

---

November – 2005

## ***Teachers' Invisible Presence in Net-based Distance Education***

**Agneta Hult, Ethel Dahlgren, David Hamilton and Tor Söderström**  
Pedagogiska institutionen, Umeå Universitet  
Sweden

### **Abstract**

Conferencing – or dialogue – has always been a core activity in liberal adult education. More recently, attempts have been made to transfer such conversations online in the form of computer-mediated conferencing. This transfer has raised a range of pedagogical questions, most notably “Can established practices be continued? Or must new forms of participation and group management be established? This paper addresses these questions. It is based on two sources: (1) 3,700 online postings from a variety of Net-based adult education courses in Sweden; and (2) interviews with participants and course-leaders. It comprises a discussion of online conversational activity and, in particular, the absent presence and pedagogic orientation of teachers who steer learners towards explicit and implicit course goals. In other words, it is a reminder that adult education is not a free-floating form of self instruction but, rather, operates within boundaries created and managed by other human beings.

**Keywords:** conferencing; dialogue; online participation; absent presence; adult education; auto-didacticism

*When the school child solves a problem at home the teacher is not standing near him. This help is invisibly present.*

Lev Vygotsky, 1987, p. 216, abridged

### **Learning Conversations in Adult Education**

Much of the literature on computer-mediated conferencing relates to instructional learning environments. In these contexts –the British Open University is a paradigm example – learners are led or steered towards identified educational goals. In short, such learning is fostered through a complementary practice-teaching. A seminal text in this respect is Gilly Salmon's 2000 *E-Moderating: The key to teaching and learning online*.

Some authors, like Salmon, have noted that the words ‘teacher’ and ‘teaching’ are unfashionable in the learning society. Other words, like ‘moderator’ and ‘moderating’ are preferred, symbolising the indirect influence of the course tutor, leader, or facilitator. Another example illustrative of the unease over earlier educational labels is Dianne Laurillard's preference for ‘conversation’ rather than ‘dialogue’ in her 2002 *Rethinking University Teaching*. This preference arises from doubts about the merit of so-called Socratic teaching when viewed from

the values of 21st century pedagogy. For instance, Socratic teaching has been characterised as a form of ‘bullying’ (Griffiths 2001, p. 34), on the grounds that it is more of an interrogation than a conversation. Laurillard seems aware of these doubts and refers to the ‘myth’ of Socratic teaching (2002, p. 74). Her preference for higher education, therefore, has a more positive tone: attention to ‘conversational framework[s]’ for teaching. Indeed, she adopts the latter perspective not so much in the light of classical Greek precedents but, rather, in the light of twentieth century research on language and communication.

The word dialogue is also problematic for etymological reasons. Confusions arise because the Greek suffix ‘di’ means ‘through’ rather than ‘two’ – which is why dissect means ‘cut through’ and diaphanous means ‘see-through.’ The word conversation does not carry this ambiguity. Conversation does not necessarily require two participants: It can be a reflexive activity (as when we talk to ourselves) or can be a group activity with more than two participants. Conversing and conversation also corresponds to the English terms, albeit of older usage, confer and conference.

We raise these distinctions because they have a particular educational resonance in Sweden. For about a century, conversation (*samtal* in Swedish) has occupied a particular space in Nordic adult education. It emerged from German notions of *Bildung*, the idea that, somehow, human beings can steer – or mediate – their own development (i.e., self-instruction or auto-didactics). Thus, ideas about conversational regimes of teaching and learning entered educational practice; and they were celebrated in the role that study circles have played, and continue to play, in the field of popular liberal education (*folkbildning* in Swedish).

Thus, Swedish liberal adult education has always offered forms of personal and collective self-education for citizens denied other pathways of social enlightenment. Popular educational forms emerged at the beginning of the twentieth century. They included study associations, libraries, study-circles, and folk high schools where participants could read books, listen to lectures, and discuss current affairs. By the beginning of the 1920s such educational forms began to receive state support. Liberal adult education was expected to promote a specific sense of citizenship which, in a formulation used in the 1920s, ‘rested on the acquisition of knowledge of noble sentiments and refinements.’ Through the exercise of such educational freedoms and rights, citizens would become well-informed and, thereby, contribute to social progress. In this respect, the Swedish Prime Minister Olof Palme (1927 – 1986) is remembered in adult education for his claim that Swedish democracy had been built on a foundation of study circles.

Thus, conversation has been both a means and an end in Swedish adult education. Yet, in practice, little attention has been given to how such conversations have been conducted. How, for example, are they initiated, steered, and closed? And what, in short, can be said about the leaders, tutors, facilitators or moderators who, in Vygotski’s words, are ‘invisibly present’ or, in Northedge’s words ‘excursion organisers’ (Northedge, 2002, p. 253) that foster ‘meaning making’? (Salmon, 2000, p. 39) Thus, this paper focuses on an aspect of liberal adult education – the role of the teacher – that is relatively invisible and, in Swedish liberal education at least, relatively unacknowledged.

Indeed, this problem is not restricted to Sweden. Earlier work reported in Hamilton, Dahlgren, Hult, Roos, and Söderström (2004), suggests that within the European Community (Common Market), little attention is given to the difference between behaviourist and constructivist theories of learning (cf. Sfard, 1998). The stance taken in this paper, then, is constructivist – that conversation is learning in the making. A conversation comprises utterances – in the sense embraced by Mikhail Bakhtin (1981) – that, to varying degrees, are a response to earlier utterances. In other words, every mono-logic utterance can also be regarded as an element in a dialogue. “The nature of discourse,” as Burbeles and Bruce describe the same phenomenon, “is

that the language we encounter already has a history. The words that we speak have been spoken by others before us” (2001, p. 1111). Any conversation, that is, draws on heteroglossia (Bakhtin’s neologism) – pools of different ideas whose elements, when exchanged, foster learning. According to Bakhtin, every utterance has a double significance. It is an expression of a 'unitary [common] language' used to conduct the conversation and, at the same time, it builds on the 'social and historical' differences embedded in the heteroglossia (1981, p. 272). Burbeles and Bruce make the same point in a different way:

A dialogue is not simply a momentary engagement between two or more people; it is a discursive relation situated against the background of previous relations involving them and the relation of what they are speaking today to the history of those words spoken before them. These background conditions are also not simply matters of choice, and they impinge on the dialogic relation in ways that may shape or limit the possibilities of communication and understanding (2001, p. 1111).

Bakhtin's contemporary, Yuri Lotman, offered a similar analysis of conversation. He described conversations as multi-authored texts rather than as multi-voiced heteroglossia (see Bakhtin, 1994, for further discussion of Lotman). In a cultural system, Lotman suggests, texts “fulfill at least two basic functions: to convey meanings adequately, and to generate new meanings.” The first function, Lotman continued, “is fulfilled best when the codes of the speaker and the listener most completely coincide and, consequently, when the text has the maximum degree of univocality” (1988, p. 34). The generation of new meanings occurs when there are differences between the speaker and the listener. Texts used in educational exchanges cease:

. . . to be a passive link in conveying some constant information between input (sender) and output (receiver). Whereas in the first [univocal] case a difference between the message at the input and that at the output of an information circuit can occur only as a result of a defect in the communication channel and is to be attributed to the technical imperfections of this system, in the second [dialogic] case such a difference is the very essence of a text's function as a 'thinking device'. What from the first standpoint is a defect, from the second is a norm, and vice versa. Of course, the mechanism of a text must be organised differently in the second case (Lotman, 1988, pp. 36 – 37).

From this theoretical and pedagogical standpoint, online adult education is not the delivery of texts but, rather, the creation and insertion of ‘thinking devices’ into conversation.

## **Online Adult Education**

During the 1990s, the Swedish state endorsed the development of online forms of liberal adult education. Yet, over the same period, adult education also underwent significant changes. Most notably, the boundaries between liberal adult education and award-bearing adult education were blurred. This arose from the political demand that that adult education should serve citizens who, for different reasons, had missed educational opportunities available earlier in their lives. Accordingly, Swedish adult education has acquired a hybrid form. It is conversational because it respects the traditions of Swedish *folkbildning*; and it is pragmatic because it responds to the credentialing demands increasingly attached to life-long learning. Indeed, this convergence has also been carried over into online *folkbildning*. Nevertheless, conversational aspects are still given prominence and priority. Online practices are animated by means of ‘forum’ or ‘conference’ software (typically the commercial application known as FirstClass®). Courses are arranged

around two activities: progression through a series of task- and content-oriented 'conferences,' and 'coffee-breaks' in online 'cafes' where participants are encouraged to congregate or 'hang out.'

This paper arises from a programme of research into the online initiative in Swedish liberal adult education. It is based on three sources of data. First, an analysis of approximately 3,700 postings from eight different courses which were award-bearing (e.g., upper secondary school mathematics) as well as non award-bearing (e.g., courses on religion, creative writing). The postings were transcribed, coded, and analysed according, among other things, to their date, time, and content. Second, tape-recorded face-to-face or telephone interviews with six teachers and 18 students (one very active, one medium active, and one drop-out) from six of the courses were conducted approximately one year after the conclusion of each course. These interviews focused on the teachers' and students' experiences of learning and communicating in online courses and study-circles. For this article we have concentrated on teacher and student views of teachers' role orientations in online courses. Finally, our data included postings made by adult education tutors who participated in a separate course which had 'online teaching' as its topic. The courses ranged in duration from 10 to 17 weeks.

In this paper, we concentrate on what the data revealed about conversational practices in online education and, in particular, about the activities of the course leaders and the perceptions that students and teachers had of the general course activities. Moreover, this work was conducted within ethical guidelines – about the personal integrity of online data – that are accepted in Sweden.

The purpose of our research was not to establish Swedish norms, nor set forth an international league table. Neither the fluid state of the field, nor our sampling procedures provide such affordances. Instead, our intention has been to identify and clarify teaching 'salience' that have emerged in online adult education in Sweden. In a wider sense, however, our analysis is also a response to the question: 'Whatever happened to teaching in the learning society?'

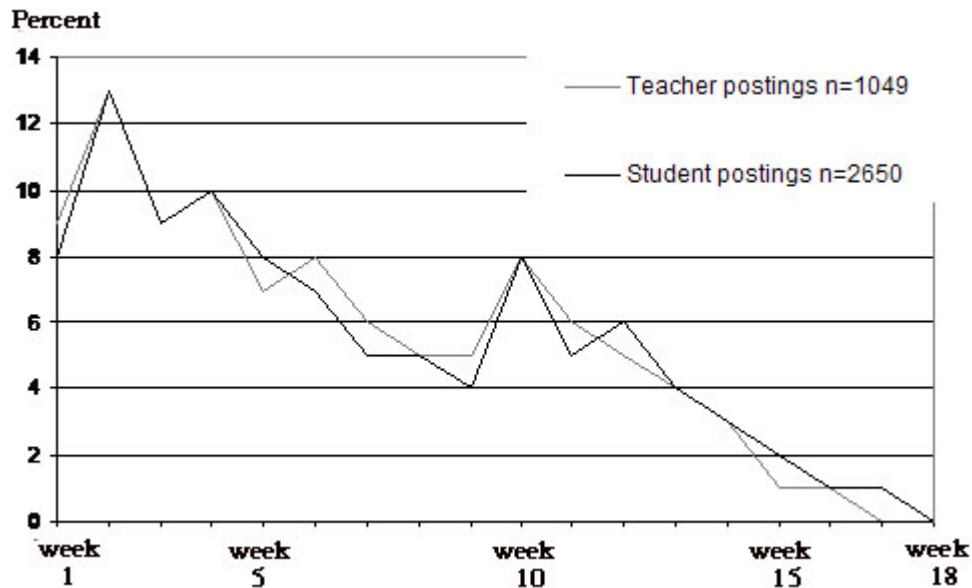
The argument of this paper falls into four sections. First, we identify teacher visibility by reference to our posting data. Second, we discuss the different forms that such presence occupies in the minds of the teachers and students. Third, we revisit a recurrent problem in open education – the tension between student and teacher presence. Finally, we discuss the implications of our findings for the discussion and analysis of online education – much of which is directed toward adults.

## **Conversational Activity**

Postings during the first month varied across the courses, from an average of 5 to 20.4 postings per student. As has been found elsewhere (e.g., Hawkrige, as quoted in Salmon, 2000, p. 82; Romiszowski and Mason, 1996) posting activity varied among students and decreased during the life of a course. During the last month of the courses for instance, the average number of postings per student ranged between 1.7 and 14.8.

Posting frequencies, however, yields only limited information. If possible, more penetrating questions should also be asked. How, for instance, do adult education teachers participate in such conversations? Do they initiate activity? Do they re-orientate activity? And if necessary, how do they restrict or terminate unwanted activities? In fact a striking pattern of teachers and student activity soon emerged from our data: teacher and student postings co-related over time (see Figure 1).

Figure 1. Percentage of student and teacher activity by week



By themselves, these figures do not justify the claim that teacher postings steered the activity. Nevertheless, other data from our sample suggested this was, in fact, the case. Despite variation in the courses – some courses were more conversational than others – the posting data support the claim that the teachers adopted an initiating role. They displayed, for instance:

**1. Greater activity:** eight teachers made almost 1/3 of all the postings compared to the 111 students who posted the remaining two thirds.

**2. Greater influence on topic:** Thirty percent of the teachers' subject matter postings initiated a new line of discussion or a new topic, whereas only 13 percent of the equivalent postings by students took this form.

**3. Faster response times:** Seventy-seven percent of teacher responses were made within 24 hours compared to 52 percent of student responses, suggesting that teachers were more reactive in their initiations.

Another confirmatory source was the interview data. When asked about their views, all students felt that teachers played a central role in supporting Net-based learning. Indeed, some of them suggested that moderation in online settings of adult education is more important than in face-to-face settings. Nevertheless, there was considerable variation over what teachers and students felt about this central role.

## Orientations to Teaching

Most of the students, and also the teachers, referred to the settings – or learning environments – that teachers occupy on the Net; while a few of the students took a different stance, feeling that the teacher's importance lies in the ways that they validate and legitimate students' efforts. Together, teachers and students spoke about teaching as comprising at least three orientations. Adult education teachers took up an activity orientation to stimulate learning; they adopted a

conference orientation to sustain learning; and they took up a validation orientation to corroborate learning.

### **Activity Orientation**

In this perspective, teachers gave students tasks that activated them and, thereby, fostered their understanding of subject matter. When they have got their assignment, "learning is what you do yourself," one student stated. Teachers also offered students tips about articles, books and Internet sites. In turn, students felt that their learning widened and deepened as they searched for information to complete the allocated tasks. Students felt activated by the teachers' interventions:

I think someone has to be responsible, kind of holding everything together. So she [the group leader] was the spider in the Web. Then, of course, she [also] set all the assignments.

### **Conference Orientation**

Some students spoke about being activated by stimulating tasks that led them to engage with the Web and libraries, with one of them adding 'seeking by your self is a pre-condition for learning.' Active searching also meant that students came into contact with information which extended their learning beyond the task itself.

Students also remembered conversational teaching that fostered discussion and interaction. They felt they learned from the views expressed by other students and by their teacher. The teacher linked the completion of set tasks to contact with other students. Such teaching, the students felt, not only promoted subject understanding but also projected the utility of group conversations. Although one student stated that he began by reading [offline] he added that, thereafter, such material:

. . . must be discussed and talked over with some other students to see their view of the subject . . . We have to discuss in order to develop a broader picture of the issue.

This view of *folkbildning* was also reflected in the interviews with teachers. All defended, in varying degrees, the relevance of dialogue and collective learning. One teacher, for instance, illustrated this viewpoint by comparing two types of task. One, which he rarely set, required students to find a correct answer in the text. His preferred option, however, was a task where participants take a stand on issues raised in the courses. The second option, he accepted, was 'a bit more difficult and challenging' because students required access to 'more information.' Learning arises, he suggested, through the Hegelian cycle of 'thesis, anti-thesis, and synthesis.' Arguments challenge each other, rendering the dialogue process intrinsically 'instructive.'

None of the teachers, however, was entirely satisfied with their dialogic or conference practice. Levels of engagement, dialogue, and initiative-taking were not as high as they had hoped. In response, they tried to promote conversation by encouraging students to react to each other's postings, by organising tasks where cooperation and interaction was needed, or by introducing new aspects and questions when discussion faltered.

When the course activity dries up I try with a new intervention. Sometimes I send a personalised private mail which usually does the trick.

Further, teachers reported that they also tried to act as models of good behaviour by giving swift replies to student postings and by making their own postings appropriate yet concise.

On the other hand, some teachers with greater experience of online education reported that they took a more laid-back position. They reduced their postings in the hope of increasing student responses. The lowest level of teacher posting was 13 percent of the total postings for the specific course; while the highest level (50 percent) came, in fact, from the teacher who claimed retrospectively to have cut down his postings to foster increased participation by students.

In contrast to the teachers most of the student group were satisfied with the course conversations. One student who reported extensive online course experience commented that, apart from a math course, general discussion was typical and that on her current philosophy course there was an 'enormous amount' of conversation.

A few students, however, expressed disappointed in the interviews. The argumentation and group-work they had expected had come to nothing: 'It can be fun when you are two people and you can bandy ideas about and explore different angles on the subject. But it didn't happen.' They felt that sharing different aspects of the subject matter with the teacher and fellow students raised fresh questions. It made them reach beyond the book, evoking learning and thinking along new pathways. Even if they thought that well-chosen tasks were the most effective way of fostering dialogue, they also expected the course leader to participate fully, developing new themes if student postings declined, and remaining alert to student proposals that might enhance the interchange of ideas and knowledge.

## **Validation Orientation**

Many students emphasised the importance of teaching that corroborated or validated their learning. In some cases, this arose with teaching that expanded the students' outlook (see Engeström's discussion of learning by expanding, 1987).

Students studying creative writing, for instance, emphasised the importance of their teacher's observations and reflections. They felt such contributions highlighted aspects of their work that they could develop further:

You get views from others on what you have done and you can think about it . . .  
The course is organized so that everybody should comment and help each other.  
But still it is the teacher who has more experience. At least I listen a lot to the teacher.

In some cases, teaching merely comprised affirmation rather than expansion. Teachers affirmed students' understanding. Teachers' comments kept them on-course, through correcting their misunderstandings and misinterpretations. As one student explained:

If you don't get to know what you do is right or wrong, you don't learn anything .  
. . . When things slip up and become muddled, they [teachers] can sort them out.  
Thus, they have to be present (sic) and see what happens.

None of the teachers, however, spontaneously offered this view as their primary role or orientation. Nevertheless, when asked whether they had any correspondence with students through private mailboxes rather than 'conferences' and 'cafes,' some of them said that they occasionally responded privately to correct misinterpretations. Finally, their corroboration



sometimes took the course-wide form of helping students to feel legitimate members of the course, despite their geographical dispersal. Such teaching enhanced students' sense of presence or belonging and, accordingly, augmented their capacity to deal with the course:

I think that they [teachers] play a very important part. [They are someone who] can be positive and give every student the attention they need to feel important, by saying 'this is jolly good.' Or as my teacher wrote: 'you really keep me busy, if only every student were like you.' Maybe she writes that to everyone, I don't know, but to me it means that I feel a bit special.

### **Planning for Democracy?**

As noted earlier, extensive discussions have taken place about fostering student activity and dialogue in online education. In Sweden, this task retains an ideological role since liberal adult education is regarded as a source of democratic empowerment. Students are expected to play a part in this process, for example in planning their courses and conducting such courses through the medium of discussion and deliberation. While aspiring towards the ultimate promotion of democracy, such courses are also expected to manifest democratic conference practices.

This task raises many questions about teaching, highlighting the difference, for example, between instructionist and constructionist paradigms for learning (Wilensky, 1991). Would a too well-planned course be instructionist, thus constraining student influence and the pursuit of democracy? In their postings, teachers in this study felt that there was no necessary contradiction – that well-planned courses could, indeed, strengthen student influence. Nevertheless, busy distance education students, according to the teachers, often appreciate instructionist courses with clearly stated activities and tasks, even if the students are left with limited opportunities to 'construct their own relationships with the objects of knowledge' (Wilensky, 1991, p. 202).

Tight course organisation may arise from the teachers' view of their own responsibilities, even duties. They may over compensate in their online courses because they find it difficult to apply their earlier experience of face-to-face adult education. In their postings, they suggested it was more difficult to be constructionist; that is, to work in a context where the learner is 'consciously engaged in constructing a public entity' (Papert, 1991, p. 1). It is not easy, they suggested, to have a 'feel' for what is appropriate in online circumstances, to manage students at different levels, to find appropriate leading questions, to be spontaneous and, not least, to explain – without sounding patronising – that these online studies are the students' own responsibility.

Overall, the data from this research suggest that both students and their adult education tutors feel a strong personal and professional need for a teacher's 'presence' in online education. Whether the teacher's presence in online learning is any different from the presence of adult education leaders in the past is beyond the scope of this paper. Nevertheless, the issue of teacher presence – and its form and enactment in teaching – remains important in both distant and adult education. Likewise, issues surround the reconciliation of teacher presence with student presence. Active presence may be disguised with other labels (e.g., by referring to discourses of learning rather than teaching) but the general issue of how knowledge and knowing are mediated from person to person, and from generation to generation, remains central to all educational practice. By analogy with the ether problem in the history of science, what, in fact, fills the space between human beings when they dialogue and learn from each other?



## Discussion

The stimulus for writing this paper was the observed synchronicity of teacher and learner activity in a sample of online courses in Swedish *folkbildning*. This observation led to further investigation of teaching in online education and, in turn, to a mapping of teacher orientations using data collected from course postings and interviews.

Overall, this paper is a contribution to the fields of open education and liberal adult education. Learning conversations, dialogic inquiry, and flexible learning have always had a place in liberal education. Yet, as indicated throughout this paper, the fusion of liberal education and online learning is more than the application of new terms to old practices. Rather, as the fusion metaphor implies, online teaching and learning have their own integrity.

This paper commenced with an examination of the role of teachers in the organisation of Swedish online learning. A central idea in liberal education is that such groups should be self-steering. Both the postings and the interviews, however, highlight the teacher's impact on the fostering of online student learning. Teachers and some of the students felt that the teacher's central role was to establish or preside over (Salmon, 2000, p. 3) a conversation or dialogue; while most of the remaining students indicated that teachers' foremost duty was to animate the student to seek new information and facts.

Teacher's invisible presence is exemplified in taking a stand-by role and/ or being reluctant to intervene. 'The [teachers'] silence should be deafening,' one teacher recommended. Although most of the teachers agreed that well-planned courses do not inhibit course dialogue, the fact that in their own online course deliberations they set aside time to discuss this issue may reflect ambivalence in their stance. The question of when and how teachers should intervene remains impossible to resolve, except in practice.

In our analysis we recognised three different aspects of teaching, all of them significant in the conduct of constructionist online liberal education. In turn, our exploration of the teacher's role in open learning environments leads to a second conclusion – that the promotion of learning in an open environment requires an animating or steering presence. Such teaching, however, is not a process of instruction. And for this reason the word teacher may no longer be appropriate. In English, the word tutor is commonly used in adult education, because it has connotations of 'supervision' and 'guardianship' as well as 'instruction' (see Oxford English Dictionary). More recently, Salmon has suggested 'e-moderating,' but even moderation carries instructionist connotations – to exercise a controlling influence over; to regulate, restrain, control, rule (OED) – that may not be appropriate to all forms of liberal education. In the context of mainland Europe, the word pedagogue may be appropriate since, etymologically, pedagogue denotes someone engaged in 'drawing out.'

All of these labels, however, are bedeviled by the issue raised at the outset of this paper – the failure of language or, more accurately, the English language, to capture the relationship between teaching and learning and between teachers and learners. In part this difficulty has historical and cultural roots. It arose in the eighteenth century Enlightenment, as notions of self-formation (*Bildung* in German) came to prominence and spread through Europe and the Americas; and it re-entered Anglo American thought in the 1950s, with the rise of cognitivism and, later, constructivism (see, for instance, Glasersfeld, 1995; Roos and Hamilton, 2005). The net result of these innovations was a transformation in concepts of learning and teaching. Adult education began to be activated by the idea that learning may be represented as self-teaching without the (visible) presence of others.

Intellectual development, however, can be an intra- as well as an inter-personal phenomenon. That is, learning may not come directly from teachers but rather from their absent or invisible presence. Online pedagogues, therefore, can be present in different ways. They may be present in person, participating in learning conversations. They may constitute an absent presence that, nonetheless, is embodied in the learning resources directed towards students (e.g., the selected readings or activities). Or pedagogues may exist merely as inner voices, inherited from the language of others, that (invisibly) steer the desires, self-regulation, and self-direction of learners. Indeed, this last pedagogic position 'auto-didacticism,' has always been central to the post-Enlightenment ideals of liberal adult education.

## Conclusion

All educational practice is purposive and value-driven. Whether or not a teacher is physically or virtually present, educational practices are goal-directed. In the process, human beings are socialised, acculturated, formed, or lead out into new realms of knowledge and new ways of knowing. Indeed, such purposive – or reflexive – drawing out is a defining feature of educational practice. The main ethical question, in both off- and online learning, is who does the drawing out? Is it an external agent (a teacher)? Is it an internal agent (e.g., student's own motivation or desire)? Or is it a disembodied agent – the invisible hand, for instance, that shaped the Website? In myriad ways, these invisible hands structure online learning and its environment. Their presence, we believe, deserves the due attention of adult educators.

## Acknowledgements

This paper arises from a project, Liberal Adult Education at a distance – a discussion milieu for learning (2001 – 2004), funded by the Swedish Council for Adult Education (*Folkbildningsrådet*), with the assistance of the LearnIT initiative of the Swedish Knowledge and Competence Foundation (KK – Stiftelsen).

The Project director can be reached via email at: [ethel.dahlgren@pedag.umu.se](mailto:ethel.dahlgren@pedag.umu.se). The project website is <http://alfa.ped.umu.se/projekt/folkbildning/>.

## References

- Bakhtin, M. (1981). *The Dialogic Imagination*. Transcribed by C. Emerson and M. Holquist. Austin, TX.: University of Texas Press.
- Bakhtin, M. (1994). The Problem of the Text in Linguistics, Philology and the Human Sciences: An experiment in philosophical analysis. In V. W. McGee (Ed.) *Speech Genres and Other Late Essays* (pp. 103-131). Austin, TX.: University of Texas Press.
- Burbeles, N., and Bruce, B. C. (2001). Theory and research on teaching as dialogue. In V. Richardson (Ed.) *Handbook of Research on Teaching, 4th Ed.* (pp. 1102 – 1121). Washington, DC.: American Educational Research Association.
- Engeström, Y. (1987). *Learning by Expanding*. Helsinki: Orienta-konsultit.
- Glaserfeld, E. V. (1995). *Radical Constructivism: A way of knowing and learning*. London: Falmer Press.

- Griffiths, M. (2001). Social Justice for Education: What kind of theory is needed. *The School Field*, 12(1/2), 25 – 41.
- Hamilton, D., Dahlgren, E., Hult, A., Roos, B., and Söderström, T. (2004). When Performance is the Product: Problems in the analysis of online distance education. *British Educational Research Journal*, 30(6), 841 – 854.
- Laurillard, D. (2002). *Rethinking University Teaching: A conversational framework for the effective use of educational technologies*. London: RoutledgeFalmer.
- Lotman, Y. (1988). Text within a text. *Soviet Psychology*, 26(3), 32 – 51.
- Northedge, A. (2002). Organizing Excursions into Specialist Discourse Communities: A sociocultural account of university teaching. In G. Wells and G. Claxton (Eds.) *Learning for Life in the 21st Century: Sociocultural perspectives on the future of education* (pp. 252-264). Oxford: Blackwell.
- Papert, S. (1991). Situating constructionism. In I. Harel and S. Papert (Eds.) *Constructionism* (pp. 1-11). Norwood, NJ.: Ablex.
- Romiszowski, J., and Mason, R. (1996). Computer mediated communication. In D.H. Jonasson (Ed.) *Handbook of Research for Educational Communications and Technology*. New York: Macmillan.
- Roos, B., and Hamilton, D. (2005). Formative Assessment: a cyberNetic viewpoint. *Assessment in Education*, 12(1), 7 – 20.
- Salmon, G. (2000). *E-Moderating: The key to teaching and learning online*. London: Kogan Page.
- Sfard, A. (1998). On two metaphors for learning and the dangers of choosing just one. *Educational Researcher*, 27(2), 4 – 13.
- Vygotsky, L. S. (1987). *The Collected Works of L. S. Vygotsky: The problems of General Psychology*. New York: Plenum Press.
- Wilensky, U. (1991). Abstract meditations on the concrete and concrete implications for mathematics education. In I. Harel and S. Papert (Eds.) *Constructionism* (pp. 193-203). Norwood, NJ.

