the other, of course, "learning." There was one kind of position at the front of the class, and the person who took that position had access to the overhead projector and chalkboards. Of course I found myself walking toward that position without thought (a hint that the influence of place is not necessarily mediated by thoughtful cognition) at the beginning of the semester, because I had been there before, but also because the resources for teaching were there: the chalkboards, the overhead projector, and the lectern.

There was a second kind of position located at the many identical desks and chairs. Consider for a moment the fact that the students' postures in this place was seated at chairs in this way. Teachers often take this for granted of a classroom, but doesn't it assume that learning is something that can occur in a seated posture? Learning, defined by the setting as what students do, is taken for granted to be mental, so the body is put out of action as much as is possible.

Students stay in their seats, too! When I initiated a class exercise of investigating and criticizing the classroom's space, students started to do this from their seats, in their position. When I asked them why they didn't get up and explore the overhead projector, for instance, they replied that there was a rule in the classroom that only the teacher should use the overhead. I had stated no such rule but, of course, I didn't need to. It was built into the very layout of the room.

What can one do when seated at a desk? Well a variety of things, but writing on a piece of paper seems to come very easily. Daydreaming, too. The students were provided with no resources with which to respond to the teacher beyond the bare minimum of what they brought into the room as到处 individuals: their voices, their hands, their faces. The instructor "owned" the projector, the chalkboards, and the prominent spot in the room. So we might say that this classroom was a setting that defined learning as a matter of sitting still, attending to an instructor, and inscribing messages on paper.

The chalkboard and projector belonged to the person at the front of the room, and they were embodied in the teacher's practice, in the context of the embodiment of the chalkboard, the projector, and the role of the instructor. Students typically accept "unthinkingly" (once again). As instructor I wrote on the overhead projector, often from prepared notes brought into the class, sometimes using a prepared overhead, and the image was projected behind me, write large on the wall. Now the students, en masse, copied what they saw on the projection screen onto their individual sheets of paper. We presumed that, at the same time, it somehow got into their minds as well.

What was going on here? I came to appreciate, after exploring this classroom in an interpretive way, that it embodied a theory of learning that Reddy (1979) has called the conduit theory of learning. The room was organized to support an arrangement of activity where information flows through a pipeline from its source, the teacher, to its sink, the students. The setting—the way the room was constructed, the equipment that was provided to the people who inhabited it—provided specific resources and imposed particular constraints, so that this characteristic activity tended to be reproduced. It was an activity we commonly recognize as teaching, but an activity which owed its origin, I suggest, to the cognition of the people in the room, or at least in the room itself, considered as a semantic structure—which is how the people who were there regularly experienced it. In fact, the activity fits various constraints to the values, beliefs, plans, and purposes of both teacher and students, as a heated discussion amongst participants in the class eventually disclosed. Both the teacher and I believed in active engagement with the subject matter, in cooperative learning, and though we both worked to subvert the dominant mode of our interaction, that mode remained the dominant one, not because of but despite our efforts at planning and thinking. It is a mode that encouraged passive, receptive behavior on the part of the people it defined as the learners: listening, watching, and memorizing; and it encouraged didactic behavior on the part of the person it defined as teacher.

So what I suggest is that an approach to teaching that focuses narrowly on mental processes and ignores the fact that people live and act in a meaningful world will fail to grasp the constitutive role of places like the classroom.

P: I agree that this physical situation, your classroom, "provides" or offers to you and your students, a la Gibsonian affordances, the roles and constraints that you describe. But, I differ significantly as to the origin of these influences. The chalkboard and the projector are artifacts, tools for displaying. The chalkboard is, for instance, can show animations. But, it was not those artifacts that determined the way events unfolded in this place. Rather, knowledge about teaching and learning that was shared among you and your students supplied potential structures for the lesson's unfolding. With respect to how you teach and how students participate, this activity is precisely the opposite of a view of people as tabula rasa. The overhead projector and chalkboard cannot determine that you walk to the front of the room or that students serve as scribes of information that you enter on the chalkboard or an overhead projector. Students engage with your
teaching in terms of their pre-existing knowledge of the subject you teach, understandings about norms of students, and skills for learning from the particular ways you teach. Instead of dutifully copying on to blank pages of their notebooks whatever information you inscribe on the tools for displaying information, they may just as easily be communicating interpretations, build complex understandings, and adjust how they attend to your teaching to reap the most they can from your presentation. They bring and use much knowledge to the place you describe.

The fact that some teachers and some students partake in teaching and learning as if it were a conduit is real enough. But, a teacher and students with different knowledge of learning-from-teaching than is portrayed in the conduit theory might just as readily restructure uses of the tools at hand. For example, students may use them as means by which to take turns posting hypotheses for all, teacher included, to examine; then, use the chalkboard to record whatever inventions are spurred by vigorous analysis by all those in the classroom that arises as those hypotheses are posted. The presence and locations of chalk and projector you don’t decree this format for teaching and learning, either.

My point is that you and your students acted as you did because of knowledge and beliefs you brought into the classroom, a particular organization that is structured by you and me in teaching that you label the conduit theory of teaching. Those mental contents are products of your and your students’ previous cognition, and the behavior that you observed reflected those mental contents as manipulated by further cognition that was responsive to the physical properties of the room. Such mental contents exist in the minds of teachers and students. I claim that what you (and students) know is far more a significant contributor to explaining how you and they behaved in this setting. In the presence of these very same artifacts in that very same room, you and your students could have behaved remarkably differently had everyone thought about that setting differently.

M: Well, Phil, I’m pleased to see that your position has changed here as a result of our discussions. I feel I have convinced you that there are “real constraints” embodied in the material artifacts of the classroom, not just perceived constraints. Of course people are actively engaged in making sense of their setting, but I’m emphasizing an effect that seems, still, not to be part of your account: the constraints, both material and at the same time semiotic, that the equipment and the structure of the setting place on what people can do. Your constructivism is an internal, purely cognitive construction. In contrast, I construct the social, that is, the structure that influences what people do. I think you see all the structure as the result of perception, but even Gibson saw structure in the information stream for perception to find, not create.

P: I must append slightly to your interpretation. Yes, there are “real” constraints of a social nature present in the setting. But, such a constraint won’t influence behavior until someone perceives it. For example, some years ago, a deaf student was enrolled in one of my large lecture classes. After my first lecture, she asked me to stand in a different position in relation to the overhead project so as to reduce shadowing that interfered with reading. This is a social constraint that I readily accommodated, but it needed to be brought to my attention before I could do so. In that first lecture, I took no notice of this constraint.

Perhaps we are at an impasse. Perhaps if I present my own example, we may uncover more clearly how I approach the place of cognition in explaining teaching.

M: I’m sure that would be a good way to heighten the contrast between our perspectives.

P: Well, then, I begin by declaring my goal. Cognition is processing that takes place in the mind. I want to develop models, literally represented events of events that occur in the minds of teachers and students. I believe these cognitive events have behavioral consequences. If I can account for behaviors in terms of my models of cognitive contents and activities, then I have provided an explanation of the teaching (or learning) that was observed.

Here, then, is my example. I observe a teacher asking Pat a question. The teacher waits for Pat to answer and, hearing no answer after 20 very long seconds of silence, redirects the same question to Sam. What accounts for this teacher’s action? I invent cognitive processes to explain how the teacher determines that:

1. Pat will not answer the question within some parameters of acceptability, such as assuring that time is not being robbed from teaching other material in that lesson or that Pat is becoming embarrassed.

2. Some other student, Sam in particular, can and will answer the question.

Both of these judgments entail an elemental cognitive operation I label “monitoring” (Winne, 1985). Inputs to monitoring are two lists of features. Each list describes a “chunk” of information. In this particular instance, one list involves the teacher’s composite of memories about Pat’s previous performance in classes, perceptions about the nature of the question posed at this moment, and perceptions about Pat’s behavior during the 20 second wait. The second list characterizes an ideal scenario in which a student asked a question answers the question in a way that is helpful to achieving objectives of the lesson, and the lesson moves along.

Monitoring is a process that compares corresponding items on these two lists. It outputs information that might be modeled as a list of 1s and 0s, a set of matches and mismatches, or a profile of similarity ratings for the two lists’ corresponding items. These outputs gauge the extent to which the situation as experienced—waiting for Pat to answer this particular question in these particular circumstances—matches the teacher’s plan to ask students questions. Apply wait time, avoid generating unpleasant affect in a student chosen to answer a question, and teach the curriculum scheduled for that lesson.

M: Your example is helpful. I think it reveals some tacit assumptions of your position and how you try to finesse some central contradictions. For example, how did you identify the “features” of your description here? And how do you know that the teacher “determines” these things? You treat them as facts to be explained, but they are themselves the outcome of your assumptions about what is going on “inside” the teacher’s mind. Surely, this is unobservable.

P: Yes, I cannot observe the teacher’s thinking directly. All that anyone can observe (except, perhaps, the teacher) is the teacher’s behavior. To answer your question, I think it’s important to talk of the two parts of your teacher’s “determines” and you smugly in an explanation of the observed behavior, by already describing that behavior as organized in a particular way that makes sense. The teacher, you say, determines that Pat is unlikely to answer, judges Sam more likely, so asks Sam. Can these really be said to be the “facts” to be explained?

They already provide an explanation of the teacher’s behavior.

You also claim that the teacher works with “chunks” of information that include the student’s behavior, the wait time, the nature of the question posed, and so on. What aren’t these “chunks” already highly interpreted accounts of what has happened in the classroom? They seem more like the “output of interpretation” than the input to monitoring. What distinction are you making?

M: Yes, you are partly right. The teacher has engaged in cognition to create a perception of what is happening in the lesson. These perceptions are products, the object-aspect of cognition, that the teacher’s cognition creates. How products come to be, and why these particular products of perception and of monitoring are created rather than others is just what I want to explain.

I might be wrong to infer that these products really exist, but this inference could be checked. For instance, I might ask the teacher if my interpretation is plausible, right, or valid. I don’t see this as an invariable rule to proceeding with my kind of investigation. Can we agree for the moment these are plausible inferences about what is the case?

M: Well, what one considers the input and output of cognitive processes is clearly crucial, but let’s see further where you’re going.

P: Right, I invent a cognitive operation such as monitoring to contribute to a larger cognitive account of the teacher’s behavior. For instance, I can imagine a scenario where Pat is asked a question, the teacher honored an intention to provide wait time during the lesson. If this was the teacher’s intention, what could explain why it fails to be realized in some instances? In some instances, information about what you label the place might match different structures of knowledge that guide the teacher’s perceptions, just as you and your students’ perceptions about how your lesson will unfold might change on discovering a broken light bulb in the overhead projector. Under such a condition, the teacher’s perceptions of the lesson can change, and the overarching intention to use wait time might be adapted to accommodate that local variation. But, I suppose there are occasions when the teacher violates the general intention regarding wait time, and no local conditions appear to the teacher or to me to have changed. How could this happen?
I’ll add one assumption to my model; there is a limit to the number of items in a list of information that a person can consider at one time. Now, I will forget some of my description of the cognitive process of monitoring to explain the teacher’s deviation. If the lists of information to be monitored about the teaching situation are so long that they challenge or exceed the teacher’s limit for working memory, the teacher may momentarily forget to honor wait time. Conversationally, the volume of that moment’s considerations overwhelmed the teacher’s plan. By adopting a model of cognition such as this, I can work toward explaining why the teacher acts as has been observed.

M: Do you notice that your loose definition of cognition here excludes all reference to place? Your approach is only mental; in the head, not in the world. You have a priori excluded the kind of approach to teaching that I’ve begun to sketch. I’m not surprised but we need to keep track of ways our initial assumption might have局限ed your model.

P: I am focusing on mental phenomena, but I am not modeling a teacher who is schizophrenic, literally, out of touch with the world, the place to which you refer. Information the teacher perceives about the place of teaching does affect cognition and choice. I am simply maintaining that it is cognitive processing, such as monitoring under a constraint of limited working memory, that establishes the given basis for how the teacher decides to teach and what the teacher does.

M: I’m having some difficulty reconciling the description you’ve just given of teacher’s intentions, both general and realized in this particular instance, with your earlier model of features input to a matching process. You seem to be shifting between a purposive language and information-processing terms. How do you translate “honoring intentions” into “matching features”?

P: Given a choice between a purposive explanation and one that is a formal, procedural reconstruction, I would be happier with the former. Am I right that you are sure being the latter?

P: Yes, I am developing a formal reconstruction, but it is not merely procedural. My model of cognition explains the teacher’s behavior partly in terms of procedures, IF-THEN rules that enact knowledge. Conditional on circumstances of the moment, the “IFs” of the rule, the rule specifies on action to take, the THEN aspect. Here is a simple example: “If a student has just looked very perplexed at the last statement and IF that statement’s information must be articulated with information previously examined in the lesson, then remind the student of the previous information.” Actions such as this create a kind of connectivity in the mind of the person and, when behavior “follows” such rules, the rules can affect the physical environment. In either case, exercising or “firing” a rule redefines or recreates the given problem, changing its cognitive representation.

But, I also assume there is information in the mind, the products of previous cognition. These include the teacher’s beliefs, knowledge, and, in the case of intentions, goals for the lesson. Particular selections from those kinds of information are manipulated according to stable patterns of thinking, the cognition-as-action as I called it earlier. Depending on information selected as well as the pattern of its manipulation, I predict the behavior I observe.

For example, suppose the teacher’s plan for the lesson includes, among other things, many questions to students. This plan is a large chunk of information that has a particular structure. As the lesson is taught, expert teachers monitor the unfolding events for their correspondence to the overall lesson plan (Leinhardt and Greeno, 1986; Leinhardt, Weidman, & Hammond, 1987) and its goals. In this teacher’s plan there is a particular rule that IF questions are asked, THEN apply wait time. Suppose the product of monitoring whether questions are accompanied by wait time in the lesson is “yes” (or “1” or “mostly”) but, on monitoring a particular question, get one second or two wait time following to students. This plan is a large chunk of information that has a particular structure. As the lesson is taught, expert teachers monitor the unfolding events for their correspondence to the overall lesson plan (Leinhardt and Greeno, 1986; Leinhardt, Weidman, & Hammond, 1987) and its goals. In this teacher’s plan there is a particular rule that IF questions are asked, THEN apply wait time.

Constitutive Influence of Place

M: Well, you are clearly locating all the influences constitutive of place in the mind of the teacher. The meanings of a classroom and its constitutive elements have been positioned as mental events in your account. I can understand and sympathize with your motivation in doing this, but I believe it is an intellectual project that leads into logical contradiction and even infinite regress. It suffers from all the problems of Cartesian dualism. I believe the only way to avoid these problems is to shift to a different level of description and explanation: the level of people’s everyday experience, where they are purposive agents acting in meaningful settings. With this in mind I’d like to try to clarify my notion that place has a constitutive influence on behavior.

When we consider influences on behavior we generally think of the rational or logical or purposeful inferences as mental ones (the cognition which you describe), while the setting can only have a causal influence (the projector’s light bulb has failed; I trip over a chair). What I’m suggesting is that meaning, place, has a rational, purposeful, new constitutive influence on behavior without the mediation of internal mental representations or information-processing. How is this possible? Because the setting always is already a meaningful place. Its elements are always given to perception in semantic terms. [Taylor (1971/79) calls this the realm of “intersubjective meaning”; Bourdieu (Bourdieu & Wacquant, 1992) talking of the “space of interaction” and the social “field” that is “a network or a configuration, of objective relations between positions.”]

P: Do I understand that you imbue physical objects with a capability to create meaning?

M: No, it is human activity that creates meaning. But meaning is a relational property of the place, its artifacts and texts, as these are used and lived among by people. My point is that elements of a place can be more than symbols. They can be a physical space the teacher and students enter the room, that the objects of perception and the elements on which cognition operates already are meaningful ones. In addition, people’s primary ways of engaging these elements is practical rather than cognitive, at least the way you are defining this term.

P: Well, this seems a different view of the “place” of cognition in explanations of teaching than I propose. It seems I still have difficult understanding your worldview.

Your sense of “place”—classrooms, yes—is one of a situation “governs” or exerts “constitutive causality” with respect to people in it, those who teach and those who learn. Your terms imply to me that a place exerts a multivariate constraint on a teacher’s and on learners’ actions, constraints that are both cognitive and behavioral. Perhaps this notion of constitutive causality could be represented as a conditional probability? The force implied by your term “governs” suggests the value of that conditional probability approaches 1.000 on quite comfortable with this representation of your description because it fits very nicely with contemporary views of problem solving in the pres-
ence of constraints (e.g., Mayer, 1992). I would relabel, characterizing your "governing parameter" as given in a problem space within which the teacher addresses the problem of how to teach effectively (and learners address problems of how to learn effectively).

M: If "parameter" is "any of a set of physical properties whose values determine the characteristics or behavior of something (e.g., temperature, pressure, density)" (Webster's) then "governing parameters" is not a good gloss for "constitutive causality"! We'll need to return to these conflicting interpretations.

P: Agreed, I don't mean that parameters are limited to physical items, as in the chairs and other accoutrements that make up the classroom. My notion of problem spaces (problem places?) includes, as well, cognitive resources that can be brought to bear, the problem solver's knowledge and skills. Perhaps these correspond, in part, to the participants' understanding that you claim as part of your interpretive approach.

As well as physical constraints, my constrict of problem space includes the problem solver's cognitive constraints. For instance, these might be a teacher's ignorance about some fact in the world that the problem contains, or the meaning that you locate in the classroom's place, or an inability to recall information that would contribute to solving problems that arise in a lesson. These kinds of constraints seem to parallel your concept of "governance" since they emphasize the limitations and boundaries of problem spaces.

M: My notion of place is also as providing constraints and resources. We agree on that much. But when you state that a problem solver's skills are resources included in the problem space you are talking of a represented or mental space. In contrast, I'm talking of a lived, social space (cf., Lefebvre, 1974/1991). There is a real way in which place defines the problem to be solved, as well as that problem's typical solution, before the problem gets represented by the problem solver.

P: Ah, I see. Your view is "stronger" than mine because you set limits on what a teacher-as-problem-solver can think about, limits determined by the place in which the teacher teaches. I assume you would agree that there are some thoughts a teacher could not have because they are disallowed by the place of the classroom.

M: Yes. More importantly for our discussion here, there are kinds of teaching that are allowed or disallowed by the place.

P: I don't accept that the place, the physical classroom, prevents a teacher or students from thinking particular thoughts.

M: But, there's another issue I would raise. Earlier, you described consisting of IF-THEN rules, their behavior changes in relation to those sets of rules. For a novice, navigating a complicated web of rules requires effortful deliberation at each transition as states of the problem change and a new rule to be identified and applied. As expertise develops, the need for such deliberation to articulate the set of rules diminishes. The packet of rules transforms from a messy, one-step-at-a-time pattern into a smoothly flowing, automatic sequence. This is how I would explain complex decision-making in teaching, such as the teacher who's able to coordinate teaching and classroom management as if there were "eyes in the back of the head." Automated production systems are my models for representing complex teaching skills such as "wisdomness" (Kounin, 1970), routines for handling homework and the flow of classroom events (Leinhardt & Greenson, 1986; Leinhardt et al., 1987), and your approach to the overhead projector at the beginning of your class.

M: Such choices need not be conscious, though equally they may be. (And that would be why your "automatic production system" to occasionally stop and think.) But even if a choice is a planful, cognitive one, the definition of the possibilities among which a choice is made is social, intersubjective, and non-representational. And again, we interpreted the influence of place in terms of rules which I presume you would locate in the head. Or would you be comfortable saying that there are rules in the setting? I expect not!

P: That's right, there are no rules "in the setting" beyond physical laws, such as gravity's pull on a dropped pen. I would say, though, that the possibilities for choice are greater than what you describe as provided in the place of the classroom. This is because the teacher and each student in the setting brings information to the setting—the knowledge, beliefs, and the like—that are not inherent in the setting. Recall my example of the students who use the overhead to post hypotheses rather than as you described the tool's use in your class. With this addendum, your summary is correct.

M: I maintain, though, that if one is trying to explain what happens in an instructional task, say, the setting must be included in the explanatory story. The setting cannot carry the whole weight of explanation, and I'll have some suggestion about other aspects to consider.

P: Yes, I agree with that. The setting is integral to explaining teaching, but we see it making different sorts of contributions.

Enchantment

M: Ah, a good phrase there, the contributions of a place. Scientists and philosophers, at least since Descartes, have sought (and some claim to have found) a way of studying and describing the world that is "free from illusion," that is objective. Such a description involves detached, non-indexical description, and it is accomplished by adopting a "view from nowhere" (Nagel, 1986). Weber (1985), following Schiller, referred the world that Newton and Bacon and Descartes envisioned—or, better, invented—as a "disenchanted" world (cf., Taylor, 1989, p. 500). But, as Bordo (1987) convincingly argues, describing disenchantment resulted from a move to break the ties between "mankind" (and this was, Bordo argues, a male move) and "mother earth." This, he says, has been a "disenchantment" of both anxiety and a powerful sense of autonomy and independence. But the "flight to objectivity" is an illusion, and the autonomy a fantasy. We live, even when we deny this fact, in an intimate, involved relationship with our world, with our setting, for it is the world which sustains us and in which we have our origin.

P: I follow, but I would not go as far as to embrace an implication that a researcher's model, cast in entirely different terms than those of a participant in a setting, cannot faithfully "stand for" the "reality" that you describe those participants experiencing. In a sense, I seek a
parallelism or an equivalence relation such as a mathematician's claims between the figure of a circle and an algebraic expression of that figure. These two presentations are alternative representations of the same concept. It is not that one is "real" and the other is not. My cognitive accounts for teaching (and learning) serve me as the algebraist's expression for the physically drawn circle. My cognitive accounts are representations of the room's properties and the events that occur in it that are intrinsically supplemented by the person's knowledge. Perception is a fusion of these two sources of information, an act that creates re-presentations of information.

M: Again, you cast the world as product of cognition. This is the Cartesian view, one shared by many modern cognitivists: that the world is just a physical arrangement that provides a streaming array of information, and that objects and values are the products of our cognitive processing of that information. No, I must insist, on the contrary—the classroom, properly considered as a lived experience provides the terms and elements on which cognition operates. If there are features that teachers think about, as you claim, they can only be understood, I propose, as standing out against, and constituted by, a background that is the classroom as an inhabited place.

P: I agree with you that the classroom provides some terms and elements on which cognition operates. These are objects and events to be perceived in terms of a perceivers' knowledge, and that may be acted upon in thought and behavior once the perceivers have judged what is in the classroom. The products of such cognition, and the actions in teaching that flow from that cognition, change the environment in two ways. They change the teacher's mental contents, thus creating new information upon which a teacher may perceive and act subsequently. And, when the teacher acts, the environment may "respond", thereby providing raw material for new perceptions to be constructed. This serial interplay among cognitive processes, the cognitive products created by those cognitive actions, and the behavioral upshots of that thinking constitute a recursive and reciprocally determined system.

M: I'm not sure how you're defining "recursive" and "reciprocally determined." In your model, outputs eventually become inputs, it seems, but I'm suggesting that the classroom is structured in a manner that directs and constrains the way the teacher and students can act and think in it. Do you agree?

P: Yes, but only to a degree. When the teacher (or a student) is aware of such constraints, those constraints shape thoughts and subsequent actions, as I mentioned earlier about constraints in problem solving.

M: Where by being "aware" you mean "information-processing cognition," I assume. But how do you explain the fact that the "features" are already meaningful and interpreted?

P: I don't think I have to explain that! From my viewpoint, the physical features in the classroom don't have meaning inherently. Until the teacher cognitively processes information that you put into the category "enchanted", I claim that such objects and other features of the place cannot affect anything. Perhaps the janitor who cleaned the room last night holds that a particular placement of the waste basket is significant, but if this is part of the room's intrinsic enchantment, it won't influence the teacher's teaching or the students' learning unless the teacher cognitively engages with where the waste basket is located.

Structures: Cognitive or Intersubjective?

P: I'd better present more about what I mean by structures of information and how I theorize such structures are involved in information processing. The object-like qualities of the concept of cognition suggest that "things" are created by and input to dynamic cognitive processes. Alexander, Schallert, and Hare's (1991) extensive review highlights almost too many such structures that are common in instructional psychology: facts, concepts, propositions, schemata, frames, scripts, and many other labels populate the literature.

Structures of information are central in my approach to explaining teaching. A teacher lacking a schema about wait time would perceive the situation I described previously differently "in the first place" and, therefore, teach differently. This teacher would monitor different information during the event where Pat is asked a question than would a teacher who has a schema for wait time. These two teachers monitor the situation, literally, in different terms. Although the upshot—redirecting to Sam the question initially put to Pat—might be the same, these teachers engage in different cognition because the information they each process is different.

M: Your terminology is indeed multiplying! You've added "schema" to features and lists. I propose by your claim that different teachers would perceive the situation "in different terms." I thought the terms were "features" of the situation; aren't these inputs to monitoring, and so the same for different teachers? Do different teachers perceive different features, in your view, or select differently from the same features? Or both?

P: Ah, I do need to say more about features and schemata (the plural of schema). Think of what I have labeled a feature as a "unit" of information. One feature of your classroom is that there is an overhead projector at the front of the room. Another feature is that desks are arranged in rows facing the front of the room. Schemata are arrangements or patterns of multiple features (e.g., Sowa, 1984). You have a schema for a "typical" classroom; it's the collection of its features and their arrangement that you described earlier. This schema is what you use when cognitively processing information about a particular classroom. When you see a physical setting that matches the set of features comprising your classroom as you do, but, because I monitor these sense data in relation to a different schema than yours, I might teach differently than you. You and I construct different perceptions given the same physical stimulus, and we each would behave in respect of those meanings that we constructed.

M: Just as I thought! Here's the mixing of levels of description I referred to earlier. You want to say both the teacher "perceives" the projector as "at the front of the room," and also that it is, objectively, at the front of the room.

But how can you know the latter claim is true? The "input" and "output" of cognition have become the same thing.

Furtmore, it seems that a researcher could never identify the information "input" to cognition if that information differs from person to person. The researcher cannot assume that his or her perceptions of features are identical to those of the people participating in the research. Those peoples' cognitive structures must be described before the way they perceive the situation can be discovered, but describing the structures would seem to require knowledge of the information input to them.

P: Ah, this is an old philosophical problem. To do it justice would require me to make a labored and long argument about the possibility of ever conversing or of whether there is a reality. This takes us far afield. Will you set aside that complaint?

M: It's an "old" problem because no one has ever solved it, and it points to an incoherence in cognitive theories of knowledge and action. But I can set it aside for now. A second response I have to your outline of a search for cognition as knowledge structure and process is that it is cast in what I view as an "ethic" form. That is to say, although teachers themselves might use some of the individual words that refer to elements of the model you seek—words like "information" and "monitoring"—the cognition you are describing, if it exists at all, is an event about which they have extremely limited access to, or even reason to talk about.

Teachers I have talked with have never spoken of the list of features that you claim are part of their perceptions of classroom situations. The descriptions they give are narrative, metaphorical, and interested. Your features seem intended to be analytical, literal, conceptual, and disinterested. Perhaps I'm attributing more than you intend, but clearly your mention earlier of 1s and 0s was chosen to invoke imagery of the binary processing computers are designed to carry out. The teachers becomes a Turing machine, on this account, and the reader of the idea derives in part from the notion that the Turing machine is a "universal" machine, and can simulate all forms of information-driven processing: and so surely teaching.

P: You say, "Teachers... have never spoken of the list of features that you speak of". Is it
contemptible of me to complain that perhaps you haven’t asked the right questions? My colleague Ron Marx and I (Winne & Marx, 1982) found that teachers as well as their students do indeed talk “of” such things, although they use a vocabulary different than found in the literature of education. Marx and I were able to find very strong correspondences between their and our terms, but I would describe theirs as less “sophisticated.”

M: But when you ask them, surely they report the “output” of their cognition, not the “input”? And in what sense do you consider your vocabulary “less sophisticated”?

P: Both teachers and students described what they perceived as inputs. They mentioned questions asked and answers given, sequences of events, and various happenings salient to them. But, you are quite correct that since, in my view, information must be cognitively processed before one can behave relative to it, information that they described as inputs are in fact outputs of perception.

What I mean by the qualification “sophisticated” is that teachers’ and students’ words and phrases sometimes referred to factors that researchers would choose to separate or qualify. I do not intend anything pejorative here. Metaphorically, teachers and students spoke of chemical compounds that Marx and I analyzed into constituent elements.

Finally, I would be remiss to leave the implication that the teacher is a Turing machine. I am modeling only one concept of such concepts. As is true of any model mine does not fully reproduce a teacher’s cognitive processing of information. After all, the model is not the teacher; it is a model of some features that may explain the teacher’s behavior. Are we at a Kuhnian impasse about this, trying to converse in inherently incommeasurable terms?

M: I see the limits of your account not so much as an incommensurable clash of paradigms, but rather in terms of limitations of mechanicistic and logical models to explain human actions and intentions. The processing of information by formal rules excludes, by design, any references to the circumstances in which the rules operate, the intentions of the person applying the rules, and so on. It is the operation of a formal code, which has no semantics and excludes all indexicality and self-reference. A variety of people working with an interpretive perspective have suggested that any such code is necessarily socially and historically situated (e.g., Rotman’s study of mathematics, 1993). Your project, as I understand it, involves an attempt to specify meaningful and situated actions in the meta-code as formal operations in the code. I believe that this is an impossible project; at least, so much is excluded and neglected that it is a worthless project. The offense intended! It suffers from the circularity I’ve pointed out, defining input in terms of structures and structures in terms of input.

P: I take your evaluation in good spirit. It will be interesting if you can build such a case. But, I think you will not be able to that. You strip out of the rules of which I speak the semantics that clearly are intrinsic to them. The mental terms that make up a rule’s IF-conditions have meaning because they exist in relation to other mental terms.

In your classroom, for instance, you exercised a rule whose IF-conditions recognized the presence of an overhead projector as a tool for teaching in a particular way. You described a schema that you have for that object in that place. That schema is the object’s meaning: information about setting, operators (it must be plugged in and the switch turned on), what it does (project information on a wall) and how you could use it (by writing some but not other phrases on the plastic roll) for a particular purpose (such as guiding students to record particular information in their notebooks for later re-analysis). You learned this meaning for overhead projectors—their characteristics, functions, and purposes—and, enlarged my appreciation of your methodology and your domain—enlarged my appreciation of your paradigm. And, you invite me to consider new perspectives about my own teaching. But we clearly differ about how we might explain teaching in such a setting. I believe you think of the walls, the furniture, and its arrangement, and particularly the people, with qualities that are, to my thinking, a bit “odd.”

M: Odd, perhaps, but that doesn’t mean my account is wrong.

P: True enough. You write about students seated at desks, “What can one do when seated at a desk?” Well a variety of things, but writing on a piece of paper seems to come very easily. So you enforce that this classroom is a writing setting that defines learning as a matter of sitting still, attending to an instructor, and inscribing notes on paper.” And, later, “the room defined . . . two kinds of persons or agency, with different resources and different constraints.” When interpreting what happened when you assigned students the exercise of investigating their space, you wrote: “. . . students started to do this from their seats, in their position. When I asked them why they didn’t get up and explore, for instance, the overhead projector, they replied there was a rule in the classroom that only the teacher should use the overhead. I had stated no such rule but, of course, I didn’t need to. It was built into the very layout of the room.”

I reject notions that objects like a projector or an entire setting “defines” how its inhabitants move it is some kind of manner of learning. People—you and your students—do the defining. You are the knowers of usual uses of objects and the agents who enact rules common to settings. What underlies your and your students’ behavior is the structures of knowledge that is carried out when you find yourself in particular circumstances. People—you and your students—learn and remember these structures because you strive to make sense of the setting and then behave in ways that create structures for teaching and learning.

M: You say you “reject” my position, but can you demonstrate it in your classes?

P: I think so. The verbs I scarce quote are verbs of intention. Inanimate physical objects don’t have intentions. People who create such objects have intentions for how others will perceive them and interact with them, but whether a teacher uses an overhead projector as a leitmotiv instead of a projector is up to the teacher. The tool doesn’t define the user’s behavior. I can use a hammer as a paperweight, for instance. If you consider that the hammer, whatever mass and, thus, affords paperweightiness, then inherent in the hammer’s existence are all possible uses of it, those that have occurred in human history and those not yet realized. These are in virtue of its existence. Since not all possible uses of a hammer have yet been observed, you’d have to take a position that, just because you haven’t yet observed them, they exist nonetheless and those as-yet-unobserved events prove your claim. If the hammer thus admits any possibility—being a musical instrument, a work of art, an ingredient in some preparation of food, a counting device—it constrains none. Hence, an argument about the situation of being “in the presence of hammer” does no useful work. It constrains nothing, and it proves nothing.

The qualities you observe are not inherent in the physical room—they emerge from an interplay of knowledge, perceptions of the setting, and the new information created by thinking and injected into that setting as agents act. Knowledge and perceptions are mindful things that are animated by engaging primitive and learned cognitive processes. Cognition is the heartbeat of teaching and learning, not the room and chairs’ arrangement and the presence of an overhead projector.

M: How do you know this? Don’t you simply assume it? It seems an unquestioned assumption that defines the cognitive perspective. A tool like a hammer or an overhead projector defines possibilities that are like the modes of vibration of a stretched string: There will be one mode of vibration that is most efficient and so is seen most frequently (the dominant), but an infinite number of other possible modes of harmonic vibration exist. In the same way the hammer admits infinite possible uses, but not all uses, and at the same time defines the cognitive perspective. Tool one typical usage. (More accurately, it’s not the hammer alone that does this, but the hammer in the context of its equipment setting.)

I don’t mean to suggest that cognition is totally irrelevant to teaching, or that the setting somehow determines what happens in a classroom though a causal operation the way gravity determines that a pen will fall. What I want to suggest is that the setting—the place of teaching—defines permitted lines of conduct. It establishes a normative framework which people take for granted. What is permitted isn’t the same as what is necessary, or determined, nor is it the same as what is conceptually possible. What is permitted is what is called for by the setting.
Raethel (in preparation) makes a similar point:

The shared or common knowledge encompasses neither just what is formally possible nor simply what has "really" happened. Rather it contains points of contact to future possibilities in the strong sense: Something that is not there but may be worked out by collective strain of body and mind. Please note that this sense of "possible" is totally different from what it used to mean in the Newtonian worldview. In this classically modern scheme, the possible is some point or linear stretch along a mechanically determined trajectory which is "really" off in time, yet already present as the assumed destiny of the system laid down by its "eternal natural laws." In the pragmatic and semiotic perspectives, however, the possibilities are just within reach of the actors. They are signs lying around, reverberating in the air, or being staged just at this moment of time inside the community. They may be taken up at will, and then taken further as pointers to attainable consequences, either in a logically disciplined theory, or in change daily practice, or in the precarious coordination of both.

The rules of a game provide a partial analogy here. Games like chess and football have both regulative and constitutive rules (Searle, 1969; Taylor, 1971/1979). The latter "create or define new forms of behavior...they create the very possibility of playing such games" (Searle, 1969, p. 33). They define what counts as "checkmate" or a "touchdown." The constitutive rules define permitted moves in the game, but don't determine the sequence of moves of any specific game. The analogy is only partial, because in most social activities "one is born into the game, with the game" so that we no more learn its rules than we learn the grammar of our native language (Bourdieu, 1980/1991, p. 67). But the classroom is a setting in the same way that a chessboard and a football field are, with defined roles and a default mode of conduct.

Thompson (1990) puts it this way:

To say that a field of interaction or social institution is "structured," in this sense, is to say that it is characterized by relatively stable symmetries and differentials in terms of the distribution of, and access to, resources of various kinds, power, opportunities and life chances...[The social features of the contexts within which individuals act and interact...are not merely the elements of the environment within which we take place, but are constitutive of action and interaction, in the sense that individuals routinely and necessarily draw upon, implement and employ the various aspects of social contexts in the course of acting and interacting with one another." (p. 150)

P: I view these matters very differently. For example, I disagree with your interpretations of the blackboard and the overhead projector as "embodiments of the empiricist theory of mind as tabula rasa," as blank slate or clean piece of paper, upon which experience writes.

The blackboard and the projector are artifacts, tools for displaying information. Physical laws constrain the information they can display—neither can play music or present an animation. These facts are part of what I understand you to mean by your notion of "governing cause." But this is a relatively minor force in the overall government of the behavior you observe. People's knowledge about teaching and learning are what underlie those events. There is no dictation by these artifacts about how teaching or learning interact and unfold. As I suggested earlier, students are not forced to be scribes of information presented on a chalkboard or an overhead projector. They are free, they exercise will, and may just as readily construct interpretations and build complex understandings of information enunciated on these tools.

M: But Phil, you have chosen to work within a paradigm where such influences are judged impossible from the outset, so that their examination is never sanctioned. Students are not "forced" no, but they are encouraged: They "play the game.

P: I reply that they "play a game" they know. Students from another culture of schooling might just as readily use these exact tools to take turns posting hypotheses, as I described before. The chalkboard and projector and their locations in the room don't decree a social structure. Nor is students' search for sense—their learning—constrained to an out-of-class review of notes.

M: The conduit theory of learning that is embodied in my classroom places the teacher at the front with privileged access to resources that enable him or her to conceptualize (literally and metaphorically) information along a one-to-many channel to the students who receive it, write it down, and memorize it. And interaction that takes the form of one-to-many channeling, not itself the result of thinking on the part of teacher or students, defines the terms in which they think, by defining the norms that any changes are departures from, by defining the manner of teaching and learning that is taken for granted, and so it may narrow students' responses to a passive information processing.

Ontology and Epistemology

M: Issues of both teaching and the explanation of teaching are usually pitched at an epistemological level, in terms of what is known, but it is necessary to consider also the ontological level, the kinds of entities that we assume people and objects are. I don't think you'll deny that you assume a Cartesian dualism—you assume people have (or are) a mental existence that objects lack. Information is obtained from events and objects in a material realm, and then that information is processed to establish representations—information structures; schema, and so on—in a separate mental or cognitive realm.

The first diagram (Figure 1) shows what I've called the "ontological blueprint" that I believe is at work in your account. Knowledge and cognition are assumed to go on in this mental realm, but this leads to all sorts of confusions about how knowledge gets from mind to world, how we can check its veracity, how what's in one person's mind can influence what's in another's. How can people even communicate, let alone teach and learn from one another?

The interpretive framework, in contrast, begins with a non-dualistic ontology. The second diagram (Figure 2) shows the ontological blueprint for this interpretive framework. In this picture, the teacher and students both take positions within the structured setting of the classroom. They encounter classroom phenomena, events and objects, from different perspectives, and they grasp them practically and "project" them in terms of the practical activities they are engaged in, understanding what happens in the classroom in skilled, practical, and concerned ways. The curved line indicates that this is not a visual projection, but a throwing forward, a temporal movement, in terms of an active "project."
order (Berger & Luckman, 1967, pp. 48–52), in which they find themselves occupying socially
defined positions that are not of their own making or choosing, positions of nationality, class, gender, ethnicity; and roles such as
“teacher” and “student” which, even when
chosen, are defined in ways over which they have
little control. I don’t mean to suggest that this
world has not been shaped and structured by
prior human activity. But people enter or are
born into places that have already been con-
structed more often than they play an active role
in the construction.

People are embodied beings inhabiting a struc-
tured social world, not mental beings observing
a material universe. Objects and other material
entities are not simply occupiers of space with
objective properties. They are artifacts, products
of social practices: equipment, tools, signs,
representations, texts, and so on. The fruits of
intelligent human activity, they can play an
active role in phenomena typically considered
purely mental. Memory, for instance: “The world
of objects is ordered—a plane in which culture
can be read—so the ‘subjects’ and ‘organized
settings’ which Bartlett saw as determining
features of remembering can be explicated in
their technical, artistic or functional forms”
(Radley, 1990, p. 55).

P: You are right that I post information is
obtained from events and objects in a material
realm, and then that information is processed to
establish representations. I would post as well
that, in perceiving the teaching environment, the
teacher is simultaneously projecting on to the
environment to “grasp sense” in it. While sensory
reception is a “realist” event, perception is a
constructive cognitive process. We might say
“monitoring” doesn’t sound like an
active engagement with the environment. “Fea-
tures” are input to monitoring; where’s the
“active grasping” here? The classroom is already
a structured setting—structured by interpersonal
interaction, by social practices, by institutional
organization, by the social and economic organ-
ization of the society of which it is part. Here
I’m touching on the way the relationship be-
tween behavior and setting is two-way, recipro-
cal; setting provides the meaningful elements to
which our action (and thought) responds, but our
activity can both reproduce and transform
that setting. My ontological blueprint, a snap-
shot in time, cannot show this reciprocity. A
more complete account would consider the ways
the settings are designed and constructed to
facilitate particular modes of social relation and
activity, and the ways this activity reproduces
(typically) and transforms (more rarely) its set-
ing.

P: You are right that monitoring, per se, is
not active engagement with the environment. It
is a cognitive waystation between perception that
precedes monitoring and action that follows it.
The teacher in my example monitored Pat’s
behavior in relation to an ideal question-answer
scenario. Here is engagement with the environ-
ment, a seeking after meaning that is inherent in
acts of perception. After monitoring, the teacher
acted on the basis of cognitive products produced
by monitoring, engaging with the environment
as agent within it. In the middle, the environment
was re-presented in cognitive acts of monitoring.
And I would alter your phrasing in describing
a teacher’s interactions with students in a class-
room setting. From my perspective, it is not the
setting that “defines permitted lines of conduct.”
Rather, information that the teacher perceives
about the setting stimulates knowledge that, in
this setting, particular events are normative. The
difference between our views is critical. The
teacher, in my view, does not necessarily and
surely perceive the classroom or a teaching-
learning event in but one way, the way “permitt-
ed” by that setting or “defined” by some rules
of a game. The teacher’s (and students’) knowl-
edge and the relations between that knowledge
and information perceived about a setting estab-
lish possibilities for behavior in that setting.
Then, the teacher decides (another cognitive
event) what to do.

M: I am questioning your assumption that
there is a “brute-data” description of the setting
that can be provided in “information-process-
ing” terms—this is the non-indexical, literal,
description you believe the teacher works with,
unawares, and that you as researcher can iden-
tify. (Consider, for one thing, that cognition is,
after all, a “late” accomplishment both
phylogenetically and ontogenetically—unless
you are maintaining that all organism–environ-
ment interaction amounts to information-pro-
cessing.) Cognition rests upon levels of interac-
tion—physical, chemical, biological, and social
forms of bodily, affective, and conative—with and
in the world understood as a meaningful environ-
ment. It is in this sense that I call the world “en-
chanted.”

P: I must try to be clearer. Yes, there is a
“brute-data description,” one of light quanta and
sound pressures. This, however, is the basis for
neither a teacher’s cognition nor teaching be-
havior. The teacher’s perception of that brute-
data description is the input to cognitive events
that establish grounds for behaving. Am I under-
standing what you mean by “non-indexical de-
scriptions”?

M: Indexical expressions are ones that point
to or point out entities in the world, and so their
meaning cannot be described without including
a description of context. Simple examples include
“here,” “that one,” and “I.” But Phil, are you
suggesting that perception is not a cognitive
activity? That it is, somehow, outside the infor-
may, everything and nothing, everything in the
world but itself, but itself, in the world.

P: I do believe that we are not far apart in
that a teacher’s perception seems to be inherently
indexical. It relates to what is in the world, but
it does so in a manner that simultaneously relates
to contents of the teacher’s cognitive structure.
In other words, I’m suggesting that part of what
you refer to as context is knowledge the teacher
uses in perceiving a setting.

M: I know. But you are putting all the context
inside the head as background knowledge. I
think this doesn’t work; it creates an endless task
for the researcher, spelling out all this knowledge
in formal terms (cf., Dreyfus, 1979).

P: Ah, we’ve met this dilemma before. Perhaps
if I try another question about who is recognizing
the world as enchanted? If the teacher (or student)
does that, how is the process of arriving at a
view of enchantment different from the process I describe? How is the enchantment itself something other than a proposition (belief) that "figures" into Turing-like cognitive computations about "what's what?"

M: You're assuming that the enchantment of the world is an epistemological matter; that it is something we know or recognize. But I'm making an ontological claim first of all. The enchantment is non-propositional in two respects. First, it's not individual or personal, but interpersonal or intersubjective—it is a shared cultural manner of living in the world. Second, its operation is not just factual but also evaluative, it provides what Taylor (1971/1979) calls the "strong evaluation" upon which people base their sense of self.

P: You characterized enchantment as a process, a "manner of living" and an act of "evaluation." I view such processes as thoughtful ones, realized as cognitive processing that is fundamentally dependent on (a) what there is to perceive in a classroom, regardless of what anyone in particular thinks about them, and (b) how a teacher and students carry out their thinking that creates for each of them, their own understanding of that setting. It is this thinking that I want to describe or model through my research to explain teaching.

M: And I see these processes not as ways of thinking, but as ways of being: ways of engaging in the world; ways of relating emotionally and bodily, that shape our thinking but are not properly reducible to thinking.

P: Perhaps we begin to repeat. Shall I try to sum up?

M: Yes, please do.

What Place(s) Does Cognition Have in Explanations of Teaching?

P: Teachers' and their students' cognition—the action-and-object concept of cognition that I discussed—provides a primary account of teaching and learning. Teachers with different knowledge will perceive teaching differently. Teachers with the same knowledge also may teach differently if they engage in different cognitive processing of the knowledge that is similar among them. To explain teaching, I strive to understand what a teacher knows, what a teacher perceives about the classroom and its elements—students, text books, teaching tools, and so forth—and how the teacher thinks with this information. I believe that a valid representation of a teacher's knowledge and perceptions, and a powerful model of what cognitive processing with that information, can be used to predict and explain why a teacher teaches as I observe.

M: We've just scratched the surface of our respective positions. Given more time and space I would like to describe the different modes of engagement teachers and students have with the place of the classroom, the foro-structure of a researcher's interpretation, and the connections between interpretive and participatory research. But we've already brought to light some significant differences in the assumptions that guide and organize our research. I've found this an enjoyable, challenging, and engaging debate!

P: As have I. In closing, I think it appropriate to reflect on the nature of our talk. In his book Philosophical Explanations (1980), Robert Nozick questions the aims of much scholarly interchange. He wrote:

("Philosophers hold that) arguments are powerful and best when they are knockdown, arguments force you to a conclusion, if you believe the premises you have to or must believe the conclusion, some arguments do not carry much punch, and so forth. A philosophical argument is an attempt to get someone to believe something, whether he wants to believe it or not. Why are philosophers intent on forcing others to believe in things? Is that a nice way to behave toward someone? I think we cannot improve people that way—the means frustrate the ends. The valuable person cannot be improved by committing philosophy upon him."

I believe we have debated much less combatively than those philosophers to whom Nozick refers. We do have much more to discuss, though. Shall we retire for coffee?

M: Yes, indeed. I know a wonderful place...

References


