ABSTRACT. Most empirical investigations of ‘informal learning’ either arbitrarily operationalize the term or take people’s common sense notions of the term as the basis for their claims. Few studies to date have problematized the phenomenon itself with reference to its accomplishment in moment-by-moment interaction. This article draws on detailed analysis to make claims about the nature of informal learning as a distinct speech-exchange system with features of both formal pedagogical communication and everyday conversation. The analysis shows how two novice computer users can collectively construct a Zone of Proximal Development for their learning. I discuss ambiguities of informal learning, the difficulties of computer-mediated learning interaction specifically, and the political significance of shared control over turn-allocation. I conclude that analysis of informal learning as a speech-exchange system is useful and that learning can be understood outside of expert–novice relationships. The broader social implications of this are that hierarchical knowledge/power relations are not necessarily definitive of the learning process. This, in turn, provides support for the claim that informal learning may be a means of transforming rather than reproducing knowledge forms.

KEY WORDS: computers, expert–novice relations, informal learning, sequential analysis, social transformation, speech-exchange systems

Introduction

In this article, I am interested in exploring the practice of informal learning to better understand its nature as a phenomenon, as well as to understand its significance for social transformation from the standpoint of subordinate social groups. In the field of education and training, learning that is not formally organized has gained enormous research attention in the last decade and half. This learning takes on particular significance because of its relatively recent
identification as central to harnessing the capacities of employees for economic purposes (e.g. Betcherman et al., 1997; Boud and Garrick, 1999). This learning has taken on a wide range of names including 'informal', 'experiential', 'situated' and 'incidental' learning, and has been approached from an equally diverse range of theoretical perspectives including humanist, constructivist, Marxist and post-modernist (e.g. Boud et al., 1985; Candy, 1991; Foley, 1999; Garrick, 1998; Lave and Wenger, 1991; Livingstone, 1999; Marsick and Watkins, 1990; Usher et al., 1997). Many have chosen to revitalize and build upon established concepts such as Tough’s ‘self-directed learning’ (1979) or Schön’s ‘reflective’ learning (1983).

What emerges quite clearly in a review of this literature is that the phenomenon has proven slippery, difficult to assess in empirical investigation. To the degree that it is studied empirically, most often researchers are dependent on learners’ common sense accounts of their own learning. It is imputed to exist with little or no explanation of its actual modes of accomplishment. Only rarely, as in studies utilizing situated learning, ethnomethodological/conversational analysis (EM/CA) and activity theory (e.g. Engeström and Middleton, 1996; Luff et al., 2000), are naturally occurring examples of practice studied.

Garrick (1996) has made the effort to survey the philosophical underpinnings of these varied terms and approaches. He has gone so far as to sort them into three theoretical camps: the experiential learning approach, the progressive adult education approach, and the postmodern approach. However, another reading of the same sources, one inspired by EM/CA, can produce an alternative set of distinctions that can make a valuable contribution to our understanding of this mundane form of learning in its own right. In these terms, an article by Bittner (1974) provides a useful starting point. He focused on the concept of ‘organization’, but we can just as easily substitute the notion of ‘informal learning’ in its place. For Bittner, researchers were faced with three basic methodological choices:

He [sic] can, for one thing, proceed to investigate formal organization while assuming that the unexplicated common-sense meanings of the terms are adequate definitions for the purposes to study as a resource for studying it. He can, in the second instance, attach to the terms a more or less arbitrary meaning by defining them operationally. In this case, the relationship of reference between the term and the facts to which it refers will be defined by the operations of inquiry. Interest in the actor’s perspective is either deliberately abandoned, or some fictitious version of it is adopted. The investigator can, in the last instance, decide that the meaning of the concept, and of all the terms and determinations that are subsumed under it, must be discovered by studying their use in real scenes of action... (Bittner, 1974: 75)

Bittner’s last approach sets the stage for the following study of informal learning. That is, I am of the view that when researching ‘informal learning’ we should neither begin with a technicist’s ‘operationalization-and-go’ approach, nor should we make presumptions that merely confuse the topic of study for the resources used to study it while taking common sense understandings of informal learning at face value. Rather we should look carefully at what people actually do together.
This study builds on earlier work in which dominant themes within theories of adult learning are problematized (Livingstone and Sawchuk, 2000, 2003; Sawchuk, 2003). These pieces establish the claim that learning theory is composed of an articulating ‘bloc’ of dominant threads or biases that deny, denigrate or ignore the everyday capacities of subordinate social groups. In this article, however, I elaborate on the possible meaning of the concept of informal learning by analyzing the machinery of conversational interaction between two men who are learning a computer software application (specifically the ‘merge’ function of a word-processing software) informally. I wish to ‘bracket’, as phenomenologists say, dominant intellectual positions as well as common sense notions pertaining to the nature of learning as a phenomenon, in particular, the notion that suggests learning is an individual psychocognitive act defined by expert–novice relationships.

The opening move in elaborating the concept of informal learning in this way involves turning the phenomenon into an open question. For this I make use of a basic analysis of speech-exchange systems. This type of analysis can be related directly to notions of learning as conceived in the cultural–historical (soviet) psychology of Lev Vygotsky and more contemporary activity theory approaches (e.g. Engeström et al., 1999). From this approach, learning appears on two planes as opposed to one. First, learning appears on the plane of social interaction, and second on the plane of higher cognitive functions of the individual. This argues that learning is defined by processes of mediated action and social participation rather than merely cognition (Wertsch, 1985), thus making it available as an object of inquiry for traditions such as conversation analysis (CA). It is a process of cultural–historical activity that is described well by Vygotsky’s concept of the ‘zone of proximal development’ (ZPD): ‘the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers’ (Vygotsky, 1978: 86). To be clear, the analysis in no way depends on interlocutor’s local vernacular pertaining to ‘informal learning’ or anything of the kind. From a basic cultural–historical perspective, what participants consciously make of the situation does not provide an adequate account of the learning process.

However, to follow through we must also problematize common presumptions surrounding the definition of ZPD: namely, whether or not learning in the ‘zone’ necessarily requires a more knowledgeable or skilled other. Expert–novice relationships and the apparent requirement of a more skilled other, I contend, represent a hegemonic principle in the field of learning, training and education (cf. Bernstein, 2000; Sawchuk, 2003). They are an organizing principle of educational institutions, and as such they’re at the heart of processes of social reproduction, including the reproduction of social inequity from the standpoint of subordinate social groups. Thus, the political significance of this study ultimately relates to the recognition of a plurality of human knowledge production as legitimate. In fact, I maintain that recognition and development of this plurality
upsets the uneven distribution of legitimacy in relation to knowledge production practice, and in so doing, in principal, upsets how power functions in society (Foucault, 1980). In an effort to demonstrate aspects of this plurality, I later show how two novices can ‘learn’ together (as prosaic as it sounds) by collectively constructing a ZPD.

As I have implied through the use of Bittner (1974), the analysis finds inspiration in the insights of EM/CA, though by including discussions of power I have necessarily departed from its traditional scope.1 An important contribution of the EM/CA tradition to the clarification of the concept of ‘informal learning’ is to be found, not only in its roots in phenomenology and ordinary language philosophy (Garfinkel, 1967; Garfinkel and Sacks, 1970; Heritage, 1984; Psathas, 1995), but also in its sensitivity to the domain of the tacit, the ‘seen but unnoticed’ methods of accomplishment that make up everyday life. In the later transcript, interlocutors are only tacitly aware of the interaction they are accomplishing, despite the fact it is essential to their goals of ‘computer learning’. It should be clear by now that if we were to think of learning in the conventional sense, EM/CA would have little to offer us. ‘Learning’ as such would be considered a gloss for a range of invisible and inaudible processes. However, understood as a speech-exchange system EM, and in particular CA, can offer a great deal in their appeal only to those warranted facts recoverable directly from the data (as it is these features that are available, moment-by-moment, to the interlocutors themselves). From this orientation, as Heritage (1984) explains, the task is to directly analyze the construction of the action as it is played out frame-by-frame where it will seem orderly and methodical only because of the method and order that interlocutors themselves have produced.

In sum, I want to show how learning can be understood as a collective accomplishment limited or enabled by local social procedures. CA specifically requires careful attention to the minutiae of communicative interaction. As such, the substantive content of conversation is not the central object of analysis. Rather, semantic and syntactic analyses become relevant in the context of the active process of social negotiation and sequencing. Drawing on the strength of EM/CA, in a sense, poses a very productive challenge to the types of analyses of informal learning I cited at the outset. It focuses us on informal learning in terms of ‘real-time’, moment-by-moment interaction. To my mind, those new to micro-analysis will gain an invigorated appreciation of what it means to accomplish knowledgeability vis-à-vis the interactional ‘expertise’ required of ‘novice’ learners. Through this we see how conventional notions of expert/novice relations need not be definitive of the learning process, and, finally, that this finding has important political dimensions as well.

The study

In the following analysis I draw on some of the most basic concepts from CA to explore computer learning interaction.2 As Moerman and Sacks say, ‘[f]or
studying conversation per se, dull materials are best’ (1988: 68), and in these terms the transcript I use is of high quality. I comment on the semantic and syntactic organization of interaction but focus primarily on sequential analysis of the informal learning practice of two men, ‘Larry’ and ‘Roger’, learning computers. The computer lab is a space for learning but is not organized as a formalized classroom with a teacher, a lesson and evaluation. Instead it is occupied by learners and a facilitator who suggests relevant topics and then leaves learners to carry on alone. Thus, as I found, learners worked in a unstructured mix of individual, paired and/or group activity based on topics of mutual interest.

Transcript 1 accounts for approximately 40 speaker changes (lapses, gaps and some overlapping talk make this number approximate) which is, I argue, a single strip of talk. This claim is warranted, I argue, for a number of reasons. First, there is, in fact, only one ‘opening’ sequence in the entire 30 minutes. Second, there is a strong continuity of topic (the interlocutors remain focused on the ‘merge’ function of the software). This is central to my overall argument because if seen as two separate strips of talk there is no sharing of control over turn-allocation; seen as a single strip of talk I can substantiate the claim that there is shared control over turn-allocation. Control over turn-allocation, as the literature on pedagogical talk suggests, is indicative of the role of the ‘expert’, as well as a type of power relationship (Mehan, 1993). I claim that ‘informal learning’ shares qualities of ‘formal classroom interaction’ (McHoul, 1978; Sinclair and Coulthard, 1975), and ‘everyday conversation’ (Cheepen, 1988; Sacks et al., 1974). More specifically, it exhibits a form of topic continuity similar to school-based (expert/novice) speech-exchange systems but which is not seen in everyday conversation. And, it exhibits shared control over turn-taking that is often associated with everyday conversation but which is not seen in school-based speech-exchange systems. Furthermore, though it describes a learning process, the speech-exchange system examined later also lacks most of the procedures described by Sinclair and Coulthard (1975) and Burton (1980) as properties of pedagogical talk.

TRANSCRIPT 1: TRANSCRIPT OF INFORMAL COMPUTER-BASED LEARNING

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1 R: ((looking at L’s screen then turning body to L’s computer))
2   Uh:::, excuse me Larry? (1.0)
3 L: What’s that?
4 R: Could you tell me how can I go to the, uh::, merging. (1.2) To
5   merge one? ((pointing to his screen; L looking away from
6   his screen toward R’s screen))
7 L: You finished the typing right?
8 R: Yeah (4.0) Should I go to the tools? ((while R is moving mouse
9   pointer to menu; activates pull down menu))
10 L: That’s a good one. (2.2)
11 R: Then go to merge? ((moving through menu highlighting
12   selection))
13 L: ((pointing to R’s screen)) Why don’t you go straight to
```
merge. (then R highlights an option) n::::::.
L: Why don’t you try that merge there. I’d try that.
((L pointing to R’s screen while talking; R highlighting merge option))
=Yeah [merge
R: Merge. yeah ((R clicking on merge selection; R’s computer
jumps to new screen))
L: Let’s see what happens.
R: There?=
L: =Yep.
R: And click on the thing?
L: Yeah click on that yeah, then it’s going to get the merge
one (1.4) ((R highlighting selection on screen)) yeah, you highlight it.
R: =The one ((movement of mouse))
L: The second one ((R’s screen changes)) okay, then select (2.8) and now:::::
(2.8) Now what? (2.0)
R: Did it merge it?
L: No, uh:::::: (2.2)
R: Try this and trying to merge it? ((pointing to his own screen while talking))
L: Is it done? I don’t think so. Didn’t do the stuff
putting one a:::nd two together? (5.2) Oh::::: I’m not sure. ((turning
to face/shoulders to his own screen)) °Sh:::::it. Wow° (3.0)
R: But is not the correct way?
L: What’s that? ((turning to R))
R: It’s not correct?
L: This is not the right way? ((L turns to look for
facilitator)) (5.0)
R: Yeah ( ). (6.2) °Third, third° ((L turns to look at R’s screen)) (3.8)
L: ((turns to look for the facilitator and looking at him)) JOE, WE’RE KIND OF
stuck here eh?
((Joe is busy with others, looks at them and waves them away;
there is a long silence; each look back at their screens; both
R and L start to work on their own computers; R checking
through menus, L typing at keyboard; later R begins to
type as well; this involves approximately 7.5 minutes of silence))
L: So you got somewhere yet? ((no shoulder or head turn by L; both still
looking at own screens))
R: No, not yet. ((silence of approximately 20 seconds; both continue to type;
L seeming to have problems and searching menu
items))
((L turns head/body towards R’s screen and slides his
chair toward R while beginning to speak))
L: So you get it?
R: Yeah.
L: So okay you, uh::::::, after you uh finish typing did you find
out what to do?
R: Not yet.
L: ((L rubbing his face vigorously; both R and L turn to look at L’s
screen followed by L folding his arms; all happening while L talks)) =You
know. It’s the same process we did yesterday when we
were ( ).
The opening sequence

- **Lines 1–2:** Roger performs an opening/summons–answer speech act (first pair part (FPP) of an AP).
- **Line 3:** Larry responds (second pair part (SPP) of AP).

Larry and Roger take turns speaking, mostly in answer–response pairs. However, following l. 33, we see one participant (Larry) attempt to suspend talk. The attempts to suspend talk are mildly unusual to the degree that the one participant (Roger) fails to respond adequately. Larry must attempt to suspend talk several times (in several different ways) before being successful.

An attempted suspension by Larry

- **Lines 33–34:** Larry provides an informative (‘Oh, I’m not sure’) in conjunction with a head and shoulder turn towards his own screen – to act as a pre-suspension move (similar to ‘opening up a closing’) which then ends in an attempt at a suspension including a statement using
lowered voiced “Sh:::::it, Wow°", as if talking to himself only while he is clearly engaged in his own computer work.

Failure in accomplishing suspension

Line 35: Larry does not accept the closing attempt that Roger initiates another FPP and with this we see that Roger’s suspension was unsuccessful.

Line 36: This line provides a strong warrant now for the suggestion that ll. 33–34 represented a (failed) attempt at a suspension as Larry responds to Rogers FPP (l. 36) in the same manner as in the very first opening AP sequence (ll. 1–3). Larry uses a SPP to an opening sequence, and from this we can take it that he believed he had suspended the interaction.

Lines 38–39: Later, Larry attempts to reiterate his suspension in two recognizable ways here: (i) with an insertion sequence of his own (a FFP/question as opposed to a response which would normally be expected in a question-answer AP); and (ii) by physically turning to look for the facilitator signalling his rejection of Rogers FFP/question on ll. 35 and 37. In addition, Roger in fact gives up his attempts at initiating a question-answer AP by providing the SPP of Larry’s ‘insertion’-question (on l. 38). On l. 40, Roger is in need of help though he merely completes Larry’s FPP (insertion-question) from l. 38; Roger makes a substantial pause signalling transition-relevance, then shakily repeats ‘Third, third’ finally capturing a gestural response from Larry (with a turn of his head). Larry finally begins to look around the room for the facilitator, ‘Joe’, to try yet another suspension.

Accomplishing suspension

Lines 41–42: Following up on his action of looking around the room, Larry calls out ‘JOE, WE’RE KIND OF STUCK HERE EH?’ This finally seems to achieve the suspension Larry has been after since l. 33. Larry does this by using his control over turn-allocation to select a next-speaker, who is not available (i.e. Joe the facilitator, who, incidentally, never does come over to Larry and Roger). While it is still possible that Larry is merely being polite and truly intends to end or close the conversation rather than merely suspend it for a time, the use of ‘WE’RE’ is suggestive of the latter. ‘We’ becomes most relevant if referring to mutual engagement in an activity that is ongoing. At the same time, it is worthwhile noting here that, at this point, we still cannot recover directly from the data whether Larry wants to end the conversation completely or merely suspend it somewhat until they have better equipped to handle the problem.

It is interesting to note that Larry seems to have to work quite hard at trying to suspend the interaction. Roger fails to respond initially, but even in the midst of Larry’s efforts to suspend talk (which included a fairly dramatic body posturing
by Larry accentuated by a turn of both his head and body away from Roger at ll. 33–34). Larry demonstrates a ‘tolerance’ to the lack of response by Roger; that is Larry still turns his gaze toward Roger at l. 40 and uses the term ‘we’ (as in ‘WE’RE KIND OF STUCK HERE EH?’) on ll. 41–42. There is the suggestion that, despite the attempt to stop talking with Roger, Larry still wants to maintain a line of communication. At this moment, however (l. 42), it is premature to claim this as Larry may be simply being polite. In any case, after a fairly standard beginning, several question–answer APs, a failed attempt to help, and several attempts at suspension, a 7.5 minute silence ensues (ll. 43–47).

During the 7 minutes or so, both men focus their attentions on entering data to use with the merge function they are attempting to master. Indeed, this activity may play the role of ‘place-saver’ given what is about to happen. One of the key discussions in this article is whether this major period of silence reflects a strip of talk that has ended (on l. 42) or whether it represents a strip of talk that has merely been suspended for a period, ironically and before proceeding further, some support for the latter claim might be Roger’s relative inattention to Larry’s attempts to stop talk. We have no way of recovering Roger and Larry’s intentions or expectations directly from the data, however, we can reasonably expect that if Larry and Roger were typically involved in interactions inclusive of extended periods of silence then we might expect interlocutors to find the procedures that bring talk to a halt ambiguous, requiring repetition. In other words, if the interaction is full of stops and starts and silences, then attempts to halt talk might become difficult, that is they are taken less seriously than in many other speech-exchange systems. Moreover, the silence is not treated as a breakdown in communication requiring repair but rather, as we shall see as the analysis continues, it is treated as part of the ordinary (extended) flow of talk. At the same time, there is at least one other reason for this level of inattention which relates to the ambiguities of computer-mediated interaction itself, but even based on what we can see thus far there may be some foundation to the claim that interaction is suspended rather than ended.

In terms of my discussion of learning, this interaction represents two novices mutually constructing experiences relevant to a ZPD and learning outcomes. Note, through and through, this ZPD is intersubjectively accomplished, a fact that emphasizes the relevance of a basic cultural–historical approach. Each participant contributes to the formation of the conditions for the other’s knowledge production process. It is analogous to seeing two people build a scaffold, communicating and working together to form a structure on which they both climb to new heights. As we proceed in the analysis, however, we shall see that neither has primary control of this construction process.

ISSUES OF COMPUTER LEARNING-GENERATED SILENCES
Before going further, it is important that I briefly speak of some of the sources of ambiguity that make computer-mediated interaction of this kind unique. When people engage in informal learning, of course, they always do so in specific
situations, focused on some sort of topic and in ways that are mediated by specific linguistic, cultural and material tools. In the case of this study a good deal of ambiguity arises in relation to the mediation of communication by the computers Larry and Roger are each using. For example, numerous and lengthy silences (which account for the time during suspended interaction as well as pauses within and gaps between turns) are filled with various individual merge function activity. Throughout these periods both Larry and Roger can be seen to be actively typing and exploring the computer’s pull-down menu system. These activities are, in fact, part of the accomplishment of topic continuity of the overall strip of talk. Both Larry and Roger work on topic-related activities which would reasonably help maintain this continuity over long silences as a type of place-saver within the interaction. During the course of the interaction, however, the computer also plays a more problematic role as both a tool to mediate communication and a ‘participant’ in the interaction (Suchman, 1987). In this sense, the computer complicates conversation by making it three- or even four-way.

One of the first points at which we can see how the computer complicates interaction is in ll. 13–19. Here, Larry and Roger must not only maintain the interaction and successful question–answer sequences, but Roger’s responses to Larry’s directives (e.g. l. 14) are signalled both verbally and through the computer-mediated actions Roger takes involving the mouse and screen. At several points in the transcript (typically wherever there is a cluster of pauses and gaps), when asked about a topic Roger or Larry respond by working the computer in an effort to demonstrate the answer (in silence) rather than speaking the answer. Thus, the computer allows Roger and Larry an additional resource with which to respond to FPP of AP sequences. However, problems arise in connection with two features of this form of interaction. First, computer-mediated speech acts create ambiguity if speaker-selection is not explicit, that is if a respondent does not openly say something like, ‘Instead of answering you verbally I’ll merely show you what I want to say on the computer screen.’ As one participant asks a question of the other, the respondent may be engaged in some screen action that is either independent of the interaction or genuinely responsive. Take, for example, the complications that arise on ll. 64 and 66. Here, Larry initiates a number of question–answer sequences that are either not completed by Roger or left ambiguously completed. Larry treats Roger’s screen actions as a (mediated) response to his question on l. 65, but later (l. 70) Roger appears to be ‘conversing’ with the computer screen as much as he is conversing with Larry. For his part, Roger appears at least partially aware of the need for repairs, for example, as he lengthens the word ‘to’ (l. 64) in an effort to hold his place in the turn-taking sequence verbally while he ‘answers’ Larry by making changes on his computer screen.

The fact that Roger and Larry are both novice computer users (or at least novices at the merge function) is, strictly speaking, not recoverable from the data; however, that there is a good deal of confusion (particularly on Larry’s part on l. 48) suggests that at least part of the problem is that, first, when communication
is mediated through the screen text it adds an extra layer of uncertainty and, second, that both participants are unsure of the other’s grasp of the merge function. In other words, questions by one, rather than being answered, are sometimes paired with a question from the other. All this translates into more silences, more lengthy silences, more ambiguous silences, but at the same time (it would seem) more tolerance to silences and ambiguity than might be expected in typical communication. Given all this, it might not be so unreasonable to see the difficulty Larry had in suspending interaction on ll. 33–44, and at the same time why many of the typical conventions around needing to re-open after a suspended period may be ignored. Simply put, the data suggest several additional layers of complexity to interaction directly attributable to both the ‘learning’ context and even more specifically the computer-learning context of face-to-face, object-mediated interaction. What may be unique to the ‘informal learning’ speech-exchange system may be that interlocutors develop a distinctive level of tolerance for ambiguity.

RE-ENGAGEMENT

Returning to the transition from the lengthy silence of l. 47 to the resumption of talk, we see that critical to establishing that talk has been ‘suspended’ rather than ‘ended’ is, of course, the fact that it does starts again on l. 48. However, it is the continuity of topic across the first and second portions of talk, as well as the specific way that talk begins again, that is even more important. After approximately 7.5 minutes (l. 46), Larry stops his typing and begins using the mouse to check pull-down menus. It is obvious he is looking through the menus for a certain command associated with the merge process. After a half a minute of this he attempts a type of re-engagement. It is crucial to note that there is no formal opening sequence (e.g. a summons–acknowledgment AP) such as they performed together in the opening lines of the transcript (ll. 1–3).

Re-engagement

Lines 48–50: Larry, having completed his own typing work and having experienced some difficulty locating a command on the pull-down menus, now initiates an FPP/question (l. 48) without turning his head or shoulders. Importantly, this not an ‘opening’ in the conventional sense. It does not, for example, resemble a summons/response AP such as we saw on ll. 1–3. This fact is ultimately confirmed by Roger’s substantive answer on l. 50. Rather, than saying something like ‘Huh?’ or ‘What’s that?’ which would signal that Larry’s FPP was understood as a summons and the first part of an opening sequence, Roger provides the SPP or answer to the question Larry asks.

The fact that Larry fails to orient his body towards Roger initially (l. 48) adds support to the claim that the conversation, in a sense, never ended but was only suspended for a time. After the longest silence in the 30 minute sequence, the two
men merely pick up with a question–answer sequence (beginning with the word ‘so’ no less). Roger’s substantive answer (l. 52) adds further support to the claim. This is not what Turner (1973) described as ‘phatic communion’, meant simply to acknowledge Larry (a type of response to a summons). It carries a message. This marks the sequence as a ‘re-engagement’ rather than an opening of a new strip of talk.

RELATIONSHIP BETWEEN INFORMAL LEARNING AND FORMAL LEARNING VIS-À-VIS CONTROL OF TURN-ALLOCATION

According to McHoul (1978) and others, in formalized classroom settings the instructor has primary control over turn-taking. The instructor in these instances can self-select, select-next-speaker, or initiate a bidding for next turn sequence and so on, but retains control over who speaks and when. This is an accepted, even desirable, part of interaction in a formal education setting (Heap, 1991), as well as within a conversation between tutor and tutee (Cheepen, 1988), and to all intents and purposes any expert/novice-based speech-exchange systems.

In the opening segment (ll. 1–47) it could be argued that the speech-exchange system conforms to a type of expert–novice exchange consistent with McHoul (1978). Roger is asking Larry questions, and Larry seems to be responding much like a teacher, even initiating insertion sequences (l. 7) to clarify Roger’s situation suggesting Larry is confident of the situation and what is required for successful solution to the problem with which Roger is seeking help. In this portion, it is only Larry who self-selects for a turn (e.g. l. 32). It is Roger (seemingly in the role of ‘student’) who is asking questions. It is Larry who remains in control over turn-taking taking the (sequential) position of the teacher or expert. In this opening portion, Larry provides the only informative (l. 24), and it is only Larry who issues directive commands.

However, when the transcript is viewed as a continuous whole, as I argued earlier in my discussion of suspensions and re-engagement, we must include the latter portion of the interaction as part of the entire strip of talk. Here, the topic stays the same but control over turn-allocation changes. Beginning on l. 48, Larry begins to ask the questions and increasingly becomes unsure of what to do. Roger is much less sure of himself than Larry in the opening portion (ll. 1–47), but Roger nonetheless is both in the position of answerer (expert) in relation to Larry’s questions, and Roger even provides (albeit weak) directives (ll. 69 and 73). Thus with its topical continuity, its exclusion of many other pedagogical procedures, e.g. framing, focusing, follow-up (Sinclair and Coulthard, 1975), and most importantly with its shifting patterns of control, this speech-exchange system displays features of both the formal classroom and some sort of informal conversational speech-exchange system.

Conclusions

I have tried to understand informal learning in a way that is different from,
though to my mind complimentary to, other studies of informal learning. I do not
claim that this is the only useful way to approach the concept of informal learn-
ing, although I do say that analysis of speech-exchange systems offers a powerful
way of taking a close look at – and generating warrantable claims about – the
nature of informal learning as a distinct social phenomenon.

Specifically, I claim that the sequential/syntactic patterns in this transcript are
suggestive of something that can be reasonably described as ‘informal learning’,
distinct from both formalized, pedagogical talk, on the one hand, and everyday
conversation, on the other hand. A situated perspective demands that distinctive
features of the context and interaction be included, that is, people are always
learning something somewhere rather than simply learning. In this regard I’ve
necessarily explored some of the specific difficulties associated with computer-
mediated informal learning. The computer-mediated nature of interaction, the
status of the interlocutors as (mutually) novice, the physical lay-out of the com-
puter stations, chairs and other hardware resulting in two-, three- and even four-
way interaction all confirm the level of complexity and skill required for even the
most mundane forms of informal computer learning.

It should be clear that participants’ own, self-conscious notions of ‘learning’
are not as relevant as what they actually do to achieve personal knowledgeability.
Cultural–historical psychology, and more specifically cultural–historical activity
theory beginning with Leont’ev (1978, 1981), has stated clearly that partici-
pant’s definitions of the situation cannot be used to generate an adequate
account of the learning process. According to activity theory, people are typically
unaware of both the many operational conditions and responses that are
involved, and likewise they are typically unaware of the broader structure (what
activity theory refers to as the ‘motive’) of their practice. Moreover, in this analy-
sis of learning I’ve described the interactive machinery of learning that demon-
strates that the construction of the ZPD need not be rooted in expert–novice
relations. Beyond clarification of the phenomenon generally, I explored the
degree to which expert–novice relations were (or were not) definitive of informal
learning in the same way that they seem to be definitive of formalized learning.
Based on the earlier analysis, we can say what they are not; specifically that there
are forms of learning that are truly collective in nature and which can be accom-
plished beyond hierarchical relations of knowledge and control.

Clearly, one of the most influential contributors to our understanding of how
control is implicated in discourses of teaching and learning is Basil Bernstein.
This study did not make use of the Bernsteinian approach, however it can, to my
mind, be linked with it in some ways. In Bernstein’s final contribution to his
‘Class, Codes and Control’ series (Bernstein, 2000), he summarized his notion of
pedagogical discourse as having broad, regulatory properties which establish
order, ideology and identity beyond any specific knowledge form it seeks to trans-
mite. He goes so far as to claim that pedagogic practice acts as a ‘symbolic ruler for
consciousness’ (p. 36). If he is correct, then certainly we can say that hierarchi-
cal, expert–novice relations are a central orienting principle of pedagogy.
Breaking out of pedagogical discourse, devices and principles, then, becomes an inherently political act.

It is, of course, doubtful that knowledge of the ‘merge’ function will contribute to social transformation per se, however, the principle demonstrated is nevertheless significant in my view. If authoritative sources of knowledge such as experts or established canonical texts are not necessarily required for the learning process, then we establish a significant opening for, and intellectual awareness of, learning that can transform rather than merely reproduce social life. Research on peer learning (e.g. Tudge, 1993), for example, has remarked that the cultural–historical approach has tended to focus on adult–child interaction and this has been critiqued for a ‘teleological’ bias that, to my mind, has important points of contact with Bernstein’s notion of pedagogical regulation. Both cases deal with the presumption that it is preferable that people be socialized into dominant cultural, political, and economic forms. A more radical ideological perspective, however, suggests that the last thing subordinate (race, gender, class, etc.) groups need is to be socialized into these dominant forms, as it is these forms which define their oppression. Thus, the significance of the knowledge production process I explore here is that, beyond any technical interests it may have, it suggests that learning need not be reproductive of the social order and it need not be rooted in a pedagogical discourse constituted in and constituted of a hierarchy of knowledge and power. Rather it can be seen as a potentially open process, and in some sense, fundamentally democratic. A knowledge production process of the type analyzed here is inherently less controllable. Indeed, by demonstrating how novices can themselves collectively construct a ZPD in order to increase individual and collective knowledgeability we engage in a process of unsettling taken-for-granted themes of power, control, and knowledge.

ACKNOWLEDGEMENTS

Although, of course, any shortcomings in this article are my own responsibility, I wish to acknowledge the help of James Heap who first introduced me to the field of EM/CA, and who contributed valuable comments on an earlier draft of this article.

NOTES

1. This is roughly, though not absolutely, accurate, and it bears mentioning that some CA scholars have suggested the relevance of issues of social identity and power to a full understanding of speech-exchange systems in exploring relations between men and women, doctors and patients, counselors and students, judges and accused, etc. Moerman and Sacks (1988) suggest a need to ‘build bridges’ between microphenomena and issues such as social inequality. Indeed, in their seminal article, Sacks et al. (1974) suggest that issues of social identity were relevant though too complex to include in their discussion at that time (p. 718).

2. I have made use of the basic notational conventions of transcript preparation as cited in Psathas (1995), highlighting features of talk that speak directly to the focus of inquiry, i.e. control over turn-taking and appearance of various forms of silence.
3. Names are pseudonyms. With fully informed consent, the men were selected based on the fact that the shape and size of the room made their activity the easiest to record effectively.

4. Space does not permit a full discussion of how, exactly, we know that learning is going on beyond my references to the ZPD, cultural–historical approach and specifically activity theory (in the final section).

5. Notational conventions employed in the transcribed episode include the following:

::: colons indicate stretching of the preceding sound, proportional to the number of colons

(() double parentheses encloses descriptions of conduct rather than transcriptions of it

[ left brackets connecting two lines indicate simultaneous onset of what follows the brackets

= equal sign at the end of one line or start of another indicate no pause or gap (silence) between utterances

(1.2) numbers in parentheses indicate silence in seconds and tenths of seconds

°°° words between degree marks are markedly softer than surrounding talk in proportion to the number of degree marks

? question mark indicates a rising intonation

6. Concise explanations of the differences are important for the analysis. Drawing on the survey of CA concepts carried out in Nofsinger (1991), the general term used in traditional CA is ‘silences’ but not all silences are the same as placement and, obviously, to some degree length, largely determines function. Other specifications are made as follows:

**Lapse:** at transition relevant place (TRP), i.e. where there would normally be a speaker change, no one talks.

**Gaps:** at a TRP usually brief, 1 second or less, space before a speaker self-selects. It is important though that the gap is not related to any person (because it is when no one has been selected as the next speaker).

**Pause:** a silence when no one speaks at a TRP and the speaker elects to continue, or when someone is just distracted not at a TRP, or when a selected speaker takes a moment to respond.

7. One notable absence that is typical of classroom interaction according to the literature yet only weakly present in this data is evaluative function that paid-instructors must carry out. Even in the most pedagogical-like portion (ll. 1–35) of the entire transcript, while there are some basic evaluative utterances by Larry, particularly l. 10, ‘That’s a good one’ – it is clear that there is no overall structure of ‘lecturing, asking question accepting feelings, praising, encouraging, using student ideas, giving directions, criticizing and justifying authority’ (Heap, 1991: 23) typical of instructional formats. In other words, there is a complete absence of institutional demands of one person accomplishing the evaluation of another in informal education interaction.

8. Note that the questions throughout are never what have been called ‘known answer questions’ typical of a formal pedagogical exchange.

REFERENCES


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