

Learning as a Members' Phenomenon: Toward an Ethnographically Adequate Science of Learning

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This chapter argues that for the science of learning to become a fully *human* science, it needs to move from viewing learning from an exogenous perspective to an endogenous one. Taken from Latin, the term *endogenous* translates roughly to “from within,” and in the meaning I give to it here, it refers to a perspective on learning from the perspective of learners. The exogenous approach examines learning “from without,” and it is the dominant approach to understanding learning in the field, from Thorndike’s behaviorism to the current day.

We can readily recognize the exogenous approach to documenting learning because it is employed in much of what we consider standard educational research. First, there is the identification, by an analyst, of a dimension or variable that to the analyst counts as a worthwhile capacity. Second, there is the construction of a “test” (which might be administered in a school or experimental context) of that capacity that is intended to measure the learning of a subject. Third, a subject’s performance on the test is then compared at two or more points in time. Under this *exogenous* approach, learning is recognized as having occurred if the later test performance is better than the earlier test performance. What could be simpler? And why is an alternative needed?

To specify the limitations of the exogenous approach, consider all the possible learning events in person’s day. These include all the events—at home, at work, in the grocery store—in which the interaction between you and other people, or the interaction between you and a nonhuman

entity like a computer, a coffee maker, or tree, involves or requires some kind of learning. How, when confronted with a new cell phone, do we learn to use it? How do we learn to talk to our children about difficult things that we've never before discussed with them? How do we learn to balance the use of our time across a day when confronted with a change to our responsibilities at home or at work? Now take this hypothetical sample of a single person's daily events, small and large, and multiply them by the number of people on the planet. And now stretch many of those learning events *across* days, given that so much of what we learn can only be understood as temporally extended events. How well can the exogenous approach to learning capture this vast universe of events?

Exogenous documentation of learning is largely an administrative science and not an ethnographic one, taking place on the time schedules of designated authorities (e.g., policy makers, administrators, teachers, and psychologists), concerning topics of interest to these authorities, and being judged by criteria and with instruments that come from these authorities. Exogenous assessments almost necessarily involve a long timescale of expert development, and they seek to document capacities that various normative institutional forces have deemed important—like algebra or punctuation. As such, exogenous assessments are ill-suited to capture learning events that emerge in the practical concerns of everyday life, either in or out of school. An endogenous science of learning, on the other hand, would be one whose focus is the documentation of learning as it is co-constructed in and across events between people, and between people and things, in everyday life. It would analyze these events “from within.”

ROOTS OF AN ENDOGENOUS SCIENCE OF LEARNING

Among the major assumptions of an exogenous science of learning is that schools are a primary institution, and probably *the* primary institution, in which learning takes place. Looked at exogenously, from outside, what else would schooling be about if not learning? Looked at from the perspective of an endogenous science of learning, though, it is crucial to establish rather than take for granted that learning is in fact what schooling is about, from the perspective of those on the inside. Indeed, there are a number of theoretical precursors to an endogenous approach to learning that call into question this basic assumption of the exogenous approach. In the 1970s, Howard Becker published a provocative essay posing the question of whether a school's self-identified function as the place where learning happens might not be its actual function (Becker, 1972/1986). Becker's essay argued along two lines: that (a) “school is a

lousy place to learn anything in” because of the structural organization of schooling, and (b) other settings might perform school’s designated function better, inviting a search for and specification of the qualities of such settings. In sum, Becker’s essay opened up space for thinking that the problems of schools as learning environments might not be problems of poor quality teaching or curricula, or of faulty students within a properly structured social organizational context, but rather of a faulty social organizational context for promoting the core phenomena of learning.

Two decades later, Lave and Wenger (1991) were even more explicit in challenging the assumption that schools are a primary or necessary site for learning, and they conceptually decoupled learning from officially designated sites for teaching so as not to take “intentional instruction to be in itself the source or cause of learning” (p. 41). Such a position invites taking learning as a starting point and looking for what conditions create it. This hardly rules out the possibility that learning might occur in and through teaching interactions, but rather proposes an analytic heuristic to guard against a common sleight of hand in research on learning that allows artful teaching performances or experiences with seductive new technologies to become proxies for learning. This is not, though, an argument that schools or other formally designated learning contexts are not potentially relevant to an endogenous science of learning. They clearly are, and in fact, next I examine learning in a classroom interaction. The point, rather, is to argue that learning, wherever we claim that it takes place, must be shown to be a mutual concern of participants.

The work of Becker (1972/1986) and Lave and Wenger (1991) is central to developing an endogenous science of learning in that they have done crucial conceptual work showing limitations of the exogenous approach and thus the need for an endogenous approach. What their work does not offer, though, is sufficient guidance in how to analytically identify learning events “from the inside,” which requires attention to the interactional details of how those events are constructed.

We can find further guidance for identifying and studying learning events in conversation analysis and ethnomethodology, which are among the most systematic approaches for an endogenous analysis of social life. Harvey Sacks (1967/1992) argued decades ago for treating any particular social activity as a “members’ phenomenon” rather than as “one of those things which, as social scientists, we construct and manage?” (p. 516).

Sacks (1967/1992) used the term *formulate* to identify how participants in an activity construct and sustain an event as some particular phenomenon like learning. As Sacks noted, the formulating of an event as an event of a particular kind recognizable to members is generally not done

through direct statement. For example, it is unlikely for someone to state, "This is, after all, a group therapy session," because such a direct formulation would likely do other work in an interaction, like "put someone down for something they just said . . . [or] invoke a status hierarchy" (p. 516). This suggests that people have ways of orienting to an event as a kind of event without directly naming it as such. Conversation analysis has shown how, in the details of talk in interaction, formulating happens as participants, turn by turn, accomplish "doing" a particular activity or phenomenon. This framing from Sacks and conversation analysis can help to bring an analysis of learning down to the level of interactional events. To treat learning as a members' phenomenon (LAMP) is, in part, to use the techniques of sequential analysis to establish that an activity *is for its participants a learning event*. Although Sacks was not concerned with learning as an activity, he offered a generalized conceptualization consistent with those of Lave and Wenger and Becker that decouple particular settings (like schools) from the activities that take place "in" them (like learning).

In the remainder of this chapter, I develop concepts and techniques for conducting research on LAMP. This examination is anchored by a detailed analysis of a single interactional segment. My analysis of this segment leads me to treat this as a simplest case of LAMP, thus establishing something like "criteria for an ethnographically adequate" account of *learning*. The phrase "criteria for an ethnographically adequate" and the spirit of my analysis borrow from an earlier pioneering analysis of "concerted activities" in a classroom by McDermott, Gospodinoff, and Aron (1978).

Before exploring the technical details of a stretch of interaction that exemplifies LAMP, it seems worth sketching how an understanding of members' methods for doing this could be of practical use. If, as argued earlier, the planet is buzzing with learning events every day, then the means by which people organize moments for their own learning or have events in which they are enrolled organized for them by others could be very important. For example, what difference might it make for two different children if one can formulate events with relative ease so as to be put in a position to learn something while the other child lacks this social-interactional competence? For the work of people who teach as a profession, might not the ability to recognize the ways that prospective learners seek to formulate or invite learning events be critical to their ability to provide help and guidance? Following Sacks's observation that formulation is rarely done directly, perhaps the truly successful teachers (in professional or everyday life) have a range of strategies for formulating an event as a learning event without doing it directly, thereby not for-

mulating it as one imbalanced in terms of knowledge or power. Parents who have tried to “teach” something directly to their children learn quickly that they need to teach by more indirect means. For these reasons, and all manner of interactional delicacy and subtlety that they imply, it is important to understand the qualities of learning events as formulated by people together in naturally occurring activity.

LEARNING AS A MEMBERS’ PHENOMENON: A SIMPLEST CASE

What it means at a most basic level to treat LAMP is to show that the participants to an interaction initiate, orient to, and sustain that event as a learning event. How do people do this, and how do they do it when the events in question involve learning? For purposes of demonstrating an analysis of an event in which learning is a members’ phenomenon, I have selected a short segment involving two seventh-grade girls working together in a mathematics classroom (Figure 1). In this analysis, I will show how the two participants together formulate the setting as a learning and teaching event, sustain the event, and display mutual orientation to the completion of the event as one that has involved learning. It all transpires quickly. Few researchers interested in disciplinary mathematics learning or who frame their interests in terms of conceptual change are likely to find this a particularly compelling or interesting learning event in terms of its “content,” but that is not the point of this analysis. The point is to show how people do learning and teaching together and to

Figure 1. Marsha (upper) and Cathy (lower) with the Area and Perimeter poster, positioned in the image under Marsha’s hand



display the interactional resources they use to do so. If criteria for such an analysis can be worked out, then these criteria can be made use of wherever learning scientists wish to take them, including situations that involve different disciplinary content.

To set the scene for the segment of interaction analyzed in detail as an example of LAMP, the following description of events may be helpful. The classroom setting was a project-based mathematics classroom in which seventh-grade students worked in teams on a variety of activities. The girls who participated in this interaction were members of a student team. The other members of the team were two boys who were at the moment working on another activity at the group's computer in a nearby part of the classroom. A key element of the work environment was a poster that the team had made and turned in to the teacher a week or so before. Making the poster had been part of an assignment designed to help students understand the systematic relationship between area and perimeter for rectangular polygons. What the students had been expected to do was to draw a collection of rectangles and then determine the area and perimeter of each. The intent of the assignment was to have students discover that as figures tend toward a square, they maximize area and minimize perimeter. At the time of the original assignment, the student team had hurriedly turned in a version of the assignment without addressing this assigned issue, and so it was returned to them with the directive to properly complete it.

Rather than fix the assignment as instructed, one of the girls (Marsha) took the reappearance of this poster as an occasion to learn what was actually presumed in the assignment: how to see and calculate area and perimeter in the first place. Just before Segment 1 (which follows), the students had discussed how to calculate area for the figures on the poster. That involved counting up grid squares. As this segment begins, Marsha turns back to the team table after a brief social aside with a student at the neighboring table and asks her teammate Cathy how to "do perimeter." Because the transcript segment is short, it is presented in its entirety and then analyzed turn by turn in what follows.

- 1 MARSHA: Wu- Ok. Area that's area right? And then perimeter, how do I do perimeter?
- 2 CATHY: You add ^othis like one ₁ two three four five six seven, you know ₂ add the sides.
- ₁ ((counting sides of one figure))
- ₂ ((hand makes rotating motion with finger pointing))

- 3 MARSHA: So I go like this ₁ one two three four five six seven eight nine ten?²
₁ ((counting on sides of figure WITH PEN?))
₂ ((looks up to Cathy))
- 4 CATHY: No ₁, you have to add right ₂ here. One, two three four five six seven eight nine ten eleven twelve thirteen fourteen fifteen sixteen=₃
₁ ((takes pen from Marsha))
₂ ((point to edge of linear segment))
₃ ((lays down pen))
- 5 MARSHA: ₁=seventeen₂.
₁ ((points to a segment on the figure))
₂ ((picks up pen))
- 6 CATHY: Seventeen.
- 7 MARSHA: Wa- wait. ((laugh)) ₁ One two three four five six seven eight nine ten eleven twelve thirteen fourteen fifteen sixteen _{2 3} Otay.
₁ ((counting edges of figure with pen tip))
₂ ((quick glance up))
₃ ((Marsha writes number "16" on poster))
- 8 MARSHA: ₁ One two three four five s::ix seven eight nine ten eleven twelve thirteen fourteen fifteen sixteen seventeen eighteen nineteen twenty twenty-one twenty-two₂
₁ ((begins counting with pen tip))
₂ ((writes "22" below figure))
- 9 MARSHA: ₁ One, two three four five six seven eight nine ten eleven twelve thirteen fourteen fifteen sixteen₂ eighteen₃
₁ ((begins counting with pen tip))
₂ ((taps where "seventeen" would have been audibly counted))
₃ ((writes "18" immediately after finishing count))

Turn 1 displays one of the devices and perhaps one of the more likely quite general devices by which people seek to organize learning—by asking someone else “how to do” something, which in this case was how to “do perimeter.” Such requests can, of course, be accepted or rejected. Marsha’s request for instruction in Turn 1 is met in Turn 2 with an immediate response from Cathy—a direct demonstration of how to do it. Thus, in just two short turns, Marsha and Cathy have placed themselves provi-

sionally in the reciprocal positions of learner and teacher. One hypothesis about how such a quick mutual orientation could have come into coordination across these complementary roles would be to guess that these roles had been assigned in the classroom, as perhaps a variant on reciprocal teaching. However, that was not the case, making this clearly a collaborative course of action organized by and for the students.

As a piece of instruction, Cathy's demonstration in Turn 2 is technically incomplete in the sense that her demonstration counts only some of the sides of the figure and then provides what might be called an "etcetera closing" (Garfinkel, 1967). This etcetera closing (indicated gesturally with a circular motion and with the words "you know add all the sides," Turn 2) suggests that Cathy, as the teacher, viewed herself as having provided sufficient instruction for Marsha to understand the operation of how to count all the sides based on the partial count she had provided. To use a term from the conversation analyst's lexicon, this represents a display of "recipient design"¹ (Sacks, Schegloff, & Jefferson, 1974) of instruction, with Cathy having made some judgments about what was needed for Marsha to understand.

In Turn 3, Marsha displays further evidence that she is orienting to this as a teaching and learning event with herself positioned as a learner. As she starts to perform the doing of perimeter, she poses a question that asks whether the performance she has organized for Cathy to witness is correct. Further evidence that both parties are orienting to this as a teaching and learning event rather than alternatively as collaborative work on a shared task—which is what the teacher requested—can be seen in the fact that Marsha attempts to count the perimeter *on the same figure* that Cathy has just used as demonstration. This single figure on the poster became a de facto demonstration object with which Marsha can learn and Cathy can teach how to do perimeter. Had the interactants been oriented to this as a collaborative endeavor of fixing the poster as assigned, Cathy could have completed the count on this figure, with Marsha then moving on to the next. That they did not indicates that their shared orientation to this joint activity was instructional, not primarily instrumental.

In response to the instruction, Marsha completes a count on the demonstration figure (Turn 3). Marsha constructs her turn as an interrogative by prefacing the count with a rising intonation on "so I go like this," which sets up Cathy to comment on the acceptability or correctness of the counting performance embedded within the question. This turn, too, can be seen as maintaining the mutual orientation to this as a learning and teaching event, with Marsha and Cathy occupying the respective positions of learner and teacher. At the completion of her count, Marsha

provides a precise moment for Cathy to comment on her performance by raising her eyes from the paper to Cathy's face. Cathy further marks the turn exchange boundary, and the beginning of her invited assessment, by taking from Marsha the pen that she had used to tap out the sides of the figure as she counted them.

Cathy begins her requested assessment with a bald negation, stating "No" followed by a revised or repaired piece of instruction. Her explicitly pedagogical orientation to interaction remains evident in the redesign of the instruction by Cathy. Not only does Cathy complete a count this time, rather than simply repeating herself by providing the etcetera closing, but she also adds another element to her instruction. She disciplines Marsha's perception (Stevens & Hall, 1998) by pointing at an edge segment with the pen, in coordination with the words "right here," thereby seeking to guide Marsha's attention to the relevant feature of the figure that Marsha had seemingly missed during Cathy's prior demonstration. Again, this represents some exquisitely organized recipient design of instruction by Cathy, making both of these changes in response to what she saw Marsha perform. At the end of the turn, Cathy maintains the orientation of the event, giving Marsha the opportunity to perform the counting action again by laying down the object that has come to represent "having the floor" in this teaching and learning moment—the pen that each has been counting with. The pen has become this turn-exchange device without comment by either participant.

As Cathy lays down the pen, there follows what is, from the perspective of the methods of interaction analysis, a somewhat puzzling pair of turns (Turns 5 and 6). As Cathy is completing the revised instruction, Marsha attempts to collaboratively complete the count of the figure, latching her talk onto Cathy's last count of sixteen and adding "seventeen." It would seem a reasonable hypothesis about Cathy's knowledge in this moment that she knows that the correct count is not seventeen, yet in Turn 6, she sequentially affirms Marsha's mistake by repeating "seventeen." Why might Cathy have done so, especially in the context of recent turns in which she has baldly negated a mistaken count by Marsha?

One interpretation of these two turns suggests further delicacy and untutored expertise on Cathy's part as a responsive teacher. If one considers the goal of teaching to be to help another person learn to do something, there are typically two components: One involves showing or demonstrating to that person how to do whatever it is, and the other is ensuring that the person can actually do it, which means organizing a situation for him or her to try to do it and probably try again. Arguably, in this moment, Cathy was pursuing the latter goal, providing for Marsha the echo of her wrong count as encouragement to proceed with the

count herself. Marsha had already laid down the pen, the now established turn-taking exchange device for this event. Cathy's verbal echoing of an incorrect count might have been a similar sort of move to encourage that. The prosodic aspects of Cathy's "seventeen" further this interpretation of it as an affirmative echo, even after laying down the pen after completing the count at "sixteen."

Regardless of how we interpret this turn exchange, Marsha rather quickly questions her own count (saying quickly, "wait, wait"), ignoring the affirmation from Cathy of "seventeen," and begins to count on the demonstration figure again with the pen tip. This time she counts the figure and arrives at "sixteen," as did Cathy. One of the more important actions, and one of the smallest in this segment, occurs here in Turn 6, Action 2, when Marsha quickly glances up at Cathy after completing her count. This glance can be interpreted as continuing to maintain the joint orientation of teacher and student. The glance can be taken as a question about whether she can proceed with her count, and when the glance is met with no response from Cathy, the question can be considered answered affirmatively by Cathy's lack of response. This is what conversation analysts call an "accountable absence" (McDermott & Roth, 1978; Mehan & Wood, 1975;) in the temporal context of the sequential unfolding of the interaction, and this absence is accountable in the sense that it says, "go ahead." Without guidance or direction from Cathy, Marsha then takes a novel action, recording the count *in writing* next to the figure and punctuating that with a confident and playful "Otay."

Turn 8 continues the movement of the segment toward Marsha's increasingly and mutually affirmed ability to "do perimeter" in the context of this particular material context. Notably, after completing the demonstration figure, she neither looks up at Cathy for affirmation nor sets the pen down, but continues onto the next figure. Over just eight brief turns, within which the participants have nonetheless been working at intricate and coordinated interactional detail, the quality of this teaching and learning interaction has shifted; now Marsha is "doing perimeter," and Cathy is looking on. In the final turn (Turn 9) that is included in this segment, Marsha completes one more figure, making the count in an evidently sing-song way, which is a tone used to indicate that what she is doing has become easy. One detail of this last count points toward further development of Marsha's "doing perimeter"; she drops one of the audible counts out ("seventeen") but maintains the sequence of embodied actions of counting, then picks up the final count and answer of "eighteen."

This brief nine-turn sequence is offered as a paradigmatic example of LAMP. It is likewise a sequence whose analysis displays a teacher (i.e.,

Cathy) of considerable attentiveness, interactional delicacy, and efficiency, though a teacher with no professional training whatsoever. It is learning and teaching “in the wild,” to borrow Hutchins’s (1995) evocative phrase, even though the setting, an American middle school mathematics classroom, is one where we might expect to find “tame” interactions. From this benchmark example, let us now extrapolate and explore the implication of treating LAMP.

ISSUES AND FUTURE DIRECTIONS FOR AN ENDOGENOUS SCIENCE OF LEARNING

An endogenous science of learning is founded on an alternative conception of learning to the exogenous conceptions prevalent in educational research. That approach treats learning as something to be seen and evaluated from the outside, in contrast to being viewed as a members’ phenomenon. That approach is one that, because it is defined from the outside, requires specially administered instrumentation, specialized expertise, and validated materials to create the conditions, realization, and recognition of learning. By contrast, an endogenous approach is one that requires researchers to reconstruct and interpret moments of action, as they occur, and as interactional partners initiate and sustain learning events.

The alternative I propose here and exemplify briefly through one criterial example locates the phenomena of learning “outdoors” (Geertz, 1982), beyond the narrowly defined situations created ostensibly for learning within institutional settings, yet “inside” the contexts that people themselves formulate and sustain as learning. Learning phenomena seen this way, it is hypothesized, constitute most of the moments of a person’s learning history and that learning which is most relevant to the conduct of everyday life. Working from this hypothesis, what new issues does a learning science founded on LAMP bring to the fore, and what new challenges does it present?

OTHER IMPORTANT TYPES OF “LEARNING ARRANGEMENTS” THAT NEED TO BE DOCUMENTED

The empirical example presented is clearly a prototypical “learning arrangement” (Stevens, Satwicz, & McCarthy, 2008). It involves two people in what Kendon (1977) called a facing formation, jointly focused on a single course of action. There are certainly many other arrangements, varying on dimensions that include, among others, their spatial configuration, the number of parties to the interaction, and the type of relation-

ship that exists between the participants. Clearly, other more complex learning arrangements need to be analyzed from a LAMP perspective.

LEARNING EVENTS THAT SPAN MULTIPLE NONCONTIGUOUS MOMENTS IN TIME

The timescale on which the learning event presented here is brief, less than 2 minutes. The analysis of the segment of interaction as an example of LAMP relied on a basic condition of much ethnomethodological and all conversation analytic research, namely a *sequential analysis* of two or more people in a *temporally contiguous* segment of interaction. That sort of data object allows the analyst to “recover” a segment of interaction as a particular “emergent course of action” (Macbeth, 1991, p. 284) through documentation of how coparticipants create and renew a particular context—in this case, a learning and teaching event.

An important methodological question involves how an analysis of LAMP would proceed if we deprive the analyst of this sort of data object on which conversation analyses rely—the temporally contiguous interactional event. Such an extension seems necessary, because many learning events are quite evidently not bounded within single moments, however extended. These learning events are composed of different temporal events, somehow connected across time and space. How might we find evidence that still meets the criterion of treating LAMP but nevertheless connects moments across time? In other words, in those cases in which learning is not a temporally bounded short-term event (as in the simple case presented here), but one extended over time, how do members themselves connect, stitch, and build together moments of learning as an extended achievement over time and place? Over the last decade, there have been calls for such an approach (Lemke, 2000) and some attempts to provide methods to address this problem, where the topic is either explicitly learning (Bricker & Bell, 2010; Stevens, 2001a, 2001b) or the closely related phenomenon of language socialization (Wortham, 2005), but clearly this is early work in progress for a program of research that takes LAMP as a core principle.

LEARNING AS A MEMBERS' PHENOMENON WHEN THE COINTERACTANT IS NONHUMAN

Another issue for a program of work that treats LAMP involves how one would analyze a learning arrangement when the interacting elements are not multiple human actors, but a single human actor and nonhuman artifacts. Could evidence for LAMP be found in such interactions? A clue

as to what sort of evidence might form the basis of such an analysis is suggested by the data example analyzed in this chapter. The idea of redoing an action, recognizably “the same” and at the same time “under repair”—as was the case with the repeated counts on the demonstration figure—exhibits one such a learning orientation in an interaction between people and an artifact.

THE CHALLENGE OF AN ECOLOGICAL ACCOUNTING OF LEARNING EVENTS IN THE WILD

It is a commonplace view among those who maintain an exogenous view of learning and its assessment that any version of the detailed, ecological interactional focus on learning and teaching proposed here is fundamentally impractical as a mainstream enterprise. One apparent basis for this view is that it takes too long, when compared with the analysis of pre- and posttest data or preformatted worksheets, to analyze recorded interaction. A glib reply to this is that perhaps you get what you pay for in terms of time spent. A more circumspect view, with an eye to the potential complementarity of the endogenous and exogenous approaches, reminds those who count things that it is essential to know what you are counting, whether you are counting the right things, and whether what you are counting as the same things are indeed the same.

We will never have an ecological account of learning if we cannot establish a systematic approach to seeing it and documenting it “in the wild.” Locating instances under the ethnographically grounded criterion of members’ phenomenon is one way to go about gathering specimens. In relation to the purported impracticality, one wonders what the contemporary community of research biologists, especially in this era of shrinking biodiversity and all that implies, would say about views that it is too expensive or too time-consuming to document the diversity of species and distribution of life forms on the planet and that we ought to stick with studying forms we already have in zoos and to study these animal species only on the schedules of the zookeepers. If human learning represents a major key to our survival on the planet, it seems to deserve a similar ecological accounting and all that entails with regard to the distribution and “topology” of learning events in everyday life.

A NEW FORM OF EXTERNAL VALIDITY AGAINST WHICH TO EXAMINE ACHIEVEMENT DATA

The institutional machinery of test giving and recording remains in full force as an administrative science. Building a comparable portfolio of

people's learning events (both collectively and for particular individuals) as they are distributed over time, space, and different participant structures and located through the criterion of LAMP would create an informative lens to recast and understand the meaning of a person's institutionally maintained "achievement" record.

Creating such records alongside traditional achievement data would enable a form of comparative analysis that compares children's achievement records with an analysis of the collection of learning events that they navigate into and out of on their daily or weekly round. Such comparisons would provide a check on the external validity of the official record, as the following hypothetical cases suggest. Suppose for example, a child whose school achievement record is poor displays evident attempts to arrange learning events relevant to schoolwork, but that child lacks the social-interactional competence, social capital, or social infrastructure to successfully arrange these moments. Would such a child truly deserve to have an educational achievement record called his or hers alone (McDermott, 1993)? Or suppose that child displays an enormous capacity and intention to participate in learning events, but just not school assignments. Would we wish to pronounce this student less capable or less motivated than higher achieving children, or would this require a different sort of explanation that might take us into this child's own imagined futures and his or her sense of the value and payoff of school? In contrast, envision another child with an impressive academic record, for whom an ecological survey of her learning events discloses a dizzying set of opportunities and realized occasions for help, practice, scaffolding, refinement, and new experience. Again, would that record be hers alone, or would it better be understood as a property of the child's distributed network? Such critical endogenous evidence about the assessment of learning should in turn push those who take an exogenous approach to documenting learning to design new and better measures. Beyond the conceptual benefit of setting official achievement records in a new light through comparison of everyday learning (whether in school or out), such analyses would have potential practical value for the adults who are entrusted with the learning of children across their lifespan.

What is proposed as an endogenous science of learning is not a project of instrumentation but of disciplining our perception to phenomena that are already before our eyes but that we have lost the capacity to see, because we've been led to believe and act as if learning is an administrative expert's province. We can no longer depend exclusively on the apparatus of the administrative science of learning to tell us what our children know, what they can learn, what they want to learn, and what they must learn. Our children deserve the right to find, see, and make their own

learning. Treating learning as a members' phenomenon and building out the science of learning as an endogenous one is one way to refresh it as a truly human science.

Note

1. "By 'recipient design' we refer to a multitude of respects in which the talk by a party in a conversation is constructed or designed in ways which display an orientation and sensitivity to the particular other(s) who are the co-participants" (Sacks et al., 1974, p. 727).

References

- Becker, H. S. (1986). *Doing things together: Selected papers*. Evanston, IL: Northwestern University Press. (Original work published 1972)
- Bricker, L. A., & Bell, P. (2010). *Linguistic markers as evidence of interdiscursive learning in youth talk across encounters*. Manuscript in preparation.
- Garfinkel, H. (1967). *Studies in ethnomethodology*. Englewood Cliffs, NJ: Prentice-Hall.
- Geertz, C. (1982). The way we think now: Toward an ethnography of modern thought. *Bulletin of the American Academy of Arts and Sciences*, 35(5), 14–34.
- Hutchins, E. (1995). *Cognition in the wild*. Cambridge, MA: MIT Press.
- Kendon, A. (1977). *Studies in the behavior of social interaction*. Bloomington: Indiana University Press.
- Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge, England: Cambridge University Press.
- Lemke, J. (2000). Across the scales of time: Artifacts, activities, and meanings in ecosocial systems. *Mind, Culture, and Activity*, 7, 273–290.
- Macbeth, D. H. (1991). Teacher authority as practical action. *Linguistics and Education*, 3, 281–313.
- McDermott, R. P. (1993). The acquisition of a child by a learning disability. In S. Chaiklin & J. Lave (Eds.), *Understanding practice* (pp. 269–305). New York: Cambridge University Press.
- McDermott, R., Gospodinoff, K., & Aron, J. (1978). Criteria for an ethnographically adequate description of concerted activities and their contexts. *Semiotica*, 24, 245–275.
- McDermott, R. P., & Roth, D. R. (1978). The social organization of behavior: Interactional approaches. *Annual Review of Anthropology*, 7, 321–345.
- Mehan, H., & Wood, H. (1975). *The reality of ethnomethodology*. New York: Wiley.
- Sacks, H. (1992). Omnirelevant devices; setting activities; "indicator terms" (February 16, 1967). In G. Jefferson (Ed.), *Lectures on conversation: Volumes I and II* (pp. 515–522). Oxford, England: Blackwell. (Original work published 1967)
- Sacks, H., Schegloff, E. A., & Jefferson, G. (1974). A simplest systematics for the organization of turn-taking in conversation. *Language*, 50, 696–735.
- Schegloff, E. A. (1993) On talk and its institutional occasions. In P. Drew & J. Heritage (Eds.), *Talk at work* (pp. 101–134). Cambridge, England: Cambridge University Press.
- Stevens, R. (2001a, April). *Documenting learning within and across moments*. AERA presidential invited symposium, annual meeting of the American Educational Research Association, Seattle, WA.

- Stevens, R. (2001b, April). *Within and across moments: The help ethnomethodology provides for respecifying "learning."* Paper presented to the Culture and Communication Seminar Series, Harvard Humanities Center, Harvard University, Cambridge, MA.
- Stevens, R., & Hall, R. (1998). Disciplined perception: Learning to see in technoscience. In M. Lampert & M. L. Blunk (Eds.), *Talking mathematics in school: Studies of teaching and learning* (pp. 107–150). New York: Cambridge University Press.
- Stevens, R., Satwicz, T., & McCarthy, L. (2008). In-game, In-room, In-world: Reconnecting video game play to the rest of kids' lives. In K. Salen (Ed.), *The ecology of games: Connecting youth, games, and learning* (pp. 41–66). Cambridge, MA: MIT Press.
- Wortham, S. (2005). Socialization beyond the speech event. *Journal of Linguistic Anthropology*, 15, 95–112.

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