Expanding the metadiscourse concept in knowledge building.

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ABSTRACT

In Knowledge Building (KB) research, the metadiscourse concept has been taken in use more in recent years. The concept seems to have been used mainly to inform the academic discourse and the collective advancement of ideas. Still, there have been few attempts to define the concept in a coherent way. In this paper I discuss whether we need to expand our understanding of the concept in order to fully understand knowledge building discourse. By using a comprehensive definition of metacommunication as a theoretical framework, I demonstrate how different kinds of "talk about talk" are present in knowledge building discourse in selected KB research papers, while not being explicitly described as metadiscourse. It is suggested that several new discourse elements should be included in the metadiscourse concept; these are explanations of intentions in the knowledge building discourse, discussions of the relationship between the participants and questions of clarification that may better capture the meta-level in the "ongoing flow" of the knowledge building discourse. In addition, one should focus more on the discourse relationship.

1. Background

In recent years, more Knowledge Building (KB) researchers have started to use the metadiscourse concept (Scardamalia & Bereiter, 2006; van Aalst, 2009). Still, the definitions of this "discourse about the discourse" or "talk about the talk" seem to be simple and, in some cases, not even explicitly defined. Research related to a similar concept, the metacommunication concept, also appears to have had minimal influence on the development and definition of the metadiscourse concept in KB research. One exception is a review study done by Baltzersen (2013a). He finds that the present use of the metadiscourse concept refers mainly to the discussion of ideas within the academic discourse in a class or student group. The concept seems to be closely linked to a major review process which is sometimes necessary in the knowledge building discourse. Interestingly, the metadiscourse concept does not focus on issues related to the conversational relationship or the use of conversational time. In this paper, I therefore ask:

Do we need a broader understanding of the metadiscourse concept in order to fully understand knowledge building discourse?

A comprehensive definition of metacommunication developed by Baltzersen (2013b) is used as an analytical framework. He divides the concept into three basic dimensions: *what, how* and *when* do you metacommunicate? On the basis of this broad definition, the goal is to explore if some aspects of "talk about talk" are present in knowledge building research, but still not emphasized in the analysis by the researchers.

In the selection of relevant examples, it was important to use discourse data in order to explore the relationship between metadiscourse and knowledge building discourse in more depth. Furthermore, it was essential to find examples which could be regarded as a legitimate part of "mainstream" knowledge building research. A review study by Baltzersen (2013a) was used to locate research papers which, to some degree, related the metadiscourse concept to the knowledge building discourse:

Table 1. Overview of selected research papers according to the frequency of the use of the metadiscourse concept

Top ranked research papers in Google Scholar (A search with the combination of the two terms "knowledge building" and "metadiscourse/meta-discourse" for the period from 2006-2012, date 8th November 2012).	Number of times the metadiscourse concept is used in the paper
Distinguishing knowledge-sharing, knowledge-construction, and knowledge-creation discourses (van Aalst 2009).	13
Collaborative productivity as self-sustaining processes in a grade 4 knowledge building community (Zhang and Messina 2010).	4
Sustaining knowledge building as a principle-based innovation at an elementary school (Zhang et al. 2011).	3
Knowledge building: Theory, pedagogy, and technology (Scardamalia and Bereiter 2006).	2
Designs for collective cognitive responsibility in knowledge-building communities (Zhang et al. 2009).	2

Table 1 shows that the metadiscourse concept is used only a few times in most research papers. This suggests that the concept has not been thoroughly explained in the theory. The two top ranked research papers were selected as the basic data corpus. These papers were not considered to be representative, but they were rather regarded as being of some significance in knowledge building

research.

In the paper by Zhang and Messina (2010) there is only one lengthy and detailed text excerpt which illustrates knowledge building discourse. The discourse data here had not been explicitly related to the metadiscourse concept in the analysis in the paper. This excerpt was therefore selected as a relevant example for further analysis.

The paper by van Aalst (2009) consists of several short text excerpts. Most of them are used in the section in the paper that presents the community code. These excerpts had not been interpreted as examples of metadiscourse. Four of five excerpts from this section were therefore selected for further analysis. Because these excerpts were shorter in length, more excerpts were chosen than in the paper by Zhang and Messina (2010). Nevertheless, the two cases are similar because they both consist of discourse data, but they differ in the way that Zhang and Messina (2010) refer to a discussion between the teacher and the student in the class, while van Aalst (2009) refers to online discussions between groups of students.

Both these cases will be analyzed in order to find out if some aspects of "talk about talk" are present, but have not been emphasized in the analysis by these researchers. One can assume that, in these two research papers, the authors has attempted to describe the meta-level, but still might have excluded parts of this phenomenon. The goal of the paper is not to do an extensive analysis, but rather illustrate a possible further direction for the development of the metadiscourse concept.

Regarding the organization of the paper, the two cases from the published research papers will be presented in Part 2. In Part 3, I analyze if other kinds of metacommunication actually are present in these published papers. In Part 4, I discuss whether some types of metacommunication should be included in a new and broader metadiscourse concept in order to better understand the knowledge building discourse.

2. Examples of knowledge building discourse

Case 1 from research paper by van Aalst

In the study by van Aalst (2009), secondary school students in 2003 and 2004 were assigned an inquiry project related to different kinds of viruses. Two classes shared a Knowledge Forum database and worked on the same topics. To limit the number of notes they would encounter, the students were divided into four groups. Each group had students from both classes and had their own online environment ("view") in Knowledge Forum. The separate groups were not expected to interact with each other during the inquiry. Most of the students worked on Knowledge Forum during class a few times per week, and after school hours.

In his case study, van Aalst (2009) uses community as one of the seven main codes in a Knowledge Building discourse. This code describes the extent to which the social interactions within a group suggest a "sense of community", in which people feel they will be treated sympathetically by "their fellows". The indicators include social processes such as commitment to shared goals, encouragement, giving credit, drawing in participants, and apologizing. He suggests that these processes seem to be a necessary first step for collaborative learning. Whether ideas are appreciated and taken up by the community is seen as important to the formation of students' identities as

community members.

Van Aalst (2009) finds several social differences between the studied groups. One of the groups functioned especially well with a shared commitment to the task, a sense of belonging to the group, and an appreciation for all group members' contributions. Examples 1 and 2 are used to illustrate the encouragement in this group. Students wrote the following comments online:

Table 2. Text excerpts from group discussion (van Aalst, 2009: 273).

Example 1	Example 2
"I think your ideas for groups are good … It would mean that we could get a start on all the topics right away. Good job of actually getting things going!"	*"I really like [S's] idea of setting ourselves little mini-deadlines so that everybody will stay on task and finish the job more efficiently."*

Van Aalst (2009) interprets the two excerpts in table 2 as related to encouragement and giving credit, but he doesn't relate them to the metadiscourse concept. In addition, he gives two examples of conflicts in another group that arose from miscommunication:

Table 3. Text excerpts from group discussion (van Aalst, 2009: 276).

Example 3	Example 4
In the final phase of the work one student in the Grade 11 class wrote to a Grade 10 class: "*As of now, we have less than 1 week left and because your class have not been very active in this final phase, we've decided to go with these two questions above because we've already been researching them and getting information. I'm sorry if this inconveniences you in any way, but you've left us no choice. Hopefully this will work out alright with you.*"	A student from the Grade 10 class responded as follows: "*Yeah, alright. If the rest of our group wants to do it then I guess that's what's being done since "we have not been very active." I thought we were only supposed to research our own questions first. Are those the only questions that we are doing then? We are sorry that you are not satisfied with the level of our commitment on KF. We weren't aware that we needed to pick from your questions as well as ours. Sorry for the inconvenience.*"

All four text excerpts have been coded as community and they have not been explicitly interpreted as related to the metadiscourse concept. In Part 3, I will discuss if it's possible also to connect these utterances (phrases) to the metacommunication concept.

Case 2 from paper by Zhang and Messina (2010)

In the research paper by Zhang and Messina (2010) the analysis will be concentrated on a text excerpt where the teacher explains the rules of reflective contributions to the class. As we can see from example 5 in the table below, the teacher reminds the students several times of the basic conversational norms and rules related to collective knowledge advancement.

Table 4. Text excerpt with whole class conversation (Zhang and Messina, 2010: 52).

Example 5	"Analysis highlight" by Zhang and Messina.
- GM: *Well, there'[re] bricks, which are still opaque. But they're not reflective. But I don't know what they are called, like that kind of opaque.* JL (2:20)	- Identifying non-reflective opaque materials, using a tentative voice.
- JL: *I think all opaque materials are reflective, except not all of them reflect light back. … OK, let's just say um like…a yellow carpet… your eyes would be able to see the yellow of it because it would only reflect yellow light. That means like that sort of like a tissue for example that would only reflect white, except the yellow carpet, since it's like green mixed with red, I believe. Then the beam of red [and green] light would touch us and your eyes would take it in as yellow.* (2:31)	- Contributing an alternative idea: All opaque materials are reflective, by analyzing a thought experiment (yellow carpet), drawing on knowledge of primary and secondary colors.)
- Teacher: *So you're saying everything is reflective then. Every opaque object is reflective to some degree. Oh, I hear some people disagree. Can you pass it on?* [JL: SG.] (3:58)	- Revoicing student idea; highlighting contrasting perspectives.
- SG: *What about wood? Wood isn't reflective.* JL. (4:07)	- Bringing in an anomaly.
- FJ: *I think if wood is shiny and polished, you could see your reflection. I think it's mostly just shiny objects so it depends on what kind of wood you have, what kind of table you have, if you see your reflection.* SG. (4:53)	- Re-analyzing and interpreting the instance as non-anomalous.
- SG: *Like if you had a glass table.* (5:12)	- Supporting fact.
- Teacher: *The question is: Are all opaque objects reflective? Have we answered that? … Do all opaque objects reflect light? Anyone has a theory or evidence to support that? So, SG, it's yours to pass.* [SG: DN.] (5:16)	- Highlighting/reminding a focal problem and promoting reflection on progress.
- DN: *Um, actually all opaque objects do reflect light, because they reflect their own color. So we see them as whatever color they are.* TS. [inaudible student talking] (5:35)	- Articulating an idea and its supporting thoughts.
- Teacher: *Hold on, let's hear him talk.* (5:57)	- Maintaining conversation norms.
- TS: *If they didn't reflect their own color, you wouldn't see a brick of red, or someone's t-shirt as purple or whatever.* RP. (5:59)	- Extending and elaborating idea.
- RP: *What about black?* (6:11)	- Bringing in an anomaly.
- Teacher: *Don't throw it back to him. Give your theory.* (6:14)	- Maintaining norms; encourage initial thoughts.
- RP: *I don't think black reflects. I think that black might reflect light, but it might not. Because we had a reading today that um all the colors of the rainbow make white light and there is a note in the database about that, and everything reflects its own color. But it didn't say anything about black.* EY. (6:18)	- Summarizing a reading and an online note and identifying black as an unaddressed issue.

This text excerpt is not explicitly connected to the metadiscourse concept in the published research paper. In Part 3, I will discuss if it's possible to relate it to the metacommunication concept.

3. The presence of metacommunication in knowledge building discourse

In this section, cases 1 and 2 are analyzed according to Baltzersen's (2013b) definition of metacommunication. The definition is presented together with the analysis of the different examples.

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Metacommunication about the conversational content

According to Baltzersen (2013b), one main option is to metacommunicate about the conversational content. This can be done in several different ways, and usually happens when a speaker is trying to manage or regulate the conversational content. One strategy is to *talk about the forthcoming conversational content*. There are several examples of this "future-orientated" metacommunication. In example 1, the phrase "We could get a start on all the topics (...)" indicates the presence of a talk about what we are going to talk about. The student representing the group suggests that they should start to work with all topics instead of only a few. The utterance refers to the number of conversational topics. Furthermore, when the student in example 3 writes "(…) we've decided to go with these two questions," he is actually deciding the scope of topics that the group is going to work with.

According to Baltzersen (2013b), one can *talk about the intentions behind the conversational content* in different ways. For example, it's possible to either talk about what oneself is saying or what the other person just has said. This kind of metacommunication is illustrated in example 4, when the student says: "I thought we were only supposed to research our own questions first. Are those the only questions that we are doing then? (…) We weren't aware that we needed to pick from your questions as well as ours." The student is talking here about the workload in the collaboration. The student is both disclosing the group's own opinion about the allocation of group work, and also asking for the other group's opinion about the group work. This utterance can be seen as an attempt to clarify the group's own position by explaining the task.

Furthermore, Baltzersen (2013b) emphasizes that *summarizing* can also be regarded as metacommunication about the conversational content. In case 2 by Zhang and Messina, (2010) one could claim that there are several such examples. When the teacher says: "So you're saying everything is reflective then, (...)" this can be interpreted as an attempt to give a short summary of what has just been said. Zhang and Messina (2010) code this utterance as "revoicing a student idea". In the same excerpt, a student tries to summarize the academic work: "Because we had a reading today that um all the colors of the rainbow make white light and there is a note in the database about that, and everything reflects its own color. But it didn't say anything about black." Zhang and Messina (2010) code/interpret this utterance as summarizing a reading and an online note and identifying black as an unaddressed issue. The key to understanding the meta-level is the explicit utterance related to something that has been said earlier. In this example the phrase "because we had a reading today" is of central importance, because it indicates that this is a summary. According to Baltzersen (2013b), one will usually still be talking about the same conversational topic, but this is done within a different communicative "frame". The important issue here is the explicit attempt to identify the essential prior conversational content.

Metacommunication about the conversational relationship

According to Baltzersen (2013b), the second main option is to metacommunicate about the conversational relationship. Usually this type of metacommunication is related to some kind of *evaluation of the relationship* between the persons interacting. There seem to be several such examples in the text excerpt from van Aalst (2009). In example 1, formulations such as "I think your ideas for groups are good," and "Good job of actually getting things going!" indicate that the groups are evaluating each other's work positively. In example 4, the evaluation is more negative.

Here the student writes that the group has not been very active: "If the rest of our group wants to do it then I guess that's what's being done since 'we have not been very active.'" The group here accepts the other group's decision since they agree with the assessment of their performance. In one way the group is summarizing the conversational relationship when they say they have not been very active. This message is also repeated in the phrase: "We are sorry that you are not satisfied with the level of our commitment on KF." The student here apologizes for the group's lack of work.

Baltzersen (2013b) also highlights that one can *talk about one's own role or another person's role in the relationship*. In example 2, the phrase "so that everybody will stay on task and finish the job more efficiently" also indicates the presence of metacommunication about each person's role in the group relationship. The phrase "stay on task" also suggests something about future expectations concerning how the group should work together. In example 5 by Zhang and Messina (2010) there is also an example of the teacher commenting on the person's role in the relationship in the class discussion. The teacher says: "Don't throw it back to him. Give your theory." The teacher is describing here how a student is not communicating adequately by using the metaphor of "throwing something". Zhang and Messina codes this utterance as "maintaining norms". By saying "give your theory" the teacher instructs the student to bring up his own ideas. The utterance is coded as encouraging initial thoughts.

As stated in Baltzersen (2013b), another kind of metacommunication about the conversational relationship is related to the *verbalization of a disagreement*. This kind of metacommunication is illustrated in example 3 with the phrase: "I'm sorry if this inconveniences you in any way, but you've left us no choice. Hopefully this will work out alright with you." This can be interpreted as an attempt to explicate potential disagreement. With the phrases "I'm sorry if this inconveniences you in any way," and "Hopefully this will work out alright with you" the student is saying something about possible negative feelings that the other group might get when they read the message. At the same time there is an element of apology and politeness in the critique, with the phrases "I'm sorry (…)" and "hopefully." At the same time, the phrase "(…) but you've left us no choice" explains the intentions behind the communicative message in more detail, and clarifies that the suggested solution is non-negotiable. This discussion about a possible disagreement between the groups is followed up by the other group in example 4. The phrase "Sorry for the inconvenience" indicates regret for the possible difficulties that this group may have created in the group work. The group is referring here to the other group's experience of their own work. This is also indicated in the phrase "not satisfied."

In example 5 by Zhang and Messina (2010), there are also phrases that can be interpreted as attempts to make disagreements more explicit. For example, the teacher says: "Oh, I hear some people disagree." This is a verbal opinion about some of the students' behavior in the class. Zhang and Messina (2010) code this phrase as "highlighting contrasting perspectives." This utterance can also be interpreted as an assessment of the degree of agreement in the ongoing conversational relationship in the class. Interestingly, this is a recommended metacommunicative strategy within therapy (Baltzersen, 2013b), but it also seems to be potentially beneficial within an educational context.

Metacommunication about conversational time-use

A third main option is to metacommunicate about the use of conversational time (Baltzersen, 2013b). This can be done in several different ways and also seems to be part of the discussion in the text excerpts in the study by van Aalst (2009). In example 1, the phrase "get a start (...) right away"

indicates that the student wants to begin to work immediately. In example 2, the phrase "I really like [S's] idea of setting ourselves little mini-deadlines so that everybody will stay on task and finish the job more efficiently" can be interpreted as containing two types of metadiscourse. The suggestion about "setting little mini-deadlines" concerns how to organize the time-frame of the collaborative work. According to the definition of metacommunication from part 1, this can be interpreted as a comment about conversational time-use. In example 3, the phrase "we have less than 1 week left" also says something about conversational time-use. In itself this is an objective description of time, but in this context it can also be interpreted as a sign of urgency. In another example by Zhang and Messina (2010) the teacher says: "Hold on, let's hear him talk." The student is here given more time to speak. Zhang and Messina (2010) code this utterance as "maintaining conversation norms". This utterance can be related to the allocation of talking time. One important task for most teachers is to let everybody speak.

Monological or dialogical metacommunication?

According to Baltzersen (2013b) the metacommunication in itself can also say something about how people relate to each other. In this regard, he distinguishes between monological metacommunication, which refers to a situation where only one person is metacommunicating, while dialogical metacommunication indicates that all persons are involved. Example 5 gives some impression of how the teacher is metacommunicating with the students. In this conversation the teacher is, to a small degree, a content provider, but mainly instead appears to be regulating conversational rules and directing the classroom discussion. Here the ability to metacommunicate seems to play an important role. Nevertheless, the teacher seems to be defining the discussion rules, making summaries and directing the time-use. In this way the teacher's behavior is close to a monological metacommunication dominated by one person, though this is not necessarily negative.

Still, the communication structure is clearly different from the traditional IRE-structure (initiation, response, evaluation) in which the teacher starts by asking a question, which is followed up by a response from a student, and which then terminates with evaluative feedback from the teacher (Cazden, 2001). In knowledge building, students are supposed to build on each other's ideas. Still, the teacher needs to sustain the discussion by constantly explaining the conversational rules during the ongoing conversation, like in example 5 with the phrase: "Hold on, let's hear him talk." This order illustrates what one could call teacher-controlled metacommunication, but paradoxically, the control is used here to facilitate students' continuous reflections around ideas. One could argue that this kind of metacommunication is necessary because students are used to traditional instruction and don't know how to do knowledge building.

Another important didactical question is to what degree students should be allowed to participate in dialogical metacommunication with the teacher. In a research study by Zhang, Scardamalia, Reeve and Messina (2009), they found that students requested "KB talks" to discuss the Knowledge Forum database with each other. Zhang, Hong, Scardamalia, Teo and Morley (2011) also mention that learning designs and inquiry strategies are often co-constructed by both teachers and students. Together they decide on what views should be created in Knowledge Forum and how different groups might contribute to different facets of the community enterprise. They discuss issues such as: Are we making progress in idea improvement? What are the weak areas that need more research? What experiments need to be conducted to test our theories? When do we need a KB Talk and what should it focus on? What kinds of information should be recorded in Knowledge Forum? This approach would indicate a more dialogical metacommunication since the students here have some degree of executive control over the classroom.

When can you metacommunicate?

Metacommunication will always happen at a specific time in a discourse. Baltzersen (2013b) suggests that metacommunication can either focus on an extended time frame or on the ongoing "here-and-now" conversation. The ongoing metacommunication can be done in several different ways, for example by explaining intentions or by posing questions of clarification. In example 5 by Zhang and Messina (2010), there are some phrases that illustrate this kind of metacommunication. For example, the utterance: "Have we answered that? … Do all opaque objects reflect light? Anyone has a theory or evidence to support that?" may here be interpreted as a request for clarification of what the class has been talking about. The teacher is raising a question and asking if this topic has already been discussed or talked about. Zhang and Messina (2010) code this as "Highlighting/reminding a focal problem." The phrase "Anyone has a theory or evidence to support that?" is related to encouraging further reflection around the same topic. The teacher is here asking for more ideas that support the suggested theory and in this way asking for further clarification or reflection around the topic. Zhang and Messina (2010) also code this as "promoting reflection on progress." Interestingly, these examples are not defined as metadiscourse.

4. Concluding remarks

There has been little discussion around the possible existence of qualitatively different types of metadiscourse which may be important for the knowledge building discourse. The current use of the metadiscourse concept represents only a thin slice of the possibilities available (Baltzersen 2013b). In this paper I have therefore tried to answer the following research question:

Do we need a broader and more complex definition of the metadiscourse concept in order to more fully understand the knowledge building discourse?

By using a comprehensive definition of metacommunication as a theoretical framework, I have demonstrated the presence of several different kinds of talk about talk in the knowledge building discourse. The analysis of the case descriptions in the two research papers indicates that several types of metacommunication are currently not coded as metadiscourse even though they describe some kind of talk about talk. This includes metacommunication about the conversational content, but also about the group relationship and the organization of the use of time in the collaborative process. For example, large parts of the selected text excerpts from van Aalst (2009) which was originally coded in the category community could also be reinterpreted as being metacommunication. Zhang and Messina (2010) use some coding terms which are closely connected to the metacommunication concept, such as "summarizing." Other terms such as "maintaining norms" are not as conceptually close to the metacommunication concept. Cases 1 and 2 both also illustrate the metacommunicative complexity on an interactional micro level. Several different types of metacommunication are intertwined and seem to have different functions in the knowledge building discourse.

The original metadiscourse concept in knowledge building seems to be used narrowly with more specific normative functions. It seems to mainly focus on metacommunication about the conversational content (Baltzersen, 2013b). One could ask if this is a conceptual problem for the knowledge building theory. Should the metadiscourse concept also include other elements that are used in the metacommunication definition? Even though metacommunication is present in the

selected text excerpts, one may ask if this is of any significant importance. What does one gain by using a more coherent framework like Baltzersen's (2013b)?

Firstly, it seems to be necessary to more closely connect the metadiscourse concept to the explanation of intentions in the knowledge building discourse. This issue is mentioned by several knowledge building researchers, but is not specifically related to the metadiscourse concept. For example, Zhang et al (2011:292) refer to a Grade 3 teacher who thinks one needs to be much more explicit about the pedagogy in the classroom with the students: "The whole notion of a knowledge building community is something that . . . has to be made much more explicit. Our investigations have to have a clearer agreed upon direction. . . . Many students honed in on individual questions and connected only minimally to their classmates." This teacher thinks one should continuously explain the knowledge building pedagogy as a part of the collective knowledge advancement. Similarly, Chan (2011) mentions the importance of talking about knowledge building pedagogy with the class in the beginning of the process. The teacher must help students understand that they should not only work as individuals, but also as a community. Students need to discuss the importance of the pedagogy in relation to their own expectations of the learning processes.

Because the knowledge building discourse is so different from the traditional IRE structure, it seems to be even more important than usual to try and explain the pedagogy to the students. The text excerpt by Zhang and Messina (2010) also illustrates that the teacher needs to explain the KB pedagogy continuously. A more detailed definition of metadiscourse can potentially help the teacher to reflect around these questions when implementing Knowledge Building in classrooms.

Secondly, one seems to need a metadiscourse concept that can capture meta-levels that are part of the "ongoing flow" of the knowledge building discourse. The text excerpts from van Aalst (2009) and Zhang and Messina (2010) illustrate that several different types of metacommunication are intertwined in the ongoing knowledge building discourse. In present research, the metadiscourse concept seems to lack such a focus. Van Aalst (2009), for example does not choose to code clarification as part of the metadiscourse concept. Nevertheless, clarification seems to play an important role in the metacommunication concept (Baltzersen, 2013b; Bateson, 1972). One could, for instance, discuss whether short metacommunicative utterances such as clarification should be highlighted as being part of the metadiscourse concept on a "micro level."

Furthermore, Zhang et al. (2009) emphasize the importance of collaborative improvisation in knowledge building discourse. Diverse ideas are generated and critically examined in unpredictable and complex ongoing interactions. When everybody contributes to the flow of the conversation, the students can take on higher level responsibility in deciding what and how to learn. The text excerpt by Zhang and Messina (2010) also illustrates how metacommunication regulates this kind of discourse and does not necessarily inhibit this conversational flow as suggested by Sawyer (2004). There seems to be a need for a metadiscourse concept that can capture the more spontaneous ongoing regulation of the knowledge building discourse in addition to research on more explicit metadiscourse designs (Zhang, Lee, & Wilde, 2012).

Thirdly, the text excerpt from Zhang and Messina (2010) illustrates examples of summarizing on a micro level in the ongoing discourse. This kind of summarizing is not included in the metadiscourse concept. This may be a weakness, since the present metadiscourse concept focuses so much on a major review which can be interpreted as an attempt to summarize the discussion of academic ideas within a broader time period. A more complex metadiscourse concept would be useful in order to encompass different ways of reviewing the collective work. Summarizing of collective work also seems to play an essential role in the educational design of knowledge building (Resendes, Chen,

Acosta, & Scardamalia, 2013; Zhang et al., 2012). For example, Zhang et al. (2012) examined different designs of metadiscourse in the classroom. Both classes had regular "metacognitive meetings" where students reflected on progress and identified the focus of their further inquiry. Class A reviewed student questions in order to formulate deepening goals, while class B co-monitored key disciplinary concepts.

Fourthly, the groups in examples 1-4 are metacommunicating about the conversational relationship by expressing possible conflicts or disagreements in the relationship. Since van Aalst (2009) does not relate this text excerpt to metadiscourse, he implicitly operates with a metadiscourse concept that does not focus on how students regulate social relations. This might be a weakness since these relational components are considered important in the total framework of a knowledge building discourse. It is therefore recommended that the metadiscourse concept should include a new subcategory which is more related to a "discourse about the discourse relationship."

Still, it is not entirely clear how important this kind of metadiscourse is in knowledge building discourse. According to Bereiter and Scardamalia (2010) a dialogue about the group dynamics is subordinate to the most important issue of whether the dialogue is progressing. A group involved in knowledge building, which pauses to evaluate the progress of their dialogue, is usually not mainly concerned with group dynamics. They exemplify a dialogue about the dialogue relationship by whether everyone has had a chance to be heard, how turns are being taken and whether people are paying attention to what others say.

To conclude, there seems to be a need to start a more profound theoretical discussion around the importance and the scope of the metadiscourse concept in KB theory. A broad and comprehensive concept might help the teacher in developing more effective strategies when trying to implement knowledge building in the classroom. The metadiscourse concept should also be discussed in relation to other similar concepts as for instance reflective communication (Engeström, 2008). In addition there seems to be an interesting link between the metacognition concept and the metadiscourse concept which is largely unexplored (Whitebread & O'Sullivan, 2012).

5. Acknowledgements

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7. Relevant conference themes

Sustained work with ideas, Intellectual engagement.