

Democratic Collaborative Dialogue and Negotiation of Meaning in Digital Teaching and Learning Environments: Reflections

Elsebeth Korsgaard Sorensen

*Dept. of Information and Media Studies, Aarhus University, Helsingforsgade 14, 8200 Aarhus NV.
imveks@hum.au.dk.*

Abstract

This paper explores, from a theoretical perspective, the methodological potential of digital democratic dialogue as a vehicle for enhancing intercultural collaborative education in networked learning environments. It examines the dialogical approach to design, which has been practiced, developed and unfolding within parts of MIL (Master programme in ICT and Learning) throughout the last 10 years, guided by a design based research perspective. Theoretically, among other theoretical positions, the paper draws on Wittgenstein's notion of 'language games'. The paper makes a plea for the notion of language games as a means of identifying the smallest analytical unit of democratic dialogues in digital negotiation of meaning.

Enhancement of dialogic quality in computer supported collaborative learning processes on the Web appears a broad, complex and multi-faced challenge. The central challenge is to identify and employ aspects of instructional design that stimulate and support the evolution of collaborative democratic dialogue in digital environments. A related challenge is the task of choosing criteria for the evaluation/assessment of these processes. Addressing these issues usually involves establishing balanced design criteria in the instructional marriage between technology and pedagogy. It also presumes a rooting in a set of values as well as an ethical dimension concerning inter human and intercultural co-existence. If we think beyond simply creating an online mechanism for dialog to creating a framework that will promote high-quality interaction and allow for relevant evaluation/assessment, we must search for the appropriate, educating analytical unit. In order to do so, I need to start from a clarification of the learning perspective behind the design and construct the analytical unit from this perspective.

Departing from previous research, the paper presents a theoretically based conceptual framework based on the notion of "collaborative learning in online communities of practice" (Dillenbourg et al., 1995; Harasim, 1995; Koschmann, 1994; Wenger, 1998) for understanding and identifying collaborative knowledge building dialogue for democratic citizenship. This includes identification of an alternative analytical and evaluative unit in distributed collaborative knowledge building on the Web, inspired by the concept of "language games" (Wittgenstein, 1974). I also discuss implications of this for design learning processes that allow students to collaboratively develop "knowledge tapestries" through meta-awareness of how such language game structure is developed. The paper builds on previous reports on collaborative knowledge building (e.g. Sorensen and Takle, 2001).

Keywords

Language games, digital citizenship, ownership, creativity, e-learning, democratic education, democratic dialogues

Previous Research

Previous pilot studies (Sorensen and Takle, 2001) focused on analysis of individual comments posted by students in the Global Change course and the influence of setting requirements on higher-level thinking skills in advance of submitting the comment on the web. It was tentatively concluded that the hypothesis was confirmed: that by explaining the characteristics of the knowledge building process, and by evaluating student

discussion on the basis of their reflected use of these characteristics, students will measurably increase their use of these characteristics, which presumably will enhance their learning.

In the process of extending the analysis of previous studies, it was not possible to escape the vague observation and interpretation that somehow the attempts at promoting true learning were falling short of the mark. Despite widespread use by students of knowledge building skills as previously described, the discussion threads built from these comments frequently were fragmented and lacked the intended coherence and social intensity.

The conclusion was that, in the process of establishing the requirements on use of knowledge-building characteristics in dialog, the instructor had inadvertently promoted a sense of individualism among students. The dominant knowledge building characteristic used by students in responding to the evaluation scheme was “articulation”, i.e., explaining a new concept (Stahl, 1999). Many students evidently interpreted the requirements as suggesting that they should independently drill deeper into knowledge bases to find more and more interesting information to bring to the dialog. The resulting “dialog” frequently could be more accurately described as a “collection of monologs”. Students were, indeed, finding new facts and information that expanded the database of the course and added new dimensions to the required readings, but were students actually reading each other’s contributions? Was this new volume of comments really contributing to learning? Despite the building of extensive threads, were there true collaborative learning taking place?

To examine this issue further, the assumption was made that the previous focus of analysis was misdirected and that we should focus on the *thread* or *collections of threads* rather than the individual comment as the analytical element in evaluating collaborative learning. Acknowledging this shortcoming of previous attempts revealed that the approach had inadvertently suppressed the social element of dialogue: the over-emphasis on contributions that can be created individually (i.e. without collaboration) was suppressing meaningful interchange among students and suppressing opportunities for true collaboration.

A rich body of literature exists on the meaning and role of collaboration in learning as well as on the analysis of dialogue (Correia, 2007; Nilakanta et al., 2006; Ó’Murchú & Sorensen (2009); Sorensen 2006, 2007 & 2009). In the following sections, a brief overview is given of some of the relevant perspectives on the importance of these elements in learning and from which I hope to draw guidance for constructing collaborative online learning environments that are well grounded in theory.

Becoming Democratically Oriented Citizens Through Negotiation of Meaning

The specific learning perspective I want to promote, “collaboration in online communities of practice”, is rooted in both the principles of Computer Supported Collaborative Learning (Dillenbourg et al., 1995; Koshmann, 1994), and in a social theory of learning taking place in communities of practice (Wenger, 1998). I base my search for an analytical unit on these theories.

The concept of learning through communities of practice is presented and developed by Etienne Wenger in his book “Communities of Practice. Learning, Meaning, and Identity” (1998). The book presents a social theory of learning. The primary focus of Wenger’s theory is the view of learning as social participation in a process of being active participants in the practices of social communities and constructing identities in relation to these communities. Wenger defines a community as “a way of talking about the social configurations in which our enterprises are defined as worth while pursuing and our participation is recognizable as competence” (Wenger 1998, p. 4).

Some of the premises in relation to what matters about learning are (Wenger, 1998, p. 4):

- We are social beings. Far from being trivially true, this fact is a central aspect of learning.
- Knowing is a matter of participating in the pursuit of such enterprises, that is, of active engagement in the world.
- Meaning – our ability to experience the world and our engagement with it as meaningful – is ultimately what learning is to produce.
- Practice – a way of talking about the shared historical and social resources, frameworks, and perspectives that can sustain mutual engagement in action.

In Wenger's perspective, a social theory of learning must necessarily encompass the elements that denote or characterize social participation as a process of learning. Learning takes place through engagement in actions and interactions in communities of practice. For learning to happen, the concepts of "participation" (the notion of "taking part" in both action and connection with others) and "reification" (the idea of turning our experiences into thingness) are viewed to be very central (Wenger, 1998, pp. 55-58). Wenger argues that reification can refer to both process and product, that it can take a different forms, that it occupies a great deal of our collective energy, and that it shapes our experience. But, most importantly, that these two forms, participation and reification, exist in learning in a dynamic interplay (Wenger, 1998, p. 87).

Wenger (1998, pp. 226-228) states that learning

- is inherent in human nature
- is first and foremost the ability to negotiate new meanings
- is fundamentally experiential and fundamentally social
- transforms our identities
- constitutes trajectories of participation
- means dealing with boundaries
- is a matter of social energy and power
- is a matter of engagement, imagination, and alignment
- involves an interplay between the local and the global
- cannot be designed: it can only be designed *for* – that is, facilitated or frustrated.

The principled goal of education, however, is the making of *democratically oriented global citizens*. While politics and politicians play their games, a major responsibility for societal development and the direction it takes, is put on the shoulders of education. The making of a democratically oriented global citizen takes its point of departure already in the implementation of educational methodology, which plays a significant role in the education and self-understanding of the global citizen. As a result, part of the responsibility for the "Bildung" of a democratic citizen becomes a ball thrown in the turban of educators as well as educational designers. Desirable features of an educated, democratically oriented citizen:

- Knows how to be tolerant and supportive of a fellow human being
- Acquires the most sublime competency of modern life: to be able to continuously learn anew
- Is open to new ideas and alternative solutions
- Is able to listen to others and incorporate the opinion of others in their views
- Wants to learn from each other and share knowledge for the course of shared goals
- Does not strive or take initiatives to control others
- Does not submit to authoritarian methodology in any area, but respects the quality of the argument

To be educator or educational designer envisioning use of ICT is not a neutral or innocent responsibility, even within the potentially constraining framework of decision-making left by politicians (Fjuk & Sorensen, 1997). The overall challenge for educators must be to ensure democratic quality through furthering global educational designs. To support designs that stimulate the education of global, democratically oriented citizens through intercultural meta-learning and processes of learning-to-learn.

In a similar way that communication technology may be viewed as media for facilitating and progressing inter-human interaction, I argue that inter-human interaction itself, i.e. student engagement in dialogic processes of collaborative knowledge building (D-CKB) should be considered the medium for engagement in global, intercultural learning (Brown & Davis, 2004; Miyake & Koschmann, 2002; Scardamalia & Beteiter, 1996). More significantly, they should be considered the ultimate goal of education:

For us to be able to use technology to serve truly educational ends we need a new vision of reason, reason as real dialogue in which people strive to understand each other. This vision of reason as forging mutual understanding naturally suggests a new enlightenment project, with education, supported by computers and networks, expanding the role of dialogue in human affairs. (Wegerif, 2006a, np.)

Thus, moving learners away from a monologic notion in learning into the “space of dialogue”, i.e. *engagement in dialogue*, should be considered a medium for learning. But not only that – it should be considered *an end in itself* as it leaves significant indirect “imprints” (meta-learning) on learners in terms of their self-perceptions and radius of action in their process of becoming global democratic citizens.

There is always an Ethos or a presupposed set of values – whether explicit or conscious - behind any online learning design. The latent values should become visible and explicit, as they influence the design decisions we as pedagogical designers make, and the pedagogical/instructional methodology we choose for teaching the core curriculum. For example, awareness and potential utilization of meta-learning for promoting processes of learning-to-learn are methodological decisions, “submitted” the set of latent values. The core curriculum is important to build knowledge in a specific field, but following the dialogic view of moving learners away from a monologic notion in learning into the “space of dialogue”, the core curriculum becomes even more vital via its role as catalyst for the meta-learning of learning-to-learn.

The theoretical perspective promoted in this chapter implies and emphasizes the open “dialogic” itself part of a knowledge building process. Within this concept I envision the processes of imagination and creativity as highlighted to the extent that they may question and potentially suspend assumptions on the previous collaborative knowledge building process.

Against the dominant metaphor of knowledge construction, this dialogic perspective argues that the emergence of creative new insights presupposes a capacity for suspending assumptions and dissolving previous constructions in order to be able to enter more deeply into the space of dialogue (Wegerif, 2006a, np.)

When cultivating democratically oriented global citizens, an ethos and commitment that denies suppression and hierarchies of authority and envision growth of global democracy and equality must be selective on choice of teaching styles and pedagogical methodology. Needed features like e.g. tolerance, mutuality, responsibility and a feeling of self-esteem (the belief that the individual voice makes a difference to mutuality) are for a large part promoted and mediated through educational systems. Not only directly in the shape of reflective processes in the learner, but also indirectly – through the chosen instructional methodology (including teacher-learner roles) and its implementation in pedagogical designs.

“Language games”

If we look at the different attempts to analyze asynchronous electronic discourse most of them seem to lack a theoretical base. The results of such analysis are usual pictorial maps describing the interaction over time. Some have attempted to map *message-interconnection* through analyzing the “threading”, i.e. to establish to what extent messages referred to other messages, the aim being to make explicit the linkages among interactions (Levin et al. 1990; Ellis and McCreary 1985). Such studies demonstrate important aspects of the “threading facility” of most computer-mediated communication systems (CMC), but they fail to go beyond the simple characteristics of message-to-message referencing.

Other studies have attempted to merge this type of approach with more theoretical perspectives, e.g. speech act theory (Levin, Kim, and Riel, 1990), and tried to compare the function of messages with those of traditional classroom interactions. Such studies have focused especially on “instructional interactions” and on the references of a message to previous notes (i.e. the functions: “initiations”, “response”, and “evaluations”). These studies concluded that very few electronic dialogues employed this pattern.

From quantitative studies (some of which are “socio-emotional” studies of electronic interactions carried out in a learning context) the main conclusions have been, first, that electronic interactions contain more socio-emotional interaction than anticipated, in view of the limiting aspects imposed on electronic interaction, e.g. lack of face-to-face clues (Rice and Love 1987). Secondly, an informal electronic interaction plays an essential role of stimulating more goal-directed electronic activities (Graddol 1989). Levin et al. (1990) concluded that the asynchronous nature of electronic dialogues creates new structures of dialogue that are rather different from those identified through the use of speech act theory:

Wittgenstein's notion of language games (Wittgenstein, 1974) offers an attractive frame for approaching the human phenomenon of electronic interaction. It presents a holistic, social, and constructive view in which structural coherence forms a key point for establishing any meaningful dialogue. The theory appears suitable for capturing essentially the interactive and dynamic aspects of human communication.

The central parts of the theory may be outlined in the following points (Eklundh, 1983 & 1986):

- A language game consists of language and the actions into which the language is woven. The actions are inextricably associated with a particular form of life or practice.
- A language game arises when more individuals adapt a common linguistic practice, which is connected to certain situations.
- A language game is associated with a kind of regular linguistic behaviour. The rules in a language game express which actions (verbal/non-verbal) are meaningful or accepted within the game. It is only possible to understand the meaning of an expression if one is able to use the expression in agreement with the "common practice" (i.e. a shared form of life within which that practice is possible).
- Rules in a language game are not always explicit. The rules may be "read" by an observer. However, the rules cannot be understood until they are used and the person using them has worked up the ability to evaluate, whether the rules are being followed or not.
- Within every language game changes take place, new rules are added and old rules get removed, on the basis of a type of collective agreement.
- An expression or a sign does not have any meaning in itself. It derives meaning, if it is used in association with a language game.
- Meaning of an expression or a sign is given in the way the expression or the sign is used within the language game.

One of the attractive features of the language game theory is that it is very general and comprises central aspects and properties of collaborative actions in practice. In the concept of language games, an action must be interpreted in inextricable association with the activity in which it is used. In language games we build up expectations during the course of interaction, which are based on our knowledge of various kind of activities and their rules. The notion of games creates a set of expectations in the minds of the players. If the players do not act according to the required rules of the game, the game gets interrupted. When expectations are not satisfied, the resumed game gets interpreted accordingly. Kerstin Eklundh provides the following definition of a language game:

A language game, on the other hand, is a communicative game where the rules require that the participants signal behavior. The actions in a language game have a symbolic quality, and the symbols involved, taken as a whole, are tied to the game by means of a set of conventions (the conventions of a language). (Eklundh, 1983)

Viewing the concept of games in relation to social interaction it becomes clear that a language game is realized as a sequence of actions by participants. This means that in some sense a "player" in the game knows what to do, when another player has acted. Actions are subject to specific rules, and the players in the game possess knowledge of rules of the game. Knowledge of the rules is not explicit in the sense of awareness in the players. For example in the language game of question-answer, most people are not aware which characteristics constitute an answer to a question. However, they are able to distinguish an answer from a non-answer. The knowledge involved is knowledge of how to play the game.

Describing a sequence of utterances in terms of games is equivalent to assigning structure to it. In particular the linguistic interaction (the dialogue) process can be understood as successive *openings* and *closings* of language games at different levels, where some games, *subgames*, are "embedded" (Goffman, 1971) in and controlled by others. Each game opened creates a set of *expectations* about the continuation of the game. The important role of these expectations is that each comment is interpreted according to the expectations.

The following slightly more tangible list of characteristics models the structural elements of a language game:

- *Initiative*: the initiating party in a language game "defines" the new situation and the roles of the participants. If the participants accept the roles, they should act in agreement with the rules of the game.
-

- *Intention*: the assumed intention of the initiator of a game/subgame, related to the shared knowledge of the goal of the game.
- *Mutualness/reciprocity*: the shared knowledge, which is potentially assumed or referred to, of the ongoing activity at any point in the linguistic interaction and at any level.
- *Responsibility*: the responsibility of the initiator of a game to take an interest in other contributions, and to make sure that the game is carried to an end.
- *Expectation*: the concept of game implies that a dialogue process is a dynamic process, continuously creating new expectations. The participants are expected to act according to certain rules. The expectations which are still relevant in connection to an interrupted game, will be the ones valid when the game is resumed.
- *Frame*: each game applies in a certain frame (the set of circumstances in which the game can be applied).
- *Move*: an action, specified by the rules of the game (typically an action which is expected by the participants in the game).
- *Closure*: the game is brought to an end according to rules (without any violations of the rules and without having created new expectations of a continuing act).
- *Repair*: violations of rules causing the game to fail may be followed by repairs.

The framework suggested here includes the important elements of dialogue and discourse. It is in agreement with a general theory of social action and comprehension. It supports the view that human interaction can only be interpreted as part of a social context, and that “negotiation of meaning” is not a “defect” of interaction, but is rather constitutive of it, to the extent that specific interactive mechanisms exist that allow mutual understanding to emerge (Dillenbourg et al. 1995, p. 204).

Language games: Implications for design

The previous attempts to establish dialog within the Global Change course created threads that had related ideas but which often lacked substantive interconnections. For example: “Joe, I also have been wondering about soil moisture, and my question is...”. The author acknowledges a previous topic but does not engage the previous author in substantive dialog. Perhaps the opening of a new game even has clouded the closing of a previous game.

Students rarely joined together to mutually explore an issue in detail. In some cases there was no evidence that an initiator of a game returned to the game even though it was clearly his/her “turn”. And rarely, if ever, was there any weaving of different threads to form “tapestries of dialog”. Threads of dialog seem to have a natural tendency (perhaps exacerbated by our demands on dialog quantity) to diverge; rarely do online discussants use the knowledge building characteristic of “organization” or “synthesis” to bring together separate threads.

In previous offerings of the Global Change course, the instructor provided the general topics for threads but left it up to the students to actually initiate individual threads. Some students reported that they didn’t know what issue to pose for starting a thread. One possible alternative is to have a small group of students responsible for starting the threads for a particular unit. They would be responsible for reading the relevant material in advance and conversing with each other through their group portfolios (and possibly with the instructor) to post some initial threads that would be meaningful to fellow students. Hopefully, this would provide initial threads that would speak more directly to student interests within the overall topic for the day.

Another possibility is to reconfigure the evaluation of student performance in dialog to more specifically reward dialogue contributions that promote synthesis, organization or convergence of threads. This has the disadvantage of further complicating the evaluation algorithm and runs the risk of having students spending too much precious time trying to figure out the evaluation system rather than engaging in meaningful dialog.

A third alternative is to simply explain the problem to the student and point out the advantage of trying to get convergence on dialog and the weaving together of different threads. Since the previous experience has unveiled that (American) students rarely take on additional tasks without some motivation stimulated through the evaluation system, we could offer “extra credit” to those who identify opportunities for, and move to completion of, weaving together different threads.

Conclusion / Discussion

The paper has explored the issue of developing a practical design for creating online dialog that promotes true collaborative learning. It points to the need for having a solid foundation in learning theory for the development of such a design, since paradigms designed for face-to-face learning environments might not apply or might overlook some unique opportunities of the online virtual environment. A concept of language games as a basis for considering the issue of closure has been suggested as well as development of dialog threads.

References

- Correia, A. & Sorensen, E. K. (2007), The Urge of Collaboration: The Evaluation of a Virtual Learning Collaboration across the Atlantic, i *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications (ED-MEDIA 2007)*, s. 1779-1785.
- Brown, A. & Davis, N. (2004). Introduction. In A. Brown & N. Davis (Eds.), *Digital Technology Communities and Education* (pp.1-12). London: RoutledgeFarmer.
- Dillenbourg, P., Baker, M., Blaye, A., O'Malley, C. (1995) The Evolution of Research on Collaborative Learning. In Reimann, P., Spada, H. (eds.) *Learning in human and machines. Towards an interdisciplinary learning science*, London: Pergamon, pp. 189-211
- Eklundh, K. S. (1983): *The Notion of Language Games. - A Natural Unit of Dialogue and Discourse*. SIC 5, 1983. University of Linköping. Linköping. 1983.
- Eklundh, K. S. (1986): *Dialogue Processes in Computer-Mediated Communication. A Study of Letters in the COM System*. Liber Förlag AB. Malmö. 1986.
- Ellis, M. L. & McCreary, E. K. (1985): *The Structure of Message Sequences in Computer Conferences: A Comparative Case Study*. In the *Proceedings of the Guelph Symposium on Computer Conferencing and Electronic Messaging* (pp. 2-5). January 1985, University of Guelph. Guelph.
- Fjuk, A. and Sorensen, E. K. (1997). "Drama as a Metaphor for Design of Situated, Collaborative Distributed Learning". *European Journal of Open and Distance Learning*, <http://www.eurodl.org/eurodl/index.html>.
- Goffmann, E. (1971): *Relations in Public. Microstudies of the Public Order*. Penguin Books.
- Graddol, D. (1989): *Some CMC Discourse Properties and Their Educational Significance*. In Mason, R. & Kaye, A. R. (eds.): *Mindweave. Communication, Computers and Distance Education*. Pergamon Press. Oxford. 1989. (pp. 236-242).
- Koschman, T. D., Myers A. C., Feltoovich, P. J., Barrows, H. S. (1994): *Using Technology to Assist in Realizing Effective Learning and Instruction: A Principled Approach to the Use of Computers in Collaborative Learning*. In the *Journal of the Learning Sciences*, 3(3), 1994, (pp. 227-264).
- Levin, J. A., Haesun, K., Riel, M. M. (1990): *Analysing Instructional Interactions on Electronic Message Networks*. In Harasim, L. (ed.): *Online Education. Perspectives on a New Environment*. Praeger. New York. 1990, (pp. 204-206).
- Miyake, N. & Koschmann, T. D. (2002). Realizations of CSCL Conversations: Technology Transfer and the CSILE Project. In T. Koschmann, R. Hall & N. Miyake (Eds.). *CSCL 2: Carrying forward the conversation*. Mahwah, NJ: Lawrence Erlbaum.
- Nilakanta, R., Zurita L., Lopez O., Sorensen, E. K., Takle, G. S. (2006). Enhancing the Design of a Successful Networked Course Collaboration: An Outsider Perspective. In E. K. Sorensen & D. Ó Murchú (Eds.), *Enhancing Learning Through Technology*. Idea Group Inc. Hershey, PA: Idea Group Inc. (pp. 56-74)
- Ó'Murchú, D. & Sorensen, E. (2009), Digital Dialogic Learning for Inclusion and for Learner Empowerment and Intercultural Democratic Citizenship. *Proceedings of the 13th Cambridge International Conference on Open and Distance Learning: Supporting learning in the digital age: rethinking inclusion, pedagogy and quality*. Held at The Centre for Educational Research and Development, St Edmund's College, Cambridge, UK in association with The Open University and The Commonwealth of Learning. September 22-25, 2009, St Edmund's College, Cambridge, UK.
- Rice, R. E. & Love, G. (1987): *Electronic Emotion: Socio-Emotional Content in a Computer-Mediated Communication Network*. In *Communication Research*, 14(1), 1987, (pp. 85-108).
- Scardamalia, M. & Bereiter, C. (1994). „Computer Supports for Knowledge-Building Communities". *Journal of the Learning Sciences*, 3(3), 265-283, <http://carbon.cudenver.edu/~bwilson/building.html>.

- Sorensen, E. K. (2009), A Framework for Designing Online Education for Global, Democratic Citizenship: Promoting Intercultural Dialogue and Collaboration. In M. Hellsten & A. Reid (Eds.), *Researching International Pedagogies. Sustainable Practice for Teaching and Learning in Higher Education*. Springer Verlag. (pp. 277-293). ISBN: 978-1-4020-8857-5
- Sorensen, E.K. (2007), Dialogic e-learning2learn: creating global digital networks and educational knowledge building architectures across diversity, *Multicultural Education and Technology Journal (METJ)*, vol. 1 issue. 3, ISSN: 1750-497X. (pp. 162-177).
- Sorensen, E.K. (2007), Dialogic eLearning - A Vehicle for Fostering Active Democratic Citizenship in Higher and Continuing Education, in Proceedings from The *2nd International Conference on e-Learning (ICEL 2007)*, Columbia University, New York City, 28.6.2007 - 29.6.2007.
- Sorensen, E. K., Takle, E. S. & Moser, H. M. (2006). Knowledge Building Quality in Online Communities of Practice: Focusing on Learning Dialogue. In D. McConnel (Ed.): *Imagining learning in the 21st century: the role of e-learning*. Special Issue of *Studies in Continuing Education (SCE)*. Vol. 28. No. 3. pp. 241-257
- Sorensen, E. K. & Takle, E. S. (2001): Collaborative knowledge building in Web-based learning: Assessing the quality of the dialog. Presented at the EDMEDIA-2001: World Conference on Educational Multimedia, Hypermedia and Telecommunications. Tampere Finland. 23-30 June 2001. Accepted for publication in the *International Journal of Educational Technology (IJET)*.
- Stahl, G. (1999): Reflections on WebGuide: Seven Issues for the Next Generation of Collaborative Knowledge-Building Environments. In C. M. Hoadley and J. Roschelle (Eds.), *Proceedings of the Computer Support for Collaborative Learning (CSCL) 1999 Conference*, pp. 600-610. Palo Alto, CA: Stanford University. [Available from Lawrence Erlbaum Associates, Mahwah, NJ]. <http://kn.cilt.org/csc199/A73/A73.HTM>
- Wegerif, R. (2006a). *Dialogic, Educational and Technology: Convergence in the Space of Learning*. New York: Springer-Verlag.
- Wenger, E. (1998): *Communities of Practice. Learning, Meaning, and Identity*. Cambridge University Press
- Wittgenstein, L. (1974): *Philosophical investigations*. Oxford: Basil Blackwell.