Collaborative learning as a collective competence when students use the potential of meaning in asynchronous dialogues

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ABSTRACT

The aim of this study is to examine and to describe how student teachers engaged in courses in web-based learning environments over a period of 40-weeks develop a collective competence to collaborate. The collective competence of collaboration is defined as the level of learning ability a group of students express when using dialogues as a tool for their own and other's learning in a web-based learning environment. The students' contributions to the course assignments, the group responses and the collaborative discussions and dialogues were analysed and interpreted based on Bakhtin's and Rommetveit's theories on dialogic interactions and meaning potentials. The results describe three different levels at which students use dialogues as a tool for learning when they collaborate within the group.

1. Introduction

Today increasing numbers of educational institutions worldwide offer distance learning courses or on-campus courses that are entirely or partially based on Internet learning environments. This form of education usually consists of asynchronous conversations or dialogues between teachers and students, or among groups of students, concerning specific course content. The participants are expected to use a web-based environment to discuss literature and assignments as well as to share knowledge and experience. The classic study by Scardamalia and Bereiter (1994) is often discussed as a source of inspiration for these learning environments. They describe how students create self-organised systems with self-reflective and interdependent thoughts where each student can contribute with his or her own expertise and receive new information and experiences from others. Stahl et al. (2006) describe web-based learning as a collaborative process in which participants negotiate and share meanings within a larger motivational and interactive context. They consider the learning environment as a knowledge-building practice that is mediated by technically designed artefacts. Stahl and Hesse (2007) clarify the phenomenon further through arguing that people develop new knowledge and insights through collaboration in a learning community in which participants are involved in creating interpersonal meaning. The asynchronous dialogues thereby become a conversation in which participants are mutually dependent on each other since those who write and those who read are co-authors and shareholders in a common negotiation to develop a meaning and understanding of the course content.

At the same time, other studies, for example Lipponen et al. (2001), Jakobsson (2006), show that students in these types of learning environments not always are active participants in such knowledge-building communities. The authors consider that these kinds of courses tend to result in relatively superficial or unreflective reproductions. In addition, Malmberg (2006), Lindberg and Olofsson (2005), Wännman (2002) point out that the interface of the learning environment does not seem to be the only decisive factor to stimulate student dialogue and collaboration. According to these studies, the teachers tend to focus on organisational and administrative tasks, such as scheduling and the construction of individual assignments and examinations. Furthermore, they implicitly assume that the participants are able to use collaboration as a tool for their own knowledge development. The question is whether teachers actually can assume that students have metacognitive experiences and a consciousness about collaboration as a learning tool or if this ability, or competence, needs to be in focus in order to be developed during web-based courses. In order to study this phenomenon, we have chosen to consider the students' ability to collaborate as a collective competence. This means that dialogues are considered as intrinsically social and collective processes, where the speaker is dependent on the listener as a co-author and where the speaker also is a listener who is engaged in

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Table 1
Number of asynchronous contributions in the web-based learning community during course 1 and 2.

	Course 1	Course 2	N
Total contributions	814	595	1409
Analysed	430	489	919
Not analysed	384	106	490

sense-making activities in the course of the verbalization process itself (Linell, 1998, 2001). The purpose of this study is to examine what significance the students' dialogues have to be able to develop a collective competence of collaboration, that is, to study in what ways the students use written asynchronous dialogues as a tool for their own and others' learning and how this collective competence of collaboration is developed over nine-months of web-based courses (see Table 1).

2. Online education and computer-supported collaborative learning

For the past decade, theories of computer-supported collaborative learning (CSCL), with an emphasis on the importance of the social context for learning, have been a relatively well-developed area of research. According to Suthers (2006), the research methodology of online education and the CSCL enterprise covers experimental, empirical, descriptive and iterative design approaches. The majority of these studies have examined the technology affordances: how individual learning develops or a comparison of how learning develops in campus-based versus web-based courses. An educational problem in many CSCL applications, according to Stahl and Hesse (2008), is that students and teachers tend to focus on procedural learning and ignore the conceptual learning intended by the curriculum designers. A prevalent method for studying online learning has been to categorize students' asynchronous dialogue contributions based on different quality criteria. For example, Garrison et al. (2001) and Meyer (2003) use the course participants' contributions to categorize the development of their ability to analyse critically. In Schellens and Valcke (2005) study, the authors try to identify to what extent the participants' dialogues are subject based, or of a more general social character. Studies indicate that the organisational form does not seem to be a determining factor in the development of critical analysis. Also, whether the course is campus-based or web-based does not seem to be a determining factor in how concentrated the participants are on course content. In both organisational forms, participants use a large part of their online time for social interactions of which the content usually lies outside the aim of the course. Studies instead point to the importance of teachers' role when stimulating their students' content-based discussions and in what way they promote students' higher-order thinking.

Curtis and Lawson (2001) study of online education shows that if the students are able to communicate and discuss course-related concepts with each other, they receive as good or better results than course participants with traditional classroom instructions. Indeed, Öner (2008) exemplifies this conclusion in a study concerning knowledge-building as a pedagogical approach when students are engaged in constructing models for mathematical proofs. A decisive factor between a regular campus-based course and a web-based course is that the latter is, to a greater extent, transparent and thereby makes the participants' degree of participation visible. Several studies (e.g. Jobring and Carlén, 2005) show that such circumstances may seem inhibiting for those who do not feel secure in the group or are unaccustomed to computer technology.

Collis and Moonen (2001) argue that the learning environment in web-based courses therefore should contain different types of support resources to help participants to actively learn from what others have produced. In addition, Aviv et al. (2003) claim that a well-structured asynchronous learning environment contributes greatly to the development of an individual's reflective dialogues and critical analysis. Even Schoonenboom (2008) states that different course components, such as structured and unstructured interfaces, seem to have an additional effect on supporting collaboration. Such a division led to increased and prolonged student input into the discussion compared to other course components. The ways in which small groups organise their contributions during a computer-mediated argumentative discussion was explored by Overdijk and van Diggelen (2008). The students in their study constructed and shared arguments, and were asked to organise their arguments into a diagram. The results illustrate how implicit negotiation of conventions can constitute a starting point for making the arguments explicit, thereby developing the discussions towards a more complex and deeper conversation. These studies have, for the most part, examined how an individual's learning develops when the student collaborates with the aid of web-based learning communities. However, few studies shed light on the potential of dialogues and learning from a collective perspective, that is, instead of focusing on how an individual's learning develops, they consider learning as a phenomenon that arises among people in a specific situation.

2.1. Socio-cultural approach

Of late, increasing numbers of studies on students' collaborative learning in web-based environments have used a socio-cultural approach as their point of departure. According to that perspective, people's dialogues, interactions and interplay constitute a determining factor for the individual's as well as the group's learning and knowledge development. The element that distinguishes this perspective from the majority of other perspectives is that it is not possible to understand people's learning and development solely from individual actions or development. According to a socio-cultural perspective, learning always arises as a product of a social community of practice where people are involved in different types of processes to create meaning. Learning is, consequently, a social and collective process in which the person who writes or speaks is interdependent on those who read or listen as co-authors in a collaborative construction of meaning.

According to Vygotsky (1988), humanity's higher psychological processes are mediated and developed through historical and social dimensions. This implies that the cultural products that humanity has developed throughout history, for example, script, symbols, language, science, physical tools and other artefacts, reflect the cognitive tools we need in order to understand the world and create meaning in collaboration with others (Kozulin, 1997). The higher psychological processes have, therefore, their origin in social activities and arise on two levels, partly through the outer acquisition of knowledge by means of active participation with others, and partly through an internalisation or appropriation on an inner level (Wertsch, 1998; Säljö, 2005). As we perceive it, language is the link to the outer dialogue

through communication with others and, in addition, develops into an inner dialogue or thought process that changes our understanding of the world. In that way, there is a parallel development of language and concepts since humans use communication, a mutual development of understanding and problem solving in collaboration with others.

According to Wenger (1998), the community of practice is maintained by the participants' mutual engagement, common interests and joint enterprise as well as a shared repertoire with a set of rules, means and working methods. Participants engage in activities together within a proscribed time and produce something that they share amongst themselves, which can take the form of experiences, concepts, opinions or differing viewpoints. Similarly, Rogoff (1995) considers learning as a collective process that is linked to a specific context of action by focusing on how people participate and how they change their participation. Knowledge emerges by discursive assignment of meaning and social identification. This view is based on the idea that humanity's ability to master and appropriate new or negotiated experience and also implies an understanding that people have a relationship with themselves and others. Therefore, appropriation becomes a concept that not only concerns a mechanical transfer or a passive acceptance, but also implies a mutual creation of meaning from content.

2.2. Relations between dialogues and learning

Recently, some branches of science, such as philosophy, anthropology, linguistics, communication science and education, have shown an increasing interest in the significance of dialogue on humanity's learning and development. These different traditions and approaches assign differing levels of significance to the role dialogue plays in humanity's learning and development as well as having differing approaches to defining what dialogues actually are. In this article, Linell (1998, 2001) definition is used, where a dialogue is considered to be, "the interaction between co-present individuals through symbolic means" (p.12). According to Linell, meaning and understanding are not originally found in a person's consciousness, rather they are created by multiple parties working within a defined context and they arise from diverse interactive utterances. An important starting point in this definition consists of the Russian linguist Mikhail Bakhtin (1986, 2004) specific approach to understanding dialogues. Bakhtin emphasises that language has multiple functions and every utterance, with its attitudes and values, places humans in a cultural and historical tradition. In the opinion of Bakhtin, every utterance, spoken or written, is always formed by a *voice* and expressed from a particular viewpoint or perspective. In other words, utterances contain *dialogic overtones* that can, for example, be composed of assertions regarding the world, ontological conclusions or hypotheses regarding phenomenon.

Meaning is first created when two or more voices encounter each other by means of the reading or listening voice answering or reacting to the writing or speaking voice. Therefore, every utterance also becomes a link in a chain of voices since each utterance can be considered as an answer to preceding utterances, that is, it has *addressivity*. To understand another person's utterance means that one must orient oneself in relation to the utterance within the particular context of the utterance. As stated by Bakhtin (1986, 2004), understanding, accordingly, is always dialogical in nature and all human communication is organised socially through dialogical interactions. This also leaves its impression in our utterances in the form of putting words in someone else's mouth or borrowing expressions from others or from literature, in other words, reusing what others have previously uttered, that is, *multivoicedness*.

Dialogues and creation of meaning also depend on the discourse and the context in which the voices utter. Bakhtin (1981) differentiates between the *outer authoritative discourse* and the *inner persuasive discourse*. He associates the authoritative discourse with a monological utterance, for example, religious, political or moral texts, as well as utterances from a superior power, for example, an adult, a parent or a teacher: "The authoritative word is located in a distanced zone, organically connected with a past that is felt to be hierarchically higher. It is, so to speak, the word of the fathers. Its authority was already *acknowledged* in the past. It is a *prior* discourse" (p. 342). The authoritative discourse also requires confirmation and transmits without deeper reflection. By contrast, the persuasive discourse acquires its power through being comprised partly of one's own words and partly of others' words. According to Bakhtin (1986, 2004), an utterance can, in addition, be comprehended from an *active* or *passive* understanding. The passive understanding reproduces or recreates merely speakers or writer's words or thoughts whilst active understanding creates a basis for response, argumentation, agreement, sympathy, objection, and so forth. However, it can also be implicit, silent or invisible as well as explicit and be uttered at a subsequent point in time, verbally or otherwise.

2.3. The role of the potentials of meaning

Rommetveit (2003) uses shareholders and co-authors as metaphors in order to describe a situation in which knowledge and understanding are socially distributed amongst people. He points out that a pluralistic culture and experience builds upon interpreted dialogues where mutual understanding is fixed through negotiations. In these negotiations, there arise *meaning potentials* that can be understood as the range of *meaning-mediating* possibilities that emerge during dialogues between people. With *potential,* Rommetveit means that the word or utterance that a person chooses is connected to the situation in which she finds herself, as well as the knowledge and experience she has with her. Rommetveit labels this situation as a *two-sided act* where "word meanings are thus neither in a speaker's head nor in a dictionary. They are established dialogically under the influence of the situational context and the perspectives taken by the interlocutors – constructed by the speaker and the listener in a collaborative process, which means that both the speaker and the listener have a share in them" (p. 193). Hagtvet and Wold (2003) describe Rommetveit's meaning potential thus: "How the speaker (or writer) attunes to the attunement of the listener (or reader), and vice versa, is the prototypical situation he has sought to understand" (p. 196). Meaning potential can also be understood as a sample space that is composed of all the possible ways to understand or interpret statements.

3. The study

According to Linell (1998, 2001), there has been a long tradition in research in human learning and the development of viewing dialogues only from an individual or monologic perspective. He argues that this tradition tends to view utterances and their meanings only

as the speaker's communicative intentions and describes the listener's task as that of recovering these intentions. He describes this perspective as the *transfer-and-exchange model of communication*. As maintained by Linell, utterances in this perspective risk being understood only as the products of the individual speaker and her intentions but disregard the collaborative or collective nature of dialogues as for example described in Bakhtin (1986, 2004) or Rommetveit (2003) frameworks. This study intends to use a socio-cultural understanding (Vygotsky, 1988) of learning and development and aims to examine what significance students' dialogues have for their development of a collective, collaborative competence. In short, we intend to study in what ways students' joint ability to use written, asynchronous dialogues as a tool for their own and other's learning is developed over a nine-month participation in a web-based learning community. The research question in this study is:

- In what ways do students' use the asynchronous dialogues in a web-based learning environment as a tool to develop a collective competence of collaboration?

3.1. Methodological considerations and analysis

This study is the first part of a more extensive project whose aim it is to examine and to describe how students engaged in courses in web-based learning environments develop a collective competence to collaborate. This point of departure is built on the assumption that students, as individuals, do not necessarily have had the possibilities to develop this competence prior to participating in this kind of context. We define the collective competence of collaboration as the level of learning ability a group of students express when using dialogues as a tool for their own and other's learning in a web-based learning environment. In this study the students' use of asynchronous dialogues as a decisive tool for learning is focused upon. The study monitors 40 student teachers that participate in web-based courses over a nine-month period in order to become qualified teachers. The students simultaneously work as teachers in upper-secondary schools in Sweden; the majority of them have worked as between one and five years while around one fifth have worked for more than five years. The course content focused on teacher assignments, learning, and development over the 40-week period. In addition, the content did not comprise introducing the framework of Bakhtin or Rommetveit.

The students, with both vocational and academic backgrounds, were divided into groups of five to six. The students worked both individually and collaboratively with tutor-lead, problem-based course assignments with deadlines. After students had submitted their own particular contribution to the course assignments, they had to respond to the contributions of their classmates in order to bring about a discussion. In this way, the data collection consists of the students' asynchronous, contributions to the course assignments, group responses, and group collaborative discussions and dialogues. Of the total 1409 contributions, 919 (65%) have been analysed. The other 490 (35%) contributions were excluded since they mainly concerned administrative, organisational or technical communications between students and tutors.

The students' contributions to the course assignments, the group responses, and the collaborative discussions and dialogues were analysed and interpreted based on Bakhtin (1986, 2004) and Rommetveit (2003) theories on dialogic interactions and *meaning potentials*. Since meaning potentials are generated by students in a collaborative negotiation, all group members become shareholders and co-authors in a joint construction of meaning. In this way, the analysis has focused on the groups' joint ability to make meaning potentials in different assignments visible and explicit, and the ability to define the meaning potentials in order to use them as a possibility for learning. This method of conducting the analysis is based on the assumption that when the dialogues in a group succeed in making the range of meaning potentials visible, they also create prerequisites for the group members to develop a new understanding of a task. The dialogues were examined without existing pre-defined categories into which to the data would be placed. Instead, the categories emerged through a two-phase analysis (Patton, 2002). The first phase involved discovering and identifying *thematic patterns and themes* (Lemke, 1990). According to Lemke, the thematic patterns describe a shared pattern of semantic relationships, which become evident in a specific discourse. In other words, the students have a joint ownership as co-creators of the thematic patterns that comprise semantic synonyms, attitudes, counterproposals, arguments, advice, theoretical problemizations, equivalent or contrastive words or solutions.

The first phase of the analysis revealed that different groups had different ways of using the dialogues, but also the existence of different ways of using the dialogues within the same group of students. This article has focused on only one group's different ways of using the dialogues over the nine-month period. The development of this group exemplifies the development most groups underwent; hence, it constitutes a representative of the data material in general. This choice of focus also constituted a starting point for further analysis in the second phase and was used to specify categories that aimed to describe the groups' different abilities to use the potentials of meaning for learning on different occasions and in different situations. In this phase, the dialogues were also analysed by applying Bakhtin (1981) descriptions of authoritative and persuasive discourses and whether the dialogues contained active or passive use of other's utterances. In order to increase the reliability of the analysis, two independent coders interpreted and categorized the dialogues, and the results of this analysis were compared. When there were different interpretations, the data material was reanalysed and the categories were modified in order to reach a final description.

4. Results

One of the aims in this study is to examine how and in what ways students' use asynchronous dialogues as a tool for their own and other's learning. In the first excerpt, five students are involved in a discussion about an assignment concerning the legitimacy of their own school subjects and how to create a good learning environment for their future students. Within the assignment it is possible to identify the meaning potential (Rommetveit, 2003) between, on the one hand, the teacher's ability to be a clear instructional leader and, on the other hand, the teacher's ability to help the students' to develop their own independence and responsibility. It is just this opposition in the teacher's assignment that is described in excerpt 1.

1. **Eva** [October 9 2005]	[. . .] One of the problems that the pupils seem to be used to from compulsory school is not needing to take any initiative. I have to guide them more than what I would like to. Assignment work and self-study have both pros and cons, but through alternating class run-throughs and self-study, I hope to reach, in any case, a reasonable level. I thereby create a common frame of reference that they have as a starting point when they work individually with assignments (Carlgren and Marton, 2000,176 ff). The problem of the lack of personal responsibility from the pupils' part still partly remains.
	[. . .] I believe that the working environment at my school is a contributing factor as to why the pupils don't take the responsibility they should be able to manage and be interested in taking. I feel that the Media programme should be characterised by a creative environment with space, both physical and mental. Unfortunately, my colleagues and I on the Media programme are forced to teach in traditional classrooms, which I believe does not give the right signals, that "now it's for real" and that they themselves have a responsibility to learn. Just like most teachers, I would like my pupils, to a greater extent, to take their studies seriously, and I believe that they could if the environment were less like a school and more like a publishing office or another creative media environment.
	Furthermore, being limited to working only during lesson time can kill creativity. I would very much like to have an open-plan office with computers and other equipment available to the pupils throughout the school day. Unfortunately, there are practical problems with that. After vandalism and several thefts of equipment from school (LCD screens, computer mice, computer projectors have disappeared), we were forced to have the computer rooms locked.
2.**Martin** [October 14 2005]	Eva raised an important question that the upper-secondary school has missed in its development and its learning environments. To design a forum for education should also include the working environment with all that implies, so that pupils are more motivated or that they understand that they want to try something else at an earlier stage. I think that schools still drag along the old traditions about how school should be, and they have difficulties changing to a new system of teaching. Democracy can sometimes be a heavy burden to bear. Eva's text is easy and inspiring to read and brings to light many important questions.
3. **Harry** [October 17 2005]	Your colleague that you describe in the beginning should perhaps think about changing jobs. If you think that the part of a teacher's job that involves standing in front of pupils is difficult, then you've got the wrong job. It's actually that part that's a teacher's job, or have I misunderstood something? Of course, it's sometimes hard to go to work. Otherwise, I think you highlight a very important part of teaching in school, perhaps the most important in my opinion, that is, how do we get pupils to take responsibility for their own learning? Creating an environment in school where pupils think that's it is fun to learn is important. I agree with you that when pupils come from compulsory school, they are fairly unused to taking responsibility. Well, that's how it is at my school in any case. It seems that you try to tackle the problem you meet in your normal workday by trying to find different ways to get pupils interested. You try to improve/change in order to reach the pupils. I think that's a good trait in a teacher.[. . .] I agree with Martin in his post where he says democracy is a heavy burden to bear. It's not easy to change schools. I think that it was a pleasant and easy to read text. The text flowed well; it was structured well, and it was easy to follow his thoughts. It raises and highlights important questions.
4. **Karin** [October 18 2005]	We are all certainly tired of the vandalism, theft and the kind of thing that inhibits our creative ideas. It would be paradise with a real open-plan office with computers and other equipment to work with and be inspired by. It's a pity that pupils don't always see the connection between actions and consequences and that many pupils suffer because a small group wrecks it for everyone. As a chemistry teacher, I'd love to have a real chemistry experiment lab with equipment and chemicals, and where pupils could experiment relatively freely. From a safety standpoint, that's, unfortunately, completely impossible!
5. **Carl** [October 19 2005]	In your account about the Media programme you raise an interesting factor, that of the working environment for pupils and teachers. Even in the others' posts, you can see the same problem. I think, like you, that if there wasn't so much vandalism and thefts in schools, then maybe the working environment could look different for pupils. It would've been worth it to invest a bit in new computers, more open workspaces and other equipment for the pupils' benefit. I also think that it would increase their creativity, but I have difficulty in seeing how it would help them take greater responsibility for their studies. Those pupils that don't take responsibility during class time, don't take it during their spare time either.

In the dialogue, Eva (1) starts with a personal experience in which her pupils seem to be used to the teacher taking sole responsibility for their learning in the classroom and that the pupils often lack the ability to take the initiative. She thereby expresses an understanding that learning is an active process that requires the pupils' active participation and their taking responsibility for themselves. At the same time, she also expresses clearly that she experiences this as problematic since she does not really know what to do in order to create such a learning situation. Eva tries to find explanations for the phenomenon through questioning whether pupils in the lower

Dialogic Level	Thematic pattern in the dialogue
Passive and authoritative	• accepting and confirming • passively reproducing • monological and authoritative • failure to explicate the possible meaning potential in the dialogue as a basis for learning and development

Fig. 1. Summary of description of a passive and authoritative, asynchronous dialogue.

school form have received the chance to develop a sense of independence and the ability to take on responsibility. Furthermore, she states that the working environment at school is a contributing factor to the pupils' passivity and that it is the traditional and anonymous classroom environment—the locked computer rooms and the controlled scheduled hours—that extinguish the pupils' creativity and ability to take initiative.

The possible meaning potential in Eva's example can be represented as a relation between a teacher's desire to firmly guide her students toward knowledge objectives and her desire to develop the pupils' independence, and their ability to take initiative and to be creative. In other words, it is possible to assert that there exists an opposition within a teacher's assignment between these two extremes that does not seem to be explicit in the dialogue. By contrast, Martin (2) argues that it is the outmoded school traditions that inhibit developing alternative working environments. Harry (3) points out that it is important to create a school environment where pupils feel it is fun to learn. Karin (4) and Carl (5) regard the pupils' vandalism and theft as a reason why the school environment cannot be changed.

All of these assertions present reasonable explanations for the situation at Eva's school, but at the same time not one of the students actually focus on the meaning potential in the example and the individual teacher's possibilities to gradually develop pupils' ability to take responsibility and sense of independence. This implies that the dialogue did not successfully clarify in what way a teacher's conduct and priorities can affect the pupils' attitude towards their own learning and their ability to take responsibility. The posts focus instead mostly on the limitations and impediments that make work more difficult for teachers, and the students convey their responses without closer reflection on new solutions or alternative modes of conduct concerning a teacher's role.

The thematic pattern in excerpt 1 can, therefore, represent an example of an *accepting* or *confirming* discourse in which the student teachers primarily *passively reproduce* and re-express each other's ideas and thoughts (2, 3, 4, 5). In other words, it is a situation in which student teachers mostly accept and confirm other's posts, which in turn results in them failing to explicate the possible meaning potential as a basis for their own learning and development. The dialogue also seems not to focus on the purpose of the assignment, which is to define the professional teacher's role as a clear educational leader who simultaneously strives to enable pupils to take responsibility for their own learning and their working environment. According to Bakhtin (1981), a dialogue that primarily consists of conceptual and intellectual reproductions can be identified as *authoritative*. Through this Bakhtin signifies that the dialogue is characteristically *monological* and does not have the purpose of questioning or developing previous contributions in the discussion. Bakhtin states, "its authority was already acknowledged in the past. It is a prior discourse" (p.342). This suggests that the student teachers avoid, for the most part, contradictory understandings and that the interpretive dialogic interaction is more or less absent. A summary of the dialogue in excerpt 1 is given in Fig. 1.

At a later point, the same group of students were involved in a dialogue on how a teacher can contribute to the creation of the conditions needed for pupils' learning and development. The students had studied three different reports within this subject area and were focused, at that point, on a report concerning schoolchildren's' increasing use of computers and their inadequate checking of the validity of information from Internet sources. The discussion went on to cover the pupils' playing computer games and the need to set limits on their computer usage. In this dialogue, it is possible to define the possible meaning potential between, on the one hand, the teachers' need to control what the pupils use the computers for and how much they can use them, and, on the other hand, support the pupils' own abilities to set limits for playing computer games and the necessity of checking the validity of electronic sources. Excerpt 2 considers the opposition between teachers' control and pupils' development.

| 1. **Eva** [December 11 2005] | [...] I'm now teaching an Mp-class where the majority of boys want to be computer game developers and, therefore, have chosen the Media programme. The pupils play a lot of games in their spare time and most of them have access to a computer of their own. In my class, most of my pupils, just like in the study, play "The Sims" (both girls and boys), as well as CS (which is almost exclusively played by boys). Just about everyone has played games that have an age limit of 18 (like Vice City), even if they only stay at the first level. They don't think it's hard to do, and their parents either don't care that the game is restricted or that they play at a friend's house where the parents don't involve themselves in what happens with the computer. In a teaching resource about the effects of computer game violence that I use in my lessons, a boy relates that, when out in town, after a whole day of having played Vice City, he considers, before coming to his senses, stealing a car since he's tired of walking. It's about only the short-term effect and not any long-term personality change.
The high-consuming kids and teenagers in the study admit that they spend too much time with high technology. This is something I've experienced myself when talking to a number of pupils who are always tired in the morning and whose grades are being affected by playing too many computer games too late in the evening. Most of them would like to reduce their playing but say it's hard to do on their own. I usually suggest a combined effort by the parents, the school and the pupil where we together set limits on how many hours games can be played, which we then follow-up with school reports on attendance and grades.
[...] |

(*continued*)

2. **Martin** [December 13 2005]	I know that this is your area of expertise, so I was a bit curious to know how you would interpret that report. I get a feeling that your post expands on the report we had to read, and, essentially, I think that you describe today's situation among teenagers' use of technology perfectly. However, what I don't have is your personal interpretation and reaction to the report.
3. **Harry** [December 14 2005]	I can agree with Martin in certain respects that you expand upon the report with your knowledge of the area and don't give your own slant on it. It is, after all, your subject. However, I do think that you raise an important question that isn't illustrated in the report, that is, if children have rules around media they learn indirectly that that which we receive via the media is important and isn't something to just waste. That's what I believe. If children have free access to all types of media, I believe that they don't learn to sift through it and check the validity of what they find. Without rules at home, you get, for example, the problem of tired children and teenagers because of too little sleep. Then they can't keep up in the lessons and receive poor grades.
4. **Carl** [December 15 2005]	I think that your post reflects reality better than the report we were supposed to read. Therefore, I think that we parents have to be clearer with setting boundaries for how often computer and TV games can be played and which games they can play.
5. **Karin** [December 15 2005]	Interesting thoughts regarding media usage amongst young people! My interest was caught by what you said about having rules to control Internet usage and that you could, for example, block certain search words. It must be incredibly difficult as a parent to keep track of how the Internet is used and to what purpose. You can't sit with them the whole time so as to keep track. It's just good then that you can set some kind of limits. At the same time, you know from experience that pupils are extremely good at getting around such things. We have, for example, blocked MSN at our school but despite this, you often see pupils sitting and chatting via MSN.
6. **Lena** [December 17 2005]	I agree with the above, that your post was an interesting compliment to the report that we read. I think as well that the late nights can be a problem when you go to school. It's like some sort of game demon gets hold of them; I'd just like to shoot it dead…/Lena.
*7. **Eva** [December 17 2005]	Hi, thanks for all the answers! Great that you, Michael, reacted to me not being so personal in my post, I take onboard your criticism! As an excuse, I fall back on lack of space. However, above all, I want to point out that I'm not trying to condemn my pupils' CHOICE of media. If I'm going to have constructive discussions about media with my pupils, then I have to take their experience and media habits seriously. But if they, like I wrote, show me a site that I consider unethical and completely corrupt, I tell them that and explain why I think that. And, I usually try to create a bit of debate around the subject. I believe that they need to hear an adult's view, otherwise they wouldn't have shown me the site, but at the same time, I respect their views. Above all, the time that pupils spend on computer games is, nevertheless, a problem. It's all about that we teachers and parents have to dare to get to grips with the problem and limit the amount of screen time.

In this dialogue Eva (1) raises the problem with upper-secondary school students and the increasing computer game playing during their spare time and in school; she points out how this can have a negative effect on pupils' school performance. Further, she argues that cooperation between school and home can establish reasonable rules for pupils' computer usage and create conditions wherein they can be adhered to. Martin (2) essentially confirms Eva's post but also asks after her personal interpretation and understanding, since he knows that they are discussing her area of expertise. Harry (3) also starts with confirming the previous post, but at the same time by saying "if children have rules around media they learn indirectly that that which we receive via the media is important and isn't something to just waste," he seems to indirectly argue that pupils need to understand the meaning and purpose of the rules. He also argues that unlimited computer usage does not automatically develop pupils' ability to check the validity of sources and seems to, thereby, point out the need to discuss the problem with the pupils. Even Karin (5) starts with a confirmation of previous posts, but focuses then on the problem of setting boundaries for pupils' computer usage by stating that it is not possible to have full control and that pupils often get around the limitations.

It can be asserted that Harry's (3) and Karin's (5) statements create the conditions for highlighting the possible meaning potential in the assignment in that they problemize that assertion that the teacher needs to set boundaries for pupils' computer usage. It is also reasonable to assume that Harry and Karin's statements impel Eva (7) to clarify that her intention was not to "condemn [her] pupils' CHOICE of media" and that her goal has been to have constructive discussions with her pupils about media and their media usage. Simultaneously, she still insists that it is necessary to protect and help her pupils through limiting their computer usage.

The thematic pattern in the dialogue in excerpt 2 constitutes yet another example of an *accepting* and *confirming* discourse (4, 5, 6). Both Harry's (3) and Karin's (5) statements exemplify how the students first acknowledge previous posts in order to then gradually *question* what has been previously said or in order to add new opinions. Through this, the possible meaning potential is clarified between, on the one hand, the teachers' need to control what the pupils use the computers for and how much they can use them, and, on the other hand, supporting the pupils' own abilities to set limits for playing computer games and to check the validity of sources. It can also be asserted that Harry's and Karin's statements initiate a *negotiation* about computers as tools in schools, which implies that the participants need to use a different approach to arguing for their opinions. In this way, the dialogue also develops from being authoritative towards being increasingly *persuasive*. According to Bakhtin (1986, 2004), this signifies that various voices can be heard and that the words that are used consist partly of their own words and partly of others' words. These words are developed during an inner and outer struggle between differing points of view and values. Rommetveit (2003) emphasises also that pluralistic cultures and discourses make use of interpretive and persuasive dialogues in order to create a common understanding. At the same time, it can be asserted that the participants are still not quite capable of using the meaning potential to focus on how professional teachers can get on with developing their pupils' understanding of the problems, that is, the discussion is not really able to focus on how teachers can set about balancing, on the one hand,

formulating clear rules for computer usage and, on the other hand, supporting the pupils' own development towards becoming responsible adults. A summary of the dialogue in excerpt 2 is given in Fig. 2.

In the third excerpt, the student teachers are engaged in a discussion about what significance the pupils' social situation has on their learning and development. The students have studied literature on socio-cultural learning and development processes. Their assignment is to describe a concrete teaching situation that is linked to the literature and to reflect on the course of events in the situation. In this assignment, the possible meaning potentials arise primarily from the students' own examples and from how they are able to use the literature to analyse the described teaching situation. In excerpt 3, Martin takes up an example from his school.

1. **Martin** [January 17 2006]	The class was assembled, except for Anders, and no one knew where he was; and when he finally arrived, he was 15 min late. Anders was given a reprimand but he just shrugged his shoulders and scoffed; he didn't seem to care particularly and that made me very thoughtful. My first thought was that since I'm a new teacher, he was checking where my limits were. [...]
	His absenteeism had begun to increase dramatically, not just in my lessons but also even in the core subjects, and I saw that as a major problem, and one that was not acceptable. I told Anders this in a private interview. [...]
	A meeting was called with the school's personnel, the pupil and his parents. In the meeting, I was very clear, as a teacher, which guidelines should be followed, and received good support from his parents. We made a verbal agreement where it was decided that Anders needed to have perfect attendance for a six-week period, both in my lessons as well as the core subject lessons in order to be able to complete the course. His parents were to be kept up to date during the period and then a follow-up meeting would be held. The pupil was in complete agreement with this and he himself wanted a change to happen. Säljö states: "The pupil in school can be compared to a master's apprentice. The apprentice, or pupil, needs to speak up and act for learning to take place" (Claesson, 2002, p. 32). He decided for himself to complete his courses and he wanted to do it independently. The result was that Anders finished the courses in house building with tutoring from me, and his absenteeism changed to perfect attendance. Even in his core subjects, Anders succeeded in keeping his grades. I never doubted Anders because I had seen that he had the capacity to succeed. Just like Säljö stated: (2005). "One can not understand how people learn and develop unless one considers the situational aspects of learning. Those who have difficulty in one situation could find it easy in another." (p. 66) Anders showed that he developed and took on more responsibility when he was allowed to work independently. Along with that, Ander's self-esteem also grew.
	When I look back to before our meeting, I see that Anders has changed very much. His relationship with his father has improved considerably, as has the interactions between Anders and myself, as well other teachers. I believe this was a contributing factor to his becoming more positive, and he has regained his desire to work. As a consequence, in the future I'm going to react in a similar way at an earlier stage. The parents play an important role and have to be informed, and even, if necessary, the school welfare officer and the school nurse. The whole time, I had a conviction that I could change the course of this negative trend towards something positive. My belief in myself was strong and I trusted my gut instinct and acted out of common sense.
2. **Harry** [January 25 2006]	Your post is a good example of the socio-culture's impact on learning. It's also a good example of how an engaged and sensible teacher should act. You didn't give up but worked from your feeling and convictions. Think what would happen if more teachers had been so considerate. It's interesting to see in Anders' case that one thing affects others. When everything started to work in school for Anders, then it also started working better at home, and so it worked better in school, and so on. Good post!
3. **Lena** [January 26 2006]	I can't do anything but agree with Harry, an interesting example from your daily life! It clearly shows that Vygotsky's theories on learning are consistent with reality. Without your attentive awareness, who knows what might have happened with this guy!
4. **Carl** [January 26 2006]	I am personally acquainted with parts of your story. It was moving to hear how you got that pupil on the right track. What you say is that it's so important to show a pupil that you believe in himself/herself. The balancing act is that teachers need to know the pupil's capacity to manage the demands that school places on the pupil. The finesse is to not set too-high demands, and the pupil should see the goal as realistic. Through understanding the pupil's social conditions, you can help the pupil through difficulties and get the pupil to break cultural conditioning, The instinct that a teacher has about a pupil needs to be treated cautiously and analysed carefully. In parent-teacher-student conferences, the teacher has, together with the parents, the possibility, among other things, of getting an insight into the pupil's home environment. In order to be able to help the pupil reach his/her personal goals, the teacher needs to show a lot of flexibility and openness for different teaching methods. It's a balancing act that I think you handled brilliantly. At that same time, you showed an intuitive feeling for how you helped steer the pupil on to the right track. In this, you have shown great patience, and I think it would be interesting to discuss what "patience" means for a teacher. How do you get it? Or, is it a trait you are born with? And can you develop it? I think you have illustrated a good encounter and how you tried to solve it. I am impressed, if I had been asked, I would have said it was very difficult. You can see how dangerous it is with preconceived ideas; thanks that you showed that I was wrong.

(*continued*)

5. **Karin** [January 27 2006]	It makes me very happy to hear that teachers manage to get involved in the pupils' social situation. It really gives fantastic results! Through creating a secure environment in school, the home environment can be affected. Sometimes it means just needing to be noticed by somebody. If one is right in the middle of a divorce, it's hard to find some space. I have just started working at a new school and have taken over half a class as group tutor. I have been warned by a number of different teachers to not get "too" involved with one of the girls. They told how she rang a teacher's home in the middle of the night and cried, talking about committing suicide. Because the teachers couldn't cope, she's had to switch tutor groups a number of times. I've wondered a lot about what they really mean. Personally, I find it difficult not to be engaged, but at the same time, we, as teachers, don't have any training in handling crisis situations.
6. **Eva** [January 28 2006]	Interesting to hear how you changed the trend with Anders. I have similar experiences with one of my tutorial pupils but, unfortunately, it hasn't gone as well there. In that case, it's actually about a behaviour that has been going on since the beginning of school and, therefore, very difficult to change. You show in your post how important it is that we teachers are receptive in teaching situations and try to really see each and every pupil. Karin, you write that you received advice from your colleagues to not get too involved in one of your pupils. I can be only incredibly furious over such statements. Within social services, they often talk about co-dependency, which one should watch out for very carefully. It is NOT the same thing as caring for a pupil that is having a hard time. As adults, it's our responsibility to listen and guide a pupil on to professional help if needed. Not to try to solve their problems by ourselves, because we aren't trained to do that, but steer them in the right direction. I know that upper-secondary teachers belittle student welfare. People choose the higher school forms in order to teach a subject that they're enthusiastic about and are not interested in seeing the overall picture in education: the importance of pupils feeling comfortable in their learning environment and social situation so that they can take in knowledge. There now, I've written down all my thoughts…;).
7. **Harry** [January 29 2006]	Hi Karin! What you describe about a pupil ringing home to a teacher, crying and threatening to commit suicide should be taken absolutely seriously. That most people's suicide attempts are a cry for help and that they really don't think of going through with it is a myth. This is what two Swedish researchers have recently shown in a doctorial thesis, so it's serious research. You don't need years of training as a psychologist to help people in crisis, that's what my years in the armed forces taught me. The important thing is that this pupil has someone to talk to. Maybe she doesn't have an adult at home that she can talk to so it's a teacher that she turns to. Try using four steps: 1. Ask what's happened. Let the pupil talk. 2. Ask how it felt/feels. What feelings are you battling with? 3. How do you want to move on + What can I do? 4. How does it feel now? I had to learn that once so that I could take care of soldiers with combat reactions (read combat stress) and it is a method that works.
8. **Eva** [January 29 2006]	Thanks Harry! I'll take that at least with me in my roll as teachers, tutor and fellow human being.
9. **Karin** [January 29 2006]	Hi again! It's great to hear that you think like I think! I don't understand how you can't care or get involved when it's about pupils. Thanks Harry for good advice! Often it helps just to listen and actually hear what they say.

Dialogic Level	Thematic pattern in the dialogue
Persuasive and preliminary negotiation	• accepting, confirming and questioning • elements of passively reproducing posts • negotiations • responses create possible meaning potentials • failure to use meaning potential as a basis for learning and development

Fig. 2. Summary of description of persuasive and preliminary negotiation.

In the dialogue, Martin (1) describes a pupil who comes to a lesson 15 min late and ignores a reprimand by the teacher. Martin relates how he first experienced the situation as the pupil in question testing his boundaries since he was a new teacher to the school. However, according to Martin, the event did not represent an isolated incident, rather the pupil's attendance had being decreasing dramatically prior to that. Martin confronted the pupil about the incident and his absenteeism in a private talk, and a meeting with his parents was called. At the meeting, a verbal agreement which stipulated that the pupil needed to have perfect attendance for a six-week period in order to be able to receive a pass in the course was made. According to Martin, the meeting and the agreement signifies a clear turning point for the pupil, and resulted in the pupil in question passing the course and changing his behaviour.

Carl (4) builds on Martin's example when he focuses on the conditions for teachers to succeed in shifting a negative personality trait in a pupil. He also develops the thought that the teacher assignment can be seen as a compromise between, on the one hand, the teacher's ability to take into consideration the pupils' social and cultural conditions and, on the other hand, the educational demands she/he needs to put on the pupils. His comments, therefore, also clarify a possible meaning potential in the teacher role that the students do not actually discuss further.

Karin (5) focuses instead on another meaning potential through raising the dilemma about what boundaries teachers should have in their involvement with pupils. She relates that she had been warned by her teaching colleagues not to "get 'too' involved with" one of her pupils who was in crisis. The possible meaning potential in Karin's example can be represented by the ability, on the one hand, to understand and get involved in pupils' social situations in order to support their learning and development and, on the other hand, the professional teacher's ability to clarify boundaries in the teacher's role.

Eva's post confirms first Martin's course of action to deal with the pupil's absenteeism. In the same post, she, like Martin, expresses objections to the advice Karin had received from her colleagues. Eva questions the teachers' actions and focuses on the distinction between involving oneself and becoming co-dependent, which she states as "NOT the same thing as caring for a pupil that is having a hard time." Similarly, she points out that involvement in the teaching role is a question of guiding a pupil with a serious problem towards professional help. In her comments, she is critical of working teachers who only see themselves as knowledge brokers and, therefore, do not see the connection between the pupils' socio-cultural environment and their learning. Through this, she explicates and deepens the meaning potential that Karin previously initiated and drives the discussion further. Consequently, the meaning potential is being used as a starting point to describe the teacher's assignment through focusing on the overall picture in teaching and the "importance of pupils feeling comfortable in their learning environment and social situation so that they can take in knowledge." Even Harry (7) returns to the discussion and extends Eva's post with advice about how one can proceed in providing immediate support for a pupil that is in difficulty.

The thematic pattern in excerpt 3 consists of yet another example of a discourse that consists of *accepting* and *confirming* contributions (for example, 2, 3, 9). At the same time, it is clear that subsequent posts in the discussions can primarily be seen as *actively questioning* parts of what was previously stated or *further developing the discussion* through providing new opinions or examples (4, 5, 6, 7). In a comparison of excerpt 1 and 2, it is also clear that the number of posts that passively reproduce what someone has previously stated has decreased and that others' statements are reworded into their own words (ex. 3). This suggests that the participants, to a greater extent than before, become shareholders and co-authors in a common account (Rommetveit, 2003). In such a discourse, knowledge and understanding tends to become increasingly socially distributed between the students and a common understanding is developed through negotiations. According to Bakhtin (1986, 2004), the active understanding, therefore, becomes increasingly dialogic and the voices in the dialogue develop from having been authoritative and monological to being increasingly *persuasive* and *active*. Moreover, the everyday examples described by the students in the dialogue create more possible meaning potentials, which are then made explicit in the discussion. Karin's (5) example clarifies the meaning potential between, on the one hand, to get involved in pupils' social situations and, on the other hand, the teacher's ability to clarify boundaries in the teacher's role. This meaning potential is then used by Eva (6) as a basis for creating a distinction between the socially engaged teacher and the co-dependent teacher, which in turn creates possibilities *to use the meaning potential as a basis for learning and development*. A summary of the dialogue in excerpt 3 is given in Fig. 3.

Through focusing and analysing one groups' joint efforts and work with course assignments, over nine-months of participation in a web-based community, it have been obvious that the students seem to successively develop a competence to use others' utterances as a tool for learning. It has also, throughout the analysis, been explicit that it is possible to describe the development of this competence, not only as an individual appropriation but also as an extended, collective competence to collaborate within the group. In this way, the excerpts only constitute three descriptions of different levels of a groups' ability to use dialogues as a tool for developing a collective competence of collaboration. This does not mean that they constitute all possible levels a group of students can go through in this situation. A summary of the three dialogic levels is described in Fig. 4.

Dialogic Level	Thematic pattern in the dialogue
Persuasive and co-authorial negotiation	• accepting, confirming or actively questioning and a desire to develop the discussion • few or no elements of reproducing posts • others' statements reworded to own words • participants are shareholders and co-authors in the account, negotiations • responses create possible meaning potentials • use of meaning potential actively as basis for learning and development

Fig. 3. Summary of description of persuasive and co-authorial negotiation.

Dialogic Level	The levels of thematic pattern in the dialogue
Passive and authoritative	• accepting and confirming • passively reproducing • monological and authoritative • failure to explicate the possible meaning potential in the dialogue as a basis for learning and development
Persuasive and preliminary negotiation	• accepting, confirming and questioning • elements of passively reproducing posts • negotiations • responses create possible meaning potentials • failure to use meaning potential as a basis for learning and development
Persuasive and co-authorial negotiation	• accepting, confirming or actively questioning and a desire to develop the discussion • few or no elements of reproducing posts • others' statements reworded to own words • participants are shareholders and co-authors in the account, negotiations • responses create possible meaning potentials • use of meaning potential actively as basis for learning and development

Fig. 4. Summary of the three levels of thematic pattern in the dialogues.

5. Discussion

The purpose of this study has been to examine in what ways students' joint ability to use the written, asynchronous dialogues as a tool for learning is developed over nine-months of participation in a web-based learning community. In this study, we have chosen to name this joint ability as a collective competence of collaboration and to define it as the level of learning ability a group of students express when using dialogues as a tool for their own and other's learning. This point of departure is built on Bakhtin (1986, 2004), Linell (1998, 2001) frameworks and assumptions that learning is a phenomenon that arises as a collective process situated in a specific situation and context. In addition, Rommetveit (2003) theories on dialogic interactions and meaning potentials have been used in order to understand how students become shareholders and co-authors in a joint construction of meaning. However, studies (e.g. Scardamalia and Bereiter, 1994; Stahl et al., 2006) in this field often assume that participants automatically are able to use collaboration as a tool for learning and knowledge development when they are involved in web-based learning. Other studies (e.g. Lipponen et al., 2001; Lindberg and Olofsson, 2005; Jakobsson, 2006) also reveal that students are not always active participants in these environments and that the outcome tends to result in relatively superficial or unreflective reproductions. The question is: is it possible to assume that students have the ability to use collaboration as a learning tool or does this ability need to be focused upon in order to be developed.

In this study, 40 student teachers participated in web-based courses, which did not explicitly aim to develop the students' abilities to collaborate or to use other's utterances as a tool for learning. In spite of this, the analysis revealed clearly that all groups in some ways actually developed a collective competence to collaborate and used this competence in order to enhance their own and other's learning about the course content. At the same time, the analysis showed that it was possible to identify different levels of this ability. The excerpts in the result section aim to describe these different levels of a group's ability to use dialogues as a tool for learning. As said before, this does not mean that they constitute all possible levels a group of students can go through in this situation. Rather, they should be understood as examples that constitute three different levels of the collective competences of collaboration a group of students can express.

The first dialogic level represents an example of an accepting or confirming discourse, in which the students first and foremost passively reproduce and re-express each other's ideas and thoughts. We identified the dialogue as authoritative (Bakhtin, 1981), as it mostly consisted of conceptual and intellectual re-productions. The dialogues are characteristically monological (Rommetveit, 2003) and do not aim to question or develop previous contributions to the discussion. At this level, the students seem to avoid contradictory understandings and fail to explicate the possible meaning potentials as a basis for learning.

The second dialogic level represents an example of an accepting and confirming discourse; but, at the same time, the students' statements exemplify how they first acknowledge previous posts in order to gradually question what previously has been said or in order to add new opinions. The possible meaning potentials are occasionally made explicit but do not seem to be used as a tool for enhanced learning at this level. At the same time, the dialogues tend, to a greater extent than before, to initiate negotiations about different opinions or standpoints. According to Bakhtin (1981), this kind of dialogue represents a situation where various voices can be heard and is increasingly developed towards a persuasive discourse. In this particular form of discourse, the students' utterances partly consist of their own words and voices and partly of other's.

The third dialogic level constitutes a situation where there is a noticeable reduction in the number of posts that passively re-produce what someone previously stated. Now, the students more actively question what was previously stated or they further develop the discussion through providing new opinions or examples. In this way the participants, to a greater extent than before, become shareholders and co-authors in a common account (Rommetveit, 2003). In such discourse, knowledge and understanding tend to become increasingly socially distributed among the students and a common understanding is developed through negotiations. According to Bakhtin (1986, 2004), the active understanding also becomes increasingly dialogical and the voices develop from being authoritative and monological to increasingly persuasive and active. In this situation, the dialogues often succeed in making the meaning potentials (Rommetveit, 2003) explicit and visible, which in turn create increased prerequisites for the students to use them as a basis for learning and development to a higher degree than before.

On the whole, all groups actually developed some kind of collective competence to collaborate, and they used this ability as a tool for learning. Further, it is possible to claim that this development was inconsistent in different groups, but also varying within the sample group throughout the nine-months of participation. The analysis also conveys that the dialogues in most groups actually can be described as a dialogic level: level one or two most of the time and only occasionally as a level three dialogue. It is also possible to state that for some groups the development of the collective competence to collaborate was problematic, and in these groups there existed a tendency to get into a rut at lower dialogical levels. In order to further scrutinize what constitutes these hindrances or problems, additional research is required. However, the results of this study clearly indicate that if students are to be able to develop an ability to collaborate at dialogic level three, the collective competence to collaborate needs to be in focus and needs to be reinforced by resources with the goal of establishing this.

5.1. Online education implications

One important conclusion from the results of this study is that the competence to use collaboration as a learning tool does not seem to be a quality that the participants automatically have when they participate in online education. Rather, this ability should be understood as a collective competence that a group of participants actually could develop when they are collectively engaged in course assignment in online settings. Consequently, this implies that the ability to use collaboration as a learning tool is situated in a specific situation. Furthermore, the organisation of the online course has to support this development in order to accomplish the best prerequisites for learning. The teacher, or course leader could, therefore, use the different dialogic levels described in this study as an analytic tool in order to scrutinize how students manage to develop the collective ability to use dialogues for learning. This course of action could also create prerequisites for the teacher to help him or her to focus on student groups that seem to have problems developing this ability, or to focus on groups that only work routinely at lower dialogical levels.

One way of supporting the students during online courses could be to use Rommetveit (2003) framework of meaning potentials. The results of this study indicate deeper and more productive dialogues and enhanced learning when different understandings, significances

and contradictions in course assignments are made visible and explicit to the participants. Hence, the aim is that the students should develop the ability to independently identify the meaning potentials for enhanced learning. At a later stage, the three dialogic levels could also be used as a metacognitive tool for students in order to improve group efficiency and to present the group with the possibility of analysing their own dialogues retrospectively. This means that the students could use their own dialogues from earlier assignments in order to enhance their own development.

A third implication in this study is related to future research within this field and how we might understand and interpret dialogues. According to Linell (1998, 2001), there has been a tradition in research in human learning and development to view utterances and their meaning in dialogues only as the speaker's communicative intentions and to see the listener as a person only intent on recovering these intentions. However, by adopting this traditional approach, one runs the risk of disregarding the collaborative and collective nature in dialogues, thereby losing the essence of how meaning arises when two or more voices connect, both as speaking and listening voices. As an alternative, we argue that such a situation might better be understood as a social and collective process where the speaker becomes dependent on the listener as a co-author and, at the same time, becomes a listener to his or her own utterances in a sense-making verbalization process.

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