

# **Negotiating and Renegotiating Conversational Ground Rules:**

**Formation of an Artifact Designed to  
Mediate Exploratory Collaboration**

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'I almost wish I hadn't gone down that rabbit hole – and yet –  
and yet – it's curious, you know, this sort of life!'

- Alice

Alice in Wonderland (1865)

by Lewis Carroll

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<p>This study highlights the formation of an artifact designed to mediate exploratory collaboration. The data for this study was collected during a Finnish adaptation of the thinking together approach. The aim of the approach is to teach pupils how to engage in educationally beneficial form of joint discussion, namely exploratory talk. At the heart of the approach lies a set of conversational ground rules aimed to promote the use of exploratory talk.</p> <p>The theoretical framework of the study is based on a sociocultural perspective on learning. A central argument in the framework is that physical and psychological tools play a crucial role in human action and learning. With the help of tools humans can escape the direct stimulus of the outside world and learn to control ourselves by using tools. During the implementation of the approach, the classroom community negotiates a set of six rules, which this study conceptualizes as an artifact that mediates exploratory collaboration. Prior research done about the thinking together approach has not extensively researched the formation of the rules, which give ample reason to conduct this study. The specific research questions asked were: What kind of negotiation trajectories did the ground rules form during the intervention? What meanings were negotiated for the ground rules during the intervention</p> <p>The methodological framework of the study is based on discourse analysis, which has been specified by adapting the social construction of intertextuality to analyze the meanings negotiated for the created rules. The study has two units of analysis: thematic episode and negotiation trajectory. A thematic episode is a stretch of talk-in-interaction where the participants talk about a certain ground rule or a theme relating to it. A negotiation trajectory is a chronological representation of the negotiation process of a certain ground rule during the intervention and is constructed of thematic episodes. Thematic episodes were analyzed with the adapted intertextuality analysis. A contrastive analysis was done on the trajectories. Lastly, the meanings negotiated for the created rules were compared to the guidelines provided by the approach.</p> <p>The main result of the study is the observation, that the meanings of the created rules were more aligned with the ground rules of cumulative talk, rather than exploratory talk. Although meanings relating also to exploratory talk were negotiated, they clearly were not the dominant form. In addition, the study observed that the trajectories of the rules were non identical. Despite connecting dimensions (symmetry, composition, continuity and explicitness) none of the trajectories shared exactly the same features as the others.</p>			
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## 1. Learning Practices on the Move

Institutionalized schooling has been generally regarded as a fairly stagnate system, which essentially has not changed since the first clay tablet schools (Miettinen, 1990, 1999; Säljö, 2001, 2004). However, more recently researchers have seen some indications of change. Van Oers (2008) for example argues that learning practices within schools have undergone a considerable change within the last fifty years moving gradually towards more open ended, inquiry based and collaborative ways of working.

Part of the transformation has been attributed to the rise of information technology and the needs of the information society that have changed the position of institutionalized schooling within western societies. Säljö (2004) gives a good example of this change by asking us to consider how for a child living in Sweden of the 1950's school is a central hub for learning about matters outside of her or his immediate lifeworld (like foreign flora and fauna) as compared to child living in Sweden at the start of a new millennium. On a societal level school is no longer the sole place that provides access to new information or possibilities for learning.

Formal schooling is changing also because of internal changes and pressure. One example, which is a frequent topic in national educational debates in Finland, is the growing number of students per teachers. Säljö argues that formal schooling was at first directed only for a relatively small number of the population, and only more recently (that is from the beginning of 20th century) has the intake of schools been extended to encompass the whole population (Säljö, 2004). The growing and diversifying mass of attending students is now putting pressure on teaching methods and schools' competence to handle the situation.

To maintain coherence and continuity, school as systems has to somehow resolve these external and internal conflicts. One way to accomplish this is to renew the basic practices of the system and to construct new tools that mediate them. In recent years there has been a proliferation of different pedagogical approaches and specific programs aimed for teachers and schools to answer the call of new learning practices. Many of these educational innovations stress the importance of group or peer work. Yet only in few cases effecting or guiding the actual interaction of the participants is at the center of these innovative practices.

One such case is the Thinking Together approach developed by Dawes, Mercer & Wegerif (2000). The approach is aimed at improving collaborative interaction and problem solving in peer groups and is based on the concept of exploratory talk. According to Wegerif, Mercer & Dawes (1999) exploratory talk exemplifies a social mode of thinking that is present in culturally important practices (law, trade, government) and of particular educational value due to its quality. This focus on ‘interthinking’ sets the Thinking Together approach apart from other approaches or interventions like Cognitive Acceleration in Science/ Mathematics Education or Feuerstein’s Instrumental Enrichment (see McGuinness, 1999, for a review) that have a more individual focused orientation to developing thinking skills.

Prior research on the approach has shown that the implementation of the Thinking Together approach has led to both group level and individual gains in reasoning skills in addition to the increase in the amount of exploratory talk (e.g. Mercer, Wegerif, Dawes, 1999). These results have been verified cross-culturally (Wegerif, Pérez, Rojas-Drummond, Mercer & Vélez, 2005) and across age groups (Littleton, Mercer, Dawes, Wegerif, Rowe & Sams, 2005) and academic disciplines (Dawes, 2004; Mercer & Sams, 2006).

This study takes a further look into the implementation of the approach, but in a Finnish context. More precisely, the study focuses on the formation of the conversational ground rules that are developed during the implementation and are intended to support the use of exploratory talk. This aspect of the approach has been left relatively untouched by prior studies (with the exception of Kleine-Staarman, 2009), and therefore needs further clarifications. The ground rules are at the heart of the approach and are viewed in this study as a mediating artifact that the classroom community uses to renew its learning practices. The goal of this study is to highlight how this mediational means forms during the implementation in order to highlight one central aspect of the implementation. Understanding the formation of this artifact is important, to researchers and practitioners alike, in order to comprehend how classroom learning practices can be directed to be more exploratory and collaborate.

What the study will show, through contrastive analysis of the trajectories of the rules and the analysis of the meanings of the rules, is that the ground rules from an artifact which at the beginning of the implementation of the Thinking Together approach is more directed at

binding the groups together and establishing a basis for new way of working, than to further exploratory collaboration. This argument will be pursued by first detailing the theoretical groundings of the study. After this the aim and research questions will be given as well as the design of the study. This will be followed by the description of the data collection, analysis and subsequent results. The study will be concluded by a discussion on the results and the reliability of the study.

## **2. Theoretical Groundings**

This study is about ground rules. In this section, the study will argue that the ground rules, in the context of the Thinking Together approach, can be view as a externalization of the implicit conventions of an educationally and culturally valuable form of collaboration, namely exploratory talk. Further, this externalization exemplifies away to control the action from outside by creating a shared mediational artifact. Through this the classroom implementing the approach can renew its basic practices.

To backup this argument, the study will draw on three contributing lines of sociocultural research on learning. This also explicates the theoretical groundings of this study and highlight the importance of doing research on the ground rules.

The three lines are discussed under the following subsections. Subsection 2.1 (Learning within a Multitude of Practices) will clarify the ground rules in connection with Sfard's (1998) participation metaphor for learning. Subsection 2.2 (The Social Origins of Mediating Artifacts) highlights the ground rules form the perspective of cultural-psychological perspectives on tool use and semiotic mediation. The third subsection (Contextual Resources in Meaning Negotiations) will focus on contextual resources in meaning negotiations about the ground rules. The section will conclude by discussing the prior research on the Thinking Together approach.

Before proceeding, however, it is important to provide the reader with a clear into what the actual ground rules are that were negotiated during the implementation of the approach.

This set of six rules is provided in full below.

1. Everyone is entitled to an opinion and the sharing of information and ideas

2. Look and listen to others
3. Give others a chance to talk
4. Respect each other, no one should be ignored
5. Try to reach an agreement
6. Give reasons and think what's your view on the subject

### **2.1. Learning within a Multitude of Practices**

Ground rules are at the core of our learning process. To elaborate on this stance, the following section will detail how the learning process is understood in this study and how learning is connected to the ground rules.

Building on a sociocultural framework of human action this study conceptualizes learning from the participation metaphor perspective (Sfard, 1998). This means that learning is understood as a progressively deepening process during which an individual moves from a position of legitimate peripheral participation toward the center of the community by taking part in the community's practices and ways of working (Lave & Wenger, 1991; Rogoff, 2003; Wenger 1998; Wertsch 1991). Learning, therefore, is not seen only as a cognitive process but as change in the interaction between the individual and the community (Barab & Plucker, 2001; Sfard, 1998). As a result, the individual's ontological position, his or her way of being in the world, changes and he or she appropriates the tools and practices of the community (Cole, 1996; Hakkarainen, Lonka & Lipponen, 2004; Packer & Goicoechea, 2000; Rogoff, 2003; Vygotsky, 1978).

For the arguments of this study it is important to elaborate the notion of practice a bit further. Greeno & MMAP (1998) explain that practices, in the above sense, are regular patterned ways of doing things in a community. These can be either simple, everyday actions like asking and answering a question or more complex patterns of fixing copy machines (Suchman, 2007) or enacting for example the identity of a good student (Holland & Lachicotte, 2007). Greeno et al. (1998) continue that these patterns can be conceptualized on the terms of ecological psychology as being sets of affordances of (qualities of environments and participants that support interactions) and constraints on (if-then relations of social interaction that enable a person to anticipate possible outcomes) action. Learning is becoming more attuned to these affordances and constraints of a communities patterned way of



doing things.

Another way to conceptualize these patterned ways of acting, it to refer to them as conventions used to carry out certain kinds of activities, or as ground rules (Mercer, 2000, p. 28). A good example that relates to the ways different conversations are conducted, would be an interview where, according to the ground rules, the interviewer asks the questions but not vice versa. A similar, but more classroom focused example would be the teacher initiation-student response-teacher evaluation (I-R-E) (e.g. Cazden, 1988) sequence. Ground rules are a part of peoples common knowledge about how to conduct conversations or other actions. In this sense the ground rules represent a key element in the social infrastructure (Star, 1999) of our everyday lives.

As part of the infrastructure ground rules are seldom made visible or the subject of direct focus, unless violated. In educational settings, students are more or less assumed to know how to participate in whole class interaction or group work, without any direct support or guidance from the teacher (Mercer, 1996). Partly due to this taken-for-granted nature, the teachers' and students' perspective on what the ground rules of the interaction are can be very different (Star, 1999). For example, Mercer (1995, p. 44-45) citing Tony Edwards elaborates that the students' viewpoint to classroom interaction can be something like: listen to the teacher, often for long periods of time; look for clues as to what a right answer might be from the way a teacher leads into a question; accept that what you know already about the topic of the lesson is unlikely to be asked for, or to be accepted as relevant unless and until it fits into the teacher's frame of reference. Moreover, Edwards & Mercer (1987) attribute this difference as one contributing factor to why some students are seen as failing school: without knowing what is asked of them, it is hard to take part and contribute positively to the ongoing activity.

However, the rules for participation are not static. Individuals are not merely passive recipients of their community's practices or culture, but have agency and can actively influence the practices they appropriate and also the learning process itself (Holland, Lachicotte, Skinner, & Cain, 1998; Martin, Sugarman & Thompson, 2003). Barron's (2006) study on the development of adolescents' technological fluency highlights how the participants actively sought out and created opportunities to use and learn about technology, thus influencing their own development. The study highlights how we as members of western

societies are not part of just one community, but rather during our daily life engage with many different communities with differing tools and practices.

Hence, culture within the sociocultural framework, is understood as a dynamic, historically constructed ‘multitude of practices’ (Gutiérrez & Rogoff, 2003) that is available to, shared and transformed by individuals and communities as they engage in different activities. Culture is at the same time ‘emerging from events as much as underlying them’ (Tsing, 1993) and as Roth (2008) puts it, a ‘continually transformative entity’.

## **2.2. The Social Origins of Mediating Artifacts**

As part of the Thinking Together approach, the ground rules for talk are together written down on a large piece of paper and displayed on the wall, so that everybody can see them and refer to them. To elaborate on the meaning of this process, the following section will highlight a new aspect of the ground rules: ground rules as a shared, mediational artifact. The section also highlights that the ground rules of a community are not an static element, but something that can be changed through focussed effort.

A central tenet of the sociocultural framework (and for the arguments of this study) is the idea of mediation in human activity. Vygotsky’s (1978) seminal claim about human psychological functioning states that higher mental functions (attention, memory, etc.) are the result of tool use, or more precisely sign use in activity. A simple example of this is when we tie a knot into a handkerchief to remember something or write a note to remind ourselves about an important idea. By using cultural tools<sup>1</sup>, we overcome our limitations as a species (e.g. relatively limited size of our working memory or that physically we are a fairly weak species) and escape the direct stimulus of the world around us. At the same time the appropriation of cultural tools changes the nature of our psychological processes by incorporating a new level of functioning that affects all aspects of our cognition. The line of cultural development is meshed with phylogenetic and ontogenetic lines (Cole, 1996).

In his writings Vygotsky (1978) made a distinction between tool mediation and sign mediation according to their function. Tools exerted effect on the world and were directed to-

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<sup>1</sup> by which Vygotsky meant a large variety of not just physical artifacts, but also conceptual and symbolical artifacts like sign of notations systems etc.

wards it. Signs on the other hand were directed inward, to the self and used to control oneself from the outside. This distinction, although enlightening in the sense of the different characteristics of mediating artifacts, entails a dichotomy that does not do justice to the ontological status of tools and signs, or their function. Like the handkerchief, signs have also a material form, in the same way that tools have an ideal form (Cole, 1996; Cole & Pelapat, 2008). Similarly, signs are also part of cultural conventions that are shared and understood by others, not just by the one using the sign (a knot in a handkerchief is understood by others as meaning that the owner has to remember something).

This later point about the handkerchief example illuminates an important aspect of mediation. By tying the knot, the person doing the tying is externalizing his/her thinking.

Through externalization the actions done to control oneself from the outside, become not just visible to others but something that can be jointly manipulated. Wenger (1998, p. 58) describes this more generally as a process of reification, i.e. 'giving form to our experience by producing objects that congeal this experience into "thingness." In so doing we create points of focus around which the negotiation of meaning becomes organized.'

Now returning to the perspective of ecological psychology mentioned before, externalization can be seen as the willful manipulation of the affordances and constraints of cultural artifacts (tools & signs, not just practices) (see for example Valsiner 2007). This means that along with the physical properties of artifacts, during the construction process people have integrated intentions and ways of using the artifact into its design. For example, consider how the idea of a wedge is used in the design of an axe or a drill, or mathematical formulations programmed into calculators. Hence, the affordances and constraints of cultural tools do not appear from nowhere, but are social in origin and can be considered as being embedded within the artifact (e.g. Hutchings, 1995).

These embedded intentions and ways of thinking are always present when we pick up and use cultural artifacts, but to a varying degree of sharedness. In discussing Vygotsky's different uses of the term mediation, Wertsch (2008) points out that we easily use different concepts to get things done without fully comprehending their meaning or sharing that meaning with our interlocutors. Wertsch highlights that the appropriation of these intended meanings is a microgenetic process that is embedded in the local situation. In these terms, the function of different educational institutions could be described as attempts to socialize

students in the use of culturally important artifacts and practices surrounding them (Säljö, 2001, 2004).

The cultural evolution of mediational means does not, however, determine their use beforehand. Wertsch (*ibid.*) acknowledges also how the process of appropriating cultural artifacts entails agency in animating the knowledge embedded into the artifact and in engaging in meaning negotiations about their situative use. This point is further elaborated by Rabardel (see Kaptelinin, 2003) and the instrumental genesis approach, who view that the appropriation process is a result of developmental transformations of not just artifacts, but of individuals and social interactions also. In this sense, the appropriation of the Thinking Together approach does not change only the ground rules for interaction within the classroom, but the individual students and teachers as well. This in turn puts more theoretical support for the strong Vygotskian claim that through the Thinking Together approach the participants also attain intermental tools that change their individual cognitive processing (e.g. Mercer et. al, 1999).

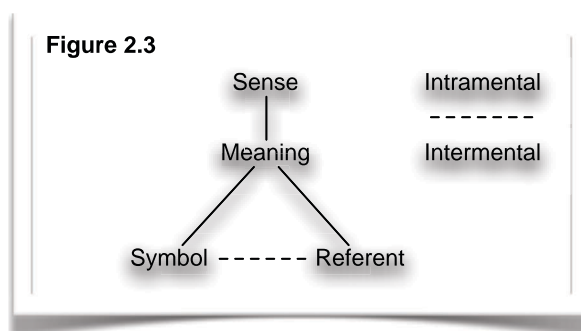
To summarize and to clarify possible ambiguity, it is important to distinguish here clearly between the two different meanings already established for the term ‘ground rules’. As outlined in section 2.1, in the context of interaction ‘ground rules’ refer to the implicit structure through which people carry out different conversations and actions. In the context of the Thinking Together approach, ‘ground rules’ refer in Vygotskian terms to an collective externalization of these conventions; a written document or other artifact where these implicit rules are (or more correctly in this case: what the participants want them to be) written down and made visible to all. Through this externalization, the ground rules become an object of manipulation, a collective way to control the action from outside. From here on, the term will be used in the latter sense (ground rules as an artifact), if not indicated otherwise.

### **2.3. Contextual Resources in Meaning Negotiations**

To understand more closely how the ground rules are created as a mediational artifact, this study will draw on a third line of socioculturally oriented research on learning which stems mainly from the work of Bakhtin (e.g. 1981), and focuses around the notions of meaning, context, intertextuality, intercontextuality and contextual resources in meaning negotia-

tions. Within this general framework meanings are considered as dynamic, in flux or in dialogue, rather than as stable or fixed entities. Words do not have literal meanings, but rather come to mean something when used or populated with the speakers own intention in an utterance (Wertsch, 1991). For example Wenger (1998, p. 54) argues that meanings ‘exist in the process of negotiation’ and ‘in the dynamic relation of living in the world.’ Written texts exemplify momentary crystallizations or fixed points in the ongoing semiosis of meaning making (Maybin, 2003). In Bakhtin’s (1981) own writing, the stability of meaning stems from how people in their utterances animate the social language within which an utterance has its meaning.

In Vygotsky’s work, the concept of meaning, in the form of literal texts (Cole & Pelaprat, 2008) as well in his conceptualizations of the dynamics of inner speech (Wertsch, 1991; Zinchenko, 2007) was attributed a similar kind of stability. For Vygotsky (1934, cited in Wertsch 1991) the sense of a word represented a dynamic and flowing complex of intrapsychological associations that changed according to context. In contrast, meaning was more stable and invariant across situations and more oriented to others, in other words to the world. From this the basic semiotic triangle (e.g Ogden, 1923) can be modified for this study as represented in figure 2.3. below to depict the connection between meaning, sense, symbol and referent in the context of this study.



Negotiating meaning is a situative activity that happens within a certain context which cannot be separated from the negotiated meaning. In other words, meaning and the context within which it is negotiated are co-constitutive (Goodwin & Duranti, 1992). In colloquial terms context often refers to the immediate physical surroundings of a given situation, for example the blackboard, teacher’s desk & pupils’ desks would count as context for a classroom lesson. In sociocultural terms context is treated as an interactional achievement, as jointly constructed by participants, rather than something given or defined beforehand. Al-

though any given situation has different aspects that can be evoked in the interaction, they are part of the context only if acknowledged in the interaction (Mercer, 2000).

These aspects can be conceptualize in two slightly differing ways. Writing from the perspectives of interactional ethnography and socio-linguistics, Green, Bloome and colleagues argue for the use of intertextual and intercontextual analysis in identifying how different texts and context are composed in classrooms (Bloome, Carter, Christian, Otto & Shuart-Faris 2005; Dixon & Green, 2005). By intertextuality they refer to the juxtapositioning of different texts and making connections between them. In similar, fashion intercontextuality refers to establishing connections between different contexts (Floriani, 1993; Kleine-Staarman, 2005, 2009; Shuart-Faris & Bloome, 2004). Linell, on the other hand, defines the potential aspects of interactional contexts as contextual resources (1998, p. 127) and distinguishes between three main types of these resources (co-textual or discursive, situative & background resources) that are used in constructing context and in meaning making.

The difference between Green's & Bloome's accounts to Linell is that the latter treats his typology of potential resources as more or less a priori and invariant between situations, whereas Green & Bloome consider 'text' as a posteriori construct. This study aligns with Green & Bloome about this matter on epistemological grounds: although we can assume that for participants some resources are more salient than others depending on their orientation, we can establish what these are only by observing the actual interaction. This resonates well with prior remarks on human agency. Also, the posteriori account is more open to the content of the talk which is important when establishing the meaning of the ground rules (although see Arvaja, 2007). However, the term 'contextual resources' is useful in indicating other resources than just linguistic repertoires (Kleine-Staarman, 2005, 2009), and hence will be used from here on instead of 'text'. The identification of contextual resources is a useful heuristic aspect to determine in everyday terms, what are the 'building blocks' used in constructing meaning.

#### **2.4. Ground Rules Designed to Mediate Exploratory Collaboration**

So far the ground rules have been discussed more or less from the perspective of the community implementing the Thinking Together approach. What has not been yet put forth is the perspective which clarifies that neither the ground rules (or more precisely, the guide-

lines for the within the approach, as will be explained) nor the approach are an arbitrary collection of points on collaboration, but rather an research based effort of many researchers to improve classroom learning practices. This shift in perspective also helps to clarify prior research done on the approach and the position of this study in relation to it. In order to do this, the section will begin by detailing differences between the three social modes of thinking that underlie the Thinking Together approach.

In analyzing, how pupils worked and talked together around computers in pairs or groups of three, Mercer (1996) differentiated between three social modes of thinking: disputational, cumulative and exploratory talk. Disputational talk is characterized by individual decision making and disagreement, and there is no attempt to work together. In cumulative talk, on the other hand, participants build on each others ideas, but without offering any positive criticism. In exploratory talk participants engage each others ideas critically, but constructively. Reasoning is made visible by providing and expecting justifications for statements and suggestions.

Further clarification on the differences between these modes of ‘interthinking’ is provided more recently by Wegerif (2007) through the concept of identity, or ‘sense of self’ in the dialogue. In disputational talk, the self is defined against the other participants. In cumulative talk, self is identified with the group image. In exploratory talk, the identification is not *‘with any bounded image[...]but[...]with the space of dialogue itself as a vantage point from which one can evaluate and criticize even one’s own position’* (Wegerif, 2007, 97). A similar argument is also made by Mercer (2000), but in relation to the ‘intersubjective orientation’ of the modes of social modes of thinking.

What Mercer (1996) also observed in his initial study (and what has then been confirmed by subsequent research), was that exploratory talk was seldom used by pupils, if ever. Most of the talk around computers was either disputational or cumulative. Building on this observation the Thinking Together approach was created to teach and support the use exploratory talk.

The ground rules are at the heart of the Thinking Together approach. The approach does not provide the set of rules in a ready made form, but rather outlines a general set of guidelines for the ground rules (below). The set guidelines is based on prior research on collabo-

rative learning, Habermas's account on communicative rationality and on the Thinking together teams' experiences of working with children and their teachers (Wegerif et al., 1999). The actual creation and implementation of these rules is left to the teachers and the children in order for them to gain a sense of ownership and adherence to the rules (Mercer et al., 1999).

1. all relevant information is shared;
2. the group seeks to reach agreement;
3. the group takes responsibility for decisions;
4. reasons are expected;
5. challenges are acceptable;
6. alternatives are discussed before a decision is taken; and
7. all in the group are encouraged to speak by other group members.

(Wegerif, et al. 1999, p. 496)

Wegerif et. al (1999) continue by elaborating on the role of the individual guidelines. Guidelines 1-3 are meant to support the cohesion of the group so that sharing information and building knowledge become easier. These are shared with cumulative talk. Guidelines 4 and 5 focus on making reasoning explicit in the group. These rules are essential for exploratory talk, because they set it apart from other forms of talk (disputational and cumulative talk). Guideline 6 is aimed at supporting the consideration of possible alternative solutions for the task at hand. Guidelines 7 is intended to support participants in encouraging each other to take part.

Following the first implementations of the approach (e.g. Mercer et al. 1999; Rojas-Drummond, Pérez, Vélez, Gómez, & Mendoza, 2003; Wegerif et al. 2004, Littleton et al. 2005) Mercer and his colleagues have studied and reported extensively on the positive effects that the implementation of the Thinking Together has had on individual and joint reasoning in peer groups. In short, the results support their claim that induction into an explicit, collaborative style of reasoning leads to gains in of both individual and joint reasoning. In accord, the amount of exploratory talk in peer groups increased during the implementation of the ground rules.

In these prior studies the actual formation process of the ground rules has been left rela-



tively untouched. However, in a recent article Kleine-Staarman (2009) has analyzed the interactive creation process of new collaborative practices and how 'what counts as good collaboration' was made visible in interaction. By tracing topics like 'the use of chat room shorthand' and 'on/off topic talk', in her analysis Kleine-Staarman showed that classrooms have many implicit ground rules concerning ways of talking and that these are not always fully shared by members of that classroom. Moreover, her analysis revealed how what was seen as 'good collaborative practice' was influenced by prior discursive events and which in turn shaped collaborative practices in the future.

Kleine-Staarman gives us a good view into the creation of some of the ground rules during the implementation of the approach and the basic characteristics of that process. However, what seems still to be missing is a more comprehensive account on how the ground rules as a whole form during implementation of the approach. This study aims to fill this gap, and explore the creation process by looking at the ground rules as an empirically validated artifact which mediates exploratory collaboration.

#### *Coda: Summing-Up the Theoretical Perspectives*

The previous section on the theoretical groundings of this study has outlined the ground rules from three different perspectives. First, the ground rules were conceptualized as the implicit conventions of activities which individuals learn when taking part in the practices of the community. Secondly, the ground rules were conceptualized as a shared mediational artifact that the classroom implementing the Thinking Together approach creates through negotiation to control the action from outside. This negotiation aspect the second perspective was elaborated further by explaining the role of contextual resources are used in meaning negotiations. Finally, the third perspective highlighted the prior research done on the Thinking Together approach and by this the design aspect of the ground rules. The section concluded in clarifying the position of this study as compared to the prior research. The next section will explain the focus of this study in more detail.

### **3. The Aim and Research Questions of the Study: focusing on the artifact**

Although the process of negotiating the ground rules is outlined in the Thinking Together programme, the actual formation of the ground rules cannot be determined a priori. This is due to the character of the negotiation process, where a degree of openness and improvisation needs to be maintained to accomplish a set of rules that are grounded into the local context of the community in question. Hence, the study of the negotiation process, or in other words the formation of the ground rules, itself became the research task for this study. The task can be formulated as follows:

- to examine the formation of an artifact designed to mediate exploratory collaboration, i.e. the negotiation and re-negotiation of the ground rules for talk during the implementation of the Thinking together approach.

This means that the unit of analysis of the study is the artifact that the negotiated ground rules form. And more precisely, the analytic focus will be on the formation of this artifact during the negotiations, on its *trajectory*. The unit of analysis itself consists of six different rules, each with a negotiation process, a trajectory of its own. Together these trajectories form the whole trajectory of the unit of analysis.

Before proceeding, the process dimension of the aim needs to be highlighted further to clarify its importance. Meanings are not fixed entities, but in constant motion (e.g. Greeno et al. 1998; Wenger, 1998). Also, meaning making is almost by default a fragmentary and discontinuous process (Linell, 1998; Ash 2007). For example comprehending scientific concepts like evolution or adaptation does not happen in one conversation alone, but requires engaging with an a range of people and cultural artifacts in many different situations. The understanding of everyday matters like what it means to be a friend<sup>2</sup> or how the taxation system works are also constructed in various moments. This means that the ground rules are also not ‘finished’ in one situation alone. Although studying the ground rules in their final form, for example through interviews, would most likely yield important information about their meanings, following the formation of the rules from the actual ne-

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<sup>2</sup> Meaning negotiation does not pertain only the conceptual domain (meaning of words), but is also about ontological matters like being a friend, a dad or a pupil. Wenger argues that in every situation we also negotiate about what it means to be human (Wenger, 1998).

gotiations gives a rich view into the authentic creation process that is seldom attainable in the same way<sup>3</sup>.

Following of these ‘meandering topical trajectories [of the ground rules] through a few topic spaces (islands of understanding) and over some bridges or links connecting different islands’ as Linell (1998, p. 145, bracket added) puts it, adheres to Vygotsky’s description of the genetic method (1978). This states that in order to discover the essence of the phenomena under investigation, they have to be studied in the process of change, ‘for it is only in movement that a body shows what it is’ (ibid, p. 65).

In order to investigate the formation process of the ground rules more specifically, the following two research questions were formulated in dialogue with the theoretical framework and data set of this study:

- What kind of negotiation trajectories did the ground rules form during the implementation?
- What meanings were negotiated for the ground rules during the implementation?

## **4. Design of the Study**

The following section will describe how the Thinking Together approach was implemented in this study. Also, how the approach was adapted to better suit the Finnish context will be given. As a part of this, the process of the negotiation of the ground rules as outlined prior to the intervention is provided.

### **4.1. Implementation in Context**

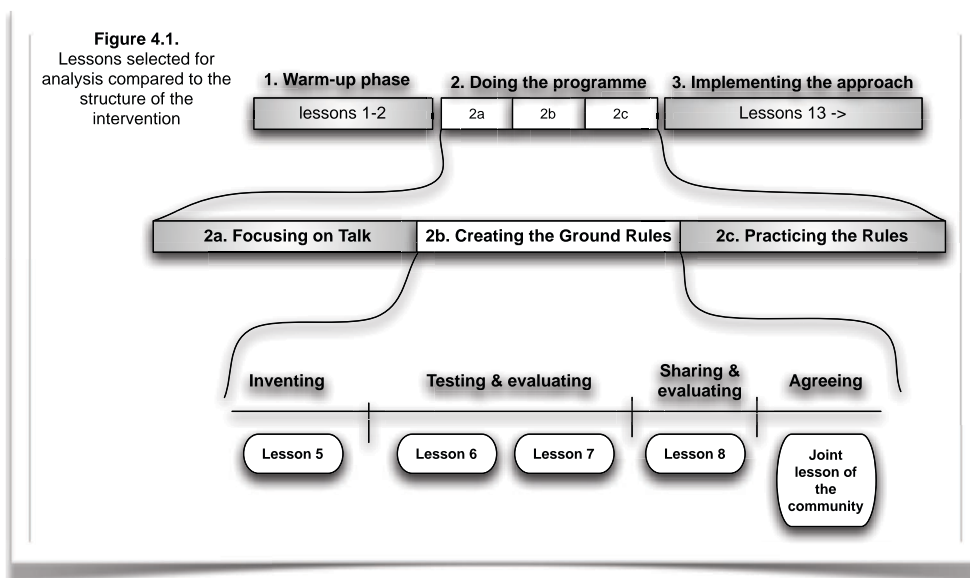
The implementation of Thinking Together approach took place in a Finnish elementary school as a joint project of a three classes, grades 3, 4 and 5 during fall 2004. Together they formed a community of 60 pupils from the age of 10 to 12 and three teachers who during a period of one month implemented the Thinking Together approach into their everyday school life. The pupils did not have any prior experience of the programme or special les-

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<sup>3</sup> Although, it’s good to note that negotiating the ground rules did not stop when they were agreed upon, but rather continued after this. It is also noteworthy that in a Bakhtinian or dialogical sense, the negotiation process of the rules is somewhat an unbounded process, which for the sake of analysis is in this study framed in a certain way. The imagined interview situation would also be a dialogical moment, and in this way no less authentic than any other situation where the rules are talked about.

sons concerning speaking and listening skills in small groups. Prior to the implementation the pupils had worked in joint tables and table groups but mostly individually. As confirmed by a prior pilot study (Rajala & Hilppö, 2004), the orientation in these situations could be described as working side-by-side, rather than working together. In the pilot study this orientation was attributed to the lack of tasks that would require collaboration and encourage taking shared responsibility.

The implementation was divided into three different phases (see figure 4.1): 1) warming up, 2) doing the actual programme and 3) implementing the approach into normal school life. The first phase lasted for a week, the second a week and a half as did the third. Altogether the implementation entailed 13 lessons.



In the first phase (1), the pupils were divided into mixed gender and age talk groups of three or four according to the criteria of the programme. These stated that a talk group should not consist of friends and should include children with different speaking and listening skills. In addition, grade levels were mixed so that there were children at least from two different grades in each talk group. The aim of this was to support the idea that the three classes formed a joint community in which any pupil could get guidance and support from any of the three teachers or from any other pupil.

The division amounted up to thirteen talk groups in total, which in turn were summed up to three whole groups with approximately 20 pupils per group. Each of the teachers lead one whole group and gave all of the talk lessons during phases 1 and 2 to his or her whole

group. The only exception was the joint lesson of the community where the ground rules were agreed upon. In that lesson all the participants (pupils, teachers and researchers) were gathered in one classroom, where one of the teachers led the discussion, one took charge of managing the overhead projector displaying suggested and agreed rules and the third teacher assisted students in taking part in the joint discussion.

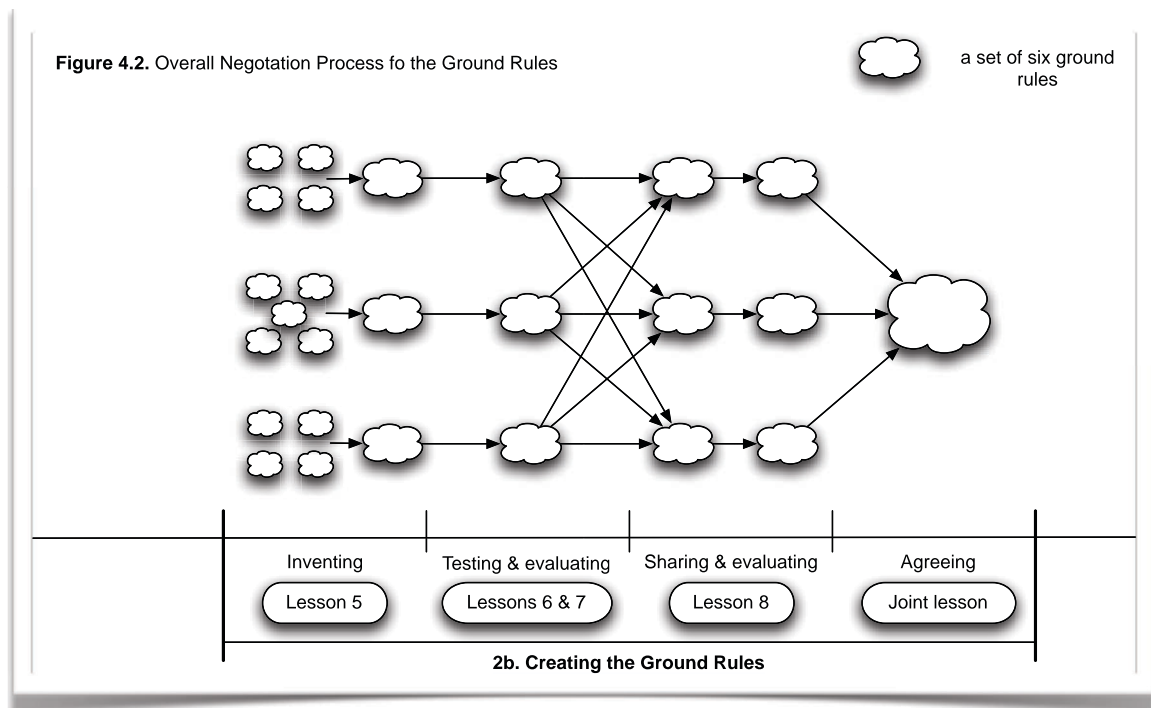
In the warm up phase (1) the talk groups were given different talk tasks designed by the teachers in order for the pupils to get to know each other in the talk groups and to highlight the value of talking together about everyday school matters concerning everyone.

In the second phase (2) the Thinking Together approaches talk lessons were implemented. Some modifications were made in order to ensure a more suitable fit into the Finnish cultural context. The modifications included translation of the material from English to Finnish and adapting the subject matter of the talk tasks to fit the everyday experiences of the pupils in question. The second phase was divided into three sub-phases (2a-2c). The ground rules for talk were negotiated and agreed upon on sub-phase 2b (detailed more in the next subsection).

During the third phase (3), implementing the approach to normal school life, the groups dispersed into their normal age, class, and friend related groups. The pupils were reminded to abide to the ground rules while working together around their normal school tasks. The teachers modified some of the school work in order for the pupils to collaborate while doing them.

#### **4.2. Negotiating the Ground Rules**

As mentioned above, the ground rules for talk were created during sub-phase 2b. Since this negotiation process is the main focus of this study, a general description of the process, as intended in the beginning of the implementation, will be given here. The process differs to some extent from that of the original program. The main difference was that instead of the negotiation of the ground rules taking just one lesson (as in the original), in this implementation, five lessons were needed to complete the negotiations. This was due to the fact that the implementation was a collaborative project of three classes, and the aim was to create rules that the whole community would agree to. The overall negotiation process is depicted in figure 4.2 below.



The negotiations began by giving the pupils a talk task to come up with six different rules that would help them share their ideas and make decisions together. After this the teacher of the whole group summed up the different rules the pupils came up with in a plenary session. It was decided together with the pupils which of these were the six most important. This was done in each of the three whole groups.

After this, in Testing & Evaluating, the talk groups were given a different talk task in order for them to assess the ground rules they had agreed upon. In another plenary session, the talk groups had a chance to review and re-negotiate the ground rules for the whole group.

In Sharing & Evaluating, the whole groups shared and evaluated each others' suggestions. This was done by providing each talk group with a copy of the rules produced by the other whole groups. After the evaluation each whole group had the possibility to revise their suggestions before sending a final version of the whole group's rules to the joint meeting.

In the end (Agreeing) the three whole groups were gathered together for a session to negotiate the ground rules for the whole community. After the session the pupils were given talk tasks during which they were expected to abide and to evaluate the ground rules agreed upon.

## **5. Data Collection**

The following section starts with a description of how the data sources (Erickson, 2006) Roth, 2005) used in this study were created. After this a clarification is given on how the data set used in the analysis was selected and refined.

### **5.1. Creating Data Sources for the Study**

As the primary data source for this study three small groups, one of each whole group, were videotaped. The aim was to capture a comprehensive picture of the whole implementation as a process for the three groups in question. No special criteria was used in the selection of the small groups other than that the groups had to be in different whole groups. The videotapes also included also plenary sessions of the lessons as well as a whole community session. This amounted up to 20 hours of videotaped interaction.

The reason for collecting video as primary data was due to that video allows for the researcher to revisit the material and to identify significant moments of interaction long after the actual interaction has taken place. Hence, the researcher is freed from having to predict beforehand which moments might be significant and which not (Engle, Conant, Greeno 2007).

In addition to the videos, a secondary data source was collected. This consists of photocopies of the material produced in the talk lessons (for example the initial suggestions for the ground rules). This material was collected in order to gain a macro level view of the negotiation process and the small group interaction. Ethnographic field notes of the school life of the three classes during the implementation period are also included in the secondary data source.

### **5.2. Refining a Data Set for Further Analysis**

After the implementation, a preliminary viewing of the videotaped material was done. The aim was to gain an overview of the primary data source, and to select a more focused data set for further analysis of the ground rules. Two decisions to refine a certain data set were made to ensure a more coherent and balanced data set for further analysis.

What was noticed was that outside the actual lessons when the ground rules were negoti-

ated (i.e. sub-phase 2b presented in figures 4.1 & 4.2), there were very few moments when the ground rules were the focus of talk. When they were mentioned, this happened only in passing and in a general fashion. Although this is interesting in itself and worthwhile focus for further research, due to the unfocused nature of the talk, it was decided to focus on sub-phase 2b and exclude all other episodes concerning the ground rules from the analysis.

The second decision made in selecting the data set, was the omission of the third small group. The reason for this was the inconsistency of the videomaterial. This in turn was partly due to data corruption (bad audio) of the material and partly to the fact that the pupils participating in the group changed often because pupils were sick or had to attend other lessons.

As a result of these decisions, the data set for this study consists of the recorded interaction of two of the focus groups, their whole group plenary sessions and the joint lesson of the whole community where the ground rules were agreed upon. The total amount of video material selected for analysis is shown in table 5.2 below.

<b>Whole group A</b>	Lesson 5 (inventing)	38m
	Lesson 6 (city)	41m
	Lesson 7 (city, continued)	42m
	Lesson 8 (merging)	33m
<b>Whole group B</b>	Lesson 5 (inventing)	29m
	Lesson 6 (city)	32m
	Lesson 7 (poems)	29m
	Lesson 8 (merging)	44m
<b>Joint lesson of the community</b>		42m
<b>TOTAL</b>		5t 31m

After the data set was defined, a more detailed viewing and transcriptions of the lessons were done. With lessons 6 and 7 (see figures 4.1 & 4.2), only the episodes in which the ground rules were the focus of attention, were transcribed. Because the negotiation of meaning is by nature multimodal (e.g. De Saint-Georges & Filliettaz, 2008; Lemke 1992), non-verbal aspects (prosody, tool use, gestures like pointing etc.) of interaction were also included in the transcriptions. Analytic priority however was given to talk-in-interaction due the fact that the actual negotiation of the ground rules relied primarily on talk as a way of making meaning.



### 5.3. Constructing the Equifinal Trajectories

When the transcriptions were completed, a second iteration of preliminary analysis was done. Each lesson was divided into phases and a short description of the structure of the lesson was written in order to understand of the unfolding events in chronological order. During the second iteration an important observation was made about the trajectory of specific rules: not all of the rules invented in the first lesson (lesson 5, see figure 4.2) made their way through the negotiations into the final, agreed version of the rules in the joint lesson.

Although in hindsight it is fairly self evident and expected that during the negotiations some rules will be discarded, this observation brought to bear an important methodological constraint: the emergent aspect of the unit of analysis. In addition to the ground rules being negotiated in many consequent lessons, as an artifact the rules are not fully formed until the last lesson of the data set (at least from the perspective of the community). The final version of the rules did not exist in any single person's mind (or between the minds of all the participants) in the beginning of the implementation, but rather formed during it. In other words, as an ontological entity, the unit of analysis is not a stable form (like a physical artifact) in the data set, but rather in a process of gradual becoming.

What this emergence meant was that the negotiation process had to be traced conversely, from the last lesson to the first, to uncover the trajectory of a certain rule. For this, the study adopted a way of backward mapping which has been used in interactional ethnography to analyze the social construction of texts (e.g. Dixon & Green, 2005; Green, Yeager & Castanheira, 2008; Putney, Green, Dixon, Duran, & Yeager, 2000). A similar idea of a back-to-front strategy in analysis has also been used by Reijo Miettinen (e.g. 2000) to trace invention processes and origins of technological innovations (cf. Ingold, 2009 for a different conceptualization of making).

The first step was to identify the situation of the joint lesson, where the ground rule was agreed upon. After this the next step was to identify the prior negotiation situation by asking: 'How did this ground rule arrive here?' and 'What is the episode prior to this one where the participants talk about this rule, or a theme relating to it?'. This continued until the root (last episode in the data set relating to the ground rule) of the trajectory was lo-

cated. The whole identification process was repeated for each of the six ground rules that form the unit of analysis. These equifinal (all trajectories ending as agreed ground rules) trajectories form the data set analyzed in this study.

## **6. Data Analysis**

The following section includes a description of the data analysis methods used in this study. Th section also provides the definitions and justification for the units of data in the subsequent analysis.

### **6.1. Discourse Analysis as a Methodological Framework**

As discussed in previous sections, artifacts and their appropriation in activity as mediational means can be viewed as a process of situative negotiation about their meaning. In these negotiations participants use what is jointly agreed to be relevant contextual resources. A methodological framework suited for the analysis of this process is what Gee (1999) calls 'little d' discourse analysis. By differentiating between studies which focus on identity and larger societal and ideological processes ('big D' Discourse analysis), the focus of 'little d' discourse analysis is on the moment-to-moment talk-in-interaction between participants. The reason for the good fit between discourse analysis in general and socio-culturally focused research is that they share similar ontological and epistemological assumptions about the nature of communication and its function in human meaning making (Forman & McCormick, 1995; Gee & Green, 1998).

Discourse in discourse analysis is understood in a very broad sense to include all possible modes of communication (oral, written, signed), natural languages and their dialects (Bloome & Clark, 2006; Forman & McCormik, 1995). Analysis of this discourse means identifying patterned ways, i.e. practices of using discourse for example in specific communities like classrooms, homes or professional occupations (Roth, 2005; Taylor, 2001). As an methodological approach discourse analysis entails a view of language not as an transparent nor a neutral medium that conveys meanings between participants, but rather as a constitutive of social activities, a way of constructing and organizing collective life (Roth, 2005; Wetherell, 2001a). What this means is that people actively do certain activities with their talk, and they are understood by others as doing something because they use

talk in a certain, culturally shared conventional way.

In a similar fashion, discourse analysis views meanings as stemming from cultural conventions of language use which are jointly adopted and adapted into the situation in which they are used. For example, the color 'red' can be understood in relation to other terms as something "not blue" and as indexing something specific within that context of interaction (Wetherell, 2001a). Gee & Green (1998) write in the same sense about how people assemble situated meanings on the spot on the basis of their construal of that context and their past experiences. Situated meanings are assembled also on the basis of 'cultural models', by which they refer to distributed 'theories' or 'story lines' about concepts like coffee, work or child rearing (ibid. p. 123). These are shared by people in a certain community and explain why certain words have a range of situated meanings, a shared cultural repertoire (Wenger, 1998).

Continuing this line of thought, Gee (1999, p. 34) notes in Bakhtinian terms that to understand the meaning in any sentence is to understand it against the background of the social language and specific conversation the sentence belongs to. The researcher's task is to interpret this figure | ground relationship from the interaction to understand the meaning negotiated.

However, discourse analysis is often described as a fairly wide and variant field of research within which researchers have many different ways of doing research (Gee, 1999; Mercer, 2010; Wetherell, 2001b). Due to this, Gee argues that a discourse analyst needs to adopt and adapt 'specific tools of inquiry and strategies for implementing them' (1999, p. 6). For the analysis of the meaning negotiations Bloome's & Egan-Robertson's (1993) social construction of intertextuality and Linell's notion of contextual resources (1998) were both adapted for this study. The specifics of these adoptions are discussed in more detail in the next section with the definition of the units of analysis and explanation on how they were analyzed.

## **6.2. Units of Data and Analysis**

To analyze the formation of the ground rules, two different levels of analysis were distinguished. The need for this stemmed from the contingent and complex nature of the unit of analysis, which according to Roth (2005) calls for multiple levels of analysis. The forma-

tion of ground rules as a phenomenon, does not pertain only to either macro (whole community) or micro level (individual group), but entails them both in a shared timeline. Roth continues, that in order to bring out patterns of the phenomena under study the researcher has to move between these multiple levels and in other words zoom in and out to gain focus on relevant features.

Although the units of data are described below starting from the macro level unit of the trajectory, the initial starting point for the analysis was the micro level unit of the thematic episode. Only after the thematic episodes were refined from the data set and analyzed, could the more definite identification and subsequent analysis of the trajectories be pursued. However, the whole analytical process involved going repeatedly to-and-fro between both levels clarifying and reiterating what had already been defined in order to insure a coherent and fitting analysis. As a result of this process the following two units of data were defined from the data set.

#### *Macro Level: Analyzing Trajectories*

The first unit of data is *a negotiation trajectory*, a chronological representation of the negotiation process of a certain ground rule during the implementation. A negotiation trajectory consists of all of the thematic episodes (see below) where, either in small group or whole group situations, the participants talk about the ground rule in question. In addition, a trajectory was enriched from the secondary data source with written documents (for example rules invented in the first lesson) to better highlight the negotiation process on the whole group level.

In other words, a negotiation trajectory is an attempt to connect the ‘island of meaning making’ of a certain rule together in a graphical timeline representation to depict how a ground rule forms. Due to the structure of the negotiations (see figure 4.2) the form of a negotiation trajectory of rule represents different small and whole group episodes on different paths to maintain the parallel and merging nature of the negotiation process.

A contrastive analysis was conducted on all of the trajectories. This means that the trajectories were compared with each other to highlight similarities and differences between them. The distinguishing features of individual trajectories base partially on the analysis of the thematic episodes that form the trajectory and partially on the features of the trajectory that

become salient when looked on as a whole. In this sense a negotiation trajectory, when compared with thematic episodes, is a macro unit of analysis that brings into focus 'higher level' patterns of the negotiation process.

This level of analysis was meant to reveal the differentiating and congruent features of the trajectories and by doing this to answer the first research question: What kind of negotiation trajectories did the ground rules form during the implementation?

#### *Micro Level: Analyzing Thematic Episodes*

The second unit of data in this study is *a thematic episode* (Kumpulainen, Vasama, Kangassalo, 2003). A thematic episode is a stretch of talk-in-interaction where the participants talk about a certain ground rule or a theme relating to it. An episode was considered to begin when participants shifted the focus of the conversation to a certain ground rule or a theme relating directly to it. The episode ended when the focus of the talk was shifted to a different theme or a different ground rule.

The analysis of the thematic episodes focused on the meaning negotiation of the ground rule in question. Meaning making was done by the participants through socially constructing intercontextual links to different contextual resources. The analysis followed lines established by Bloome & Egan-Robertson (1993) who state that the identification of the social construction of an intertextuality proceeds through four steps. From the interaction the researcher has to first identify that a link has been proposed by someone, then recognized as a proposal and thirdly acknowledged as a valid intercontextual link. The fourth step is to describe the social consequence of that constructed link for the participants. This could for example be that a certain text or prior experience was established as a valid source of information, or that the participants were positioned in a certain way in the interaction (as readers, students or members of a certain community for example) (for more detailed examples see Pappas, Varelas, Barry & Rife, 2003; Kumpulainen, et al., 2003).

Within this study, the social consequence of the intertextual link is viewed from the perspective of the ground rule in question. From these two mutually supportive aspects of the negotiation were identified in the analysis: a) the meaning constructed and socially shared among the participants in the episode b) the position negotiated for the ground rule in the episode. After the analysis was done on all of the thematic episodes, the process of how the

meaning of a certain rule was talked into being was investigated by following the trajectory of the rule from the first to the last episode and identifying episodes in which the meaning of the rules was salient.

Finally the meanings constructed for the ground rules of the community were compared to the guidelines given by the Thinking Together approach. One simplification was done to the guidelines, so that the comparison would better highlight the characteristics of the negotiated rules. This entailed that the guidelines were divided into two classes. Guidelines that are shared with cumulative talk (guidelines 1,2,3 and 7) and guidelines exclusive to exploratory talk (guidelines 4, 5 and 6).

An important question relating to the second and third steps of the analysis of intertextuality, is when does the researcher consider that a link has been established and to what extent that link is thought to be shared among participants. Bloome et al. (2005) argue that instead of a quantifiable estimate (100%, 50%, 10% level of sharedness), the researcher should focus on whether the participants make attempts to repair possible misunderstanding or breakdowns in interaction. If not, then a link can be thought as being shared between the participants and a 'working consensus' (McDermott, Gospodinoff & Aron, 1978) achieved on the rule in question.

Also, in two thematic episodes (of 118 identified and analyzed altogether) the recognition and acknowledgement of a link did not happen within the same thematic episode as the proposal, but rather in another episode later on in the implementation. In both of these cases the recognition and acknowledgement were interpreted through what Bakhtin (1986) calls a delayed action. This means that a response to a previous utterance does not have to follow immediately, but can happen later on in the dialogue.

This level of analysis was meant to reveal the meanings negotiated for the individual rules during the implementation. The analysis was done to answer the second research question: What meanings were negotiated for the ground rules during the implementation?

The research questions, units of data and the used analysis methods are summed up in figure 6. The figure also entails a brief outline of the main findings of the study.

Figure 6. Summary of research task, research questions and units of data, analysis methods and key results

Research task: How does an artifact designed to mediate exploratory collaboration form with the community?			
Research question	Unit of Data	Analysis method	Results
What kind of negotiation trajectories did the ground rules form during the implementation?	trajectory	Contrastive analysis	The trajectories vary in terms of their symmetry, composition, continuity and explicitness. None of trajectories were identical, which indicates the openness of the negotiations. Trajectories also varied in terms of their consistency.
What meanings were negotiated for the ground rules during the implementation?	thematic episode	Social construction of intertextuality (Bloome & Egan-Robertson, 1993)	The meanings negotiated for the ground rules were more aligned with the guidelines connected with cumulative talk.

## 7. Results

### 7.1. Trajectories of the Ground Rules

Besides their equifinality (all analyzed rules ending up as agreed rules) and adherence to the contours of the negotiation process, the six analyzed trajectories were found through analysis to be non-identical. In other words, the trajectories did not unify under any typical negotiation path or paths nor display any single salient feature that was shared by all trajectories. Rather, the contrastive analysis revealed features that were shared by two to four trajectories, but not by all. Also, any one trajectory represented many different features which meant that a classification based on single feature alone would not adequately illustrate the trajectories.

To reach a more suitable account, contrastive features were gathered under a same dimension. The dimension was given a name that described these features. Below each of the dimensions (symmetry, composition, continuity and explicitness), their respective features and illuminating examples are detailed. These dimensions are not meant to be an exhaustive account of all the features of the trajectories. Rather, they highlight converging points and differences between trajectories that came to bear through contrastive analysis. A different choice of method or analytic focus might most likely have revealed other features and dimensions that would count as accurate as the ones below. The section will conclude in a summary of the six trajectories and their relating features. However before proceeding,

a short description of the figures used in the following sections is needed.

The following figures represented the negotiation path of a rule in a graphical form. The representations have been done on the basis of the thematic episodes relating to a rule. In the figure, episodes are depicted with cloud symbols within which the formulation of the rule is written. A short description about what happens concerning the rule in the episode is written under the cloud or on the lines connecting the clouds. The two whole groups are divided into separate lines, or branches A and B, to depict the concurrent negotiations. Within the branches small and whole group episodes are further separated to highlight the change in the form of the episode. Whole class episodes are placed more to the center of the figure on the same horizontal line. Similarly, small group episodes on a horizontal line, are located towards the top or bottom of the figure.

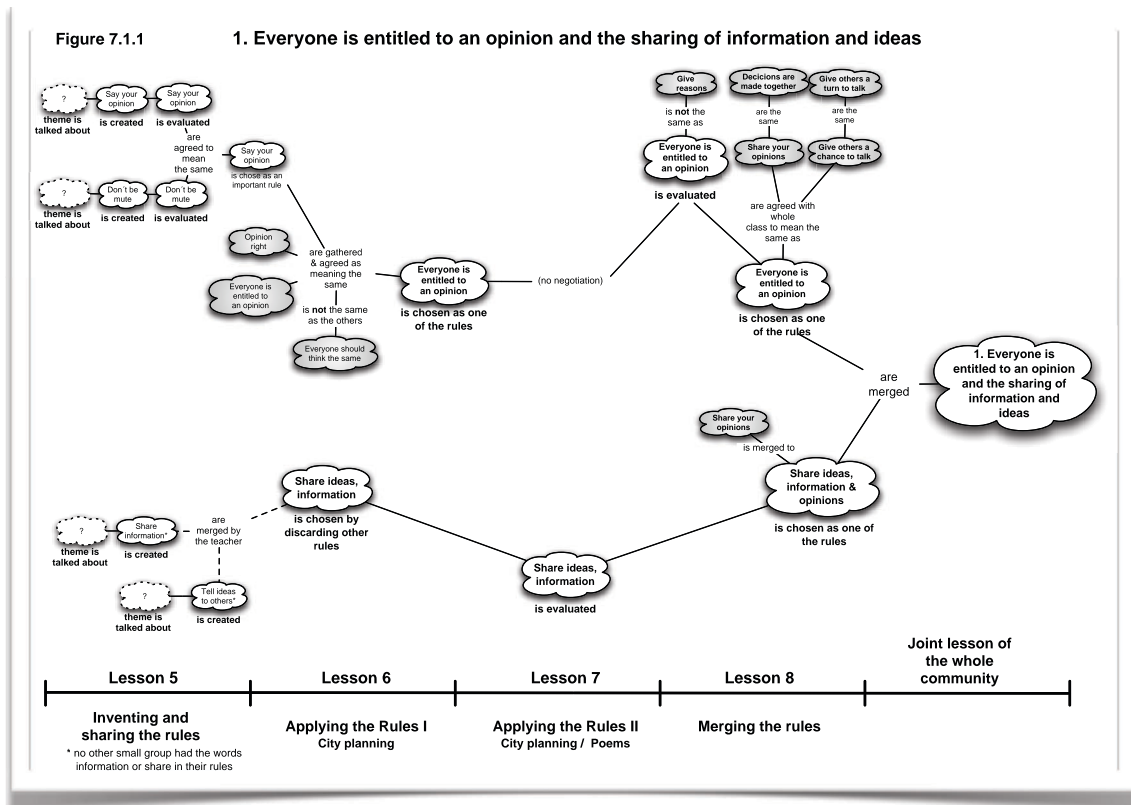
Intact lines represent clear connection between episodes. Dotted lines mean that the connection is not clear from the data. Dotted clouds represent episodes where a theme relating to the rule is talked about. Darkened clouds are rules invented by other groups and which are in discussion agreed to either mean the same as the focal rule, or not.

The figures are not meant to function as one-to-one images of the negotiations, but to highlight macro level features about them. In order to gain a sensible representation of the whole, not all episodes are depicted in the figure. A more detailed account of the division of thematic episodes among rules, lessons, their form (small group, whole group) and groups is provided in appendix 1.

### *Dimension 1: Symmetry*

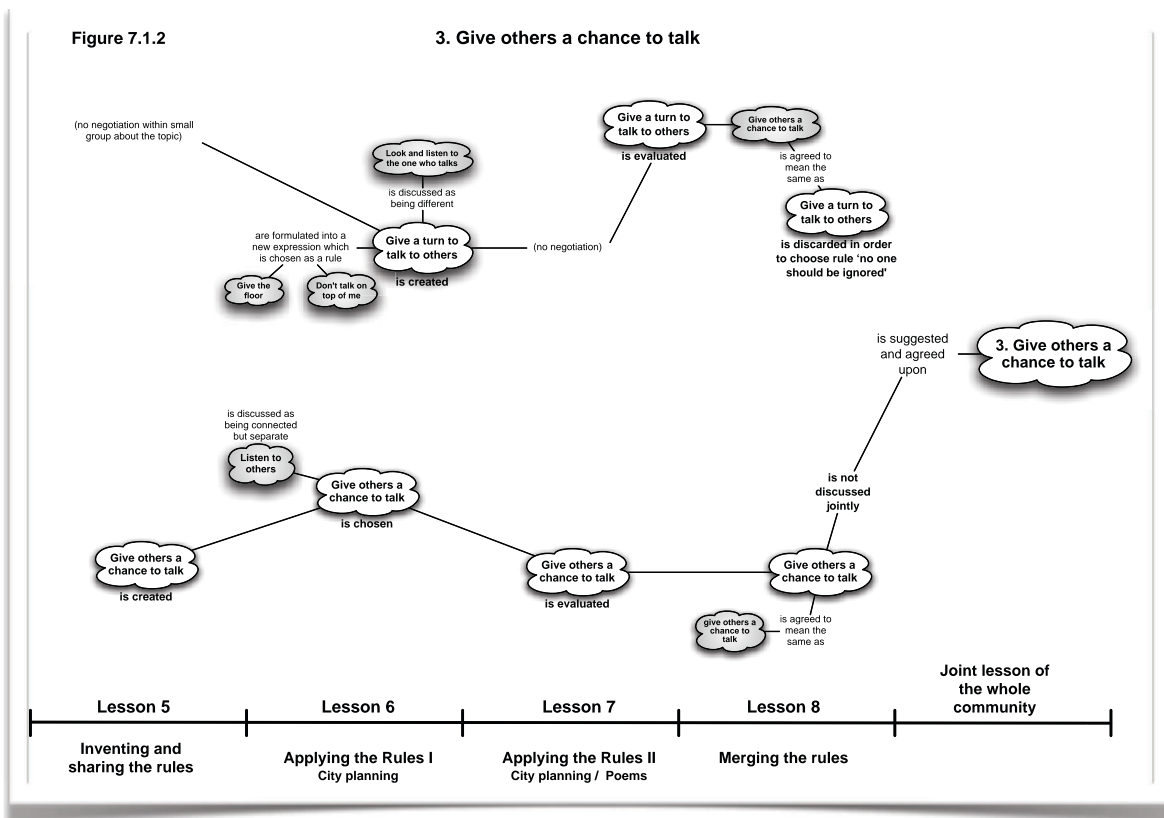
Trajectories under the first dimension can be characterized through the distribution of episodes between branches as being either *lopsided* or *even*. Lopsided trajectories had more episodes in either of the branches which means that the particular rule was discussed more in the other whole group. This feature is well represented by the trajectory of Rule 1: 'Everyone is entitled to an opinion and the sharing of information and ideas' depicted in Figure 7.1.1.





In figure 7.1.1, we see that the trajectory is lopsided towards the upper part, branch A, which has more cloud symbols than the lower branch B (seven episodes to be exact, see appendix 1.). This is partly due to branch A having created more rules which are agreed to mean the same as the final rule. On closer inspection, we see that a contributing factor to this difference is that the final rule is a merge between two thematically overlapping, but slightly different rules. Hence, the difference might be explained by the different focus between groups.

In even trajectories the branches were more in balance, meaning that neither was dominantly represented in the trajectory. This feature is well represented by the trajectory of rule 3. 'Give others a chance to talk' depicted in Figure 7.1.2.



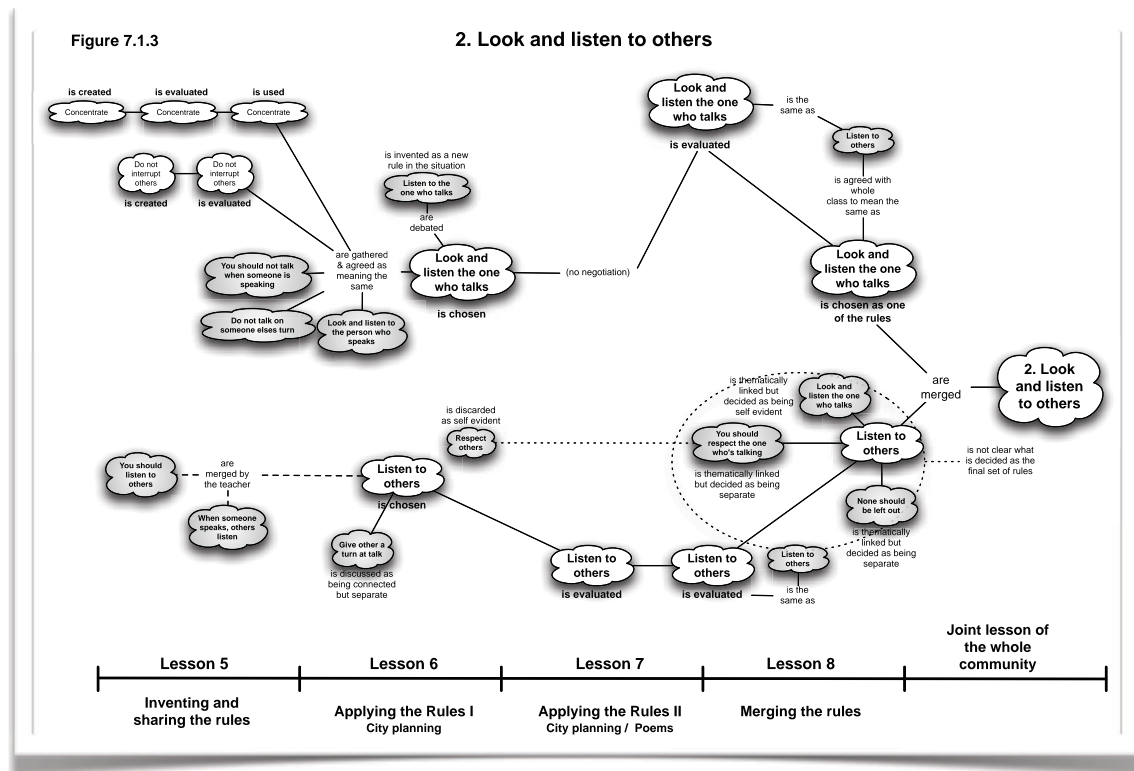
What we can see in figure 7.1.2 is that the branches of the trajectory are in relative balance when compared with rule 1. Overlapping and giving the floor are discussed as relevant points of concern for ground rules in both branches. Interestingly this is in spite of the the focal rule being discarded in lesson 8 of branch A.

As mentioned, what the first dimension tells us is which of the rules were talked about more in either of the whole groups. Though quantity in itself is not evidence of importance or need (being talked about more meaning being more important or needed than other rules), it serves to highlight a variance between trajectories in terms of time and effort given for a rule or a theme.

### *Dimension 2: Composition*

The second dimension, composition, stemmed initially from the observation that there was difference between the trajectories in relation to small and whole group episodes within a trajectory. The trajectory of rule 6, for example had the same amount of whole group episodes as Rules 1 and 2, but almost three times less small group episodes (see appendix 1.). Closer contrasting revealed that the trajectories could be described as either being mixed or uniform in terms of the relation of small and whole group episodes. In a mixed trajectory

the relation between small and whole group work was balanced as in Rule 2 ‘Look and listen to others’ in figure 7.1.3.

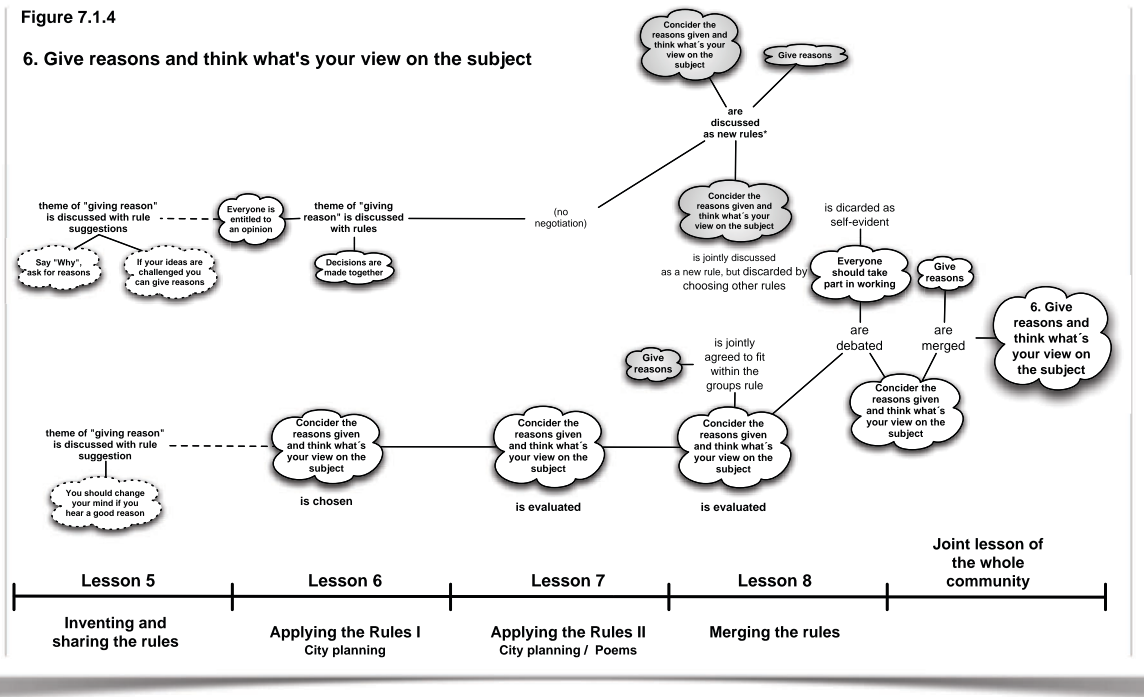


What we can tell from the figure is that during the negotiation path, the rule is talked about in both small and whole groups with neither form clearly dominating the negotiations. Rather, the negotiation path is a mix of both forms whereas uniform trajectories in contrast had either small or whole group work as the dominant form of the episodes.

Rule 6 ‘Give reasons and think what’s your view on the subject’ as mentioned, is a good example of a uniform trajectory. As can be seen in figure 7.1.4 below, the negotiation path is formed mainly of whole group episodes. This does not, however, mean that small group episodes would be altogether absent from the trajectory as this can also be seen in the figure.

Figure 7.1.4

6. Give reasons and think what's your view on the subject

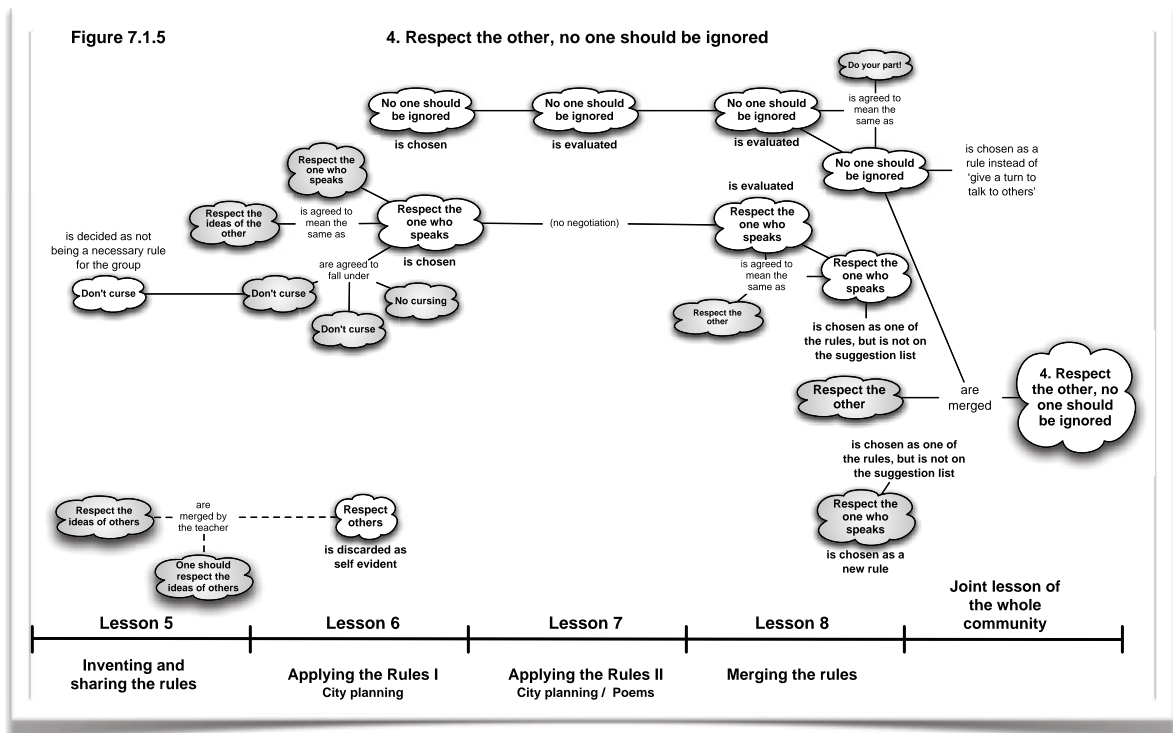


What the second dimension serves to highlight is the difference in the composition of the negotiation paths. For rules with a mixed trajectory, the negotiation concerning the rule is being done in both small and whole groups. In contrast, for rules with a uniform trajectory, the negotiations took place more in either one or the other. Though the identification of these features is not evidence of, for example, discordance within the negotiation process, it serves to point out that the every rules were discussed in different kind of formations during the implementation. If the negotiation of a rule is done in mainly whole group situations which are teacher lead discussions, this indicates that either the rule is less important from the pupils perspective or the theme is mostly kept on in the discussions by the teacher. The trajectory of Rule 6 is a good example as the theme of giving reason seems to travel through the negotiation process only in whole groups situations. The answer to the second research question will further elaborate this observation on Rule 6..

*Dimension 3: Continuity*

Trajectories can be differentiated according to the third dimension as either *intact* or *broken* by focusing on the continuity of the negotiation process. The trajectory was considered broken (as with rule 4. 'Respect each other, no one should be ignored' in figure 7.1.5 below) when there was a clear gap in the negotiation process. This means that an active decision, at some point of the negotiation process in either branch, was made about not con-

tinuing negotiation about the rule in question. Despite this decision the rule ended up as an established ground rule.



What can be seen in the figure is that there is a clear gap in branch B's part of the trajectory, between lessons 6 and 8. The reason for this is that during lesson 6 the rule 'Respect others' was after discussion considered self evident and the rule had to give room for more needed rules. However, the same theme is picked up again by the pupils in lesson 8 under the rule 'Respect the one who speaks' from branch A. The rule was suggested and agreed on as a new rule in the lesson. The re-surfacing was prompted by the fact that as part of the lesson the pupils were comparing the sets of six from each whole group for similar and different rules.

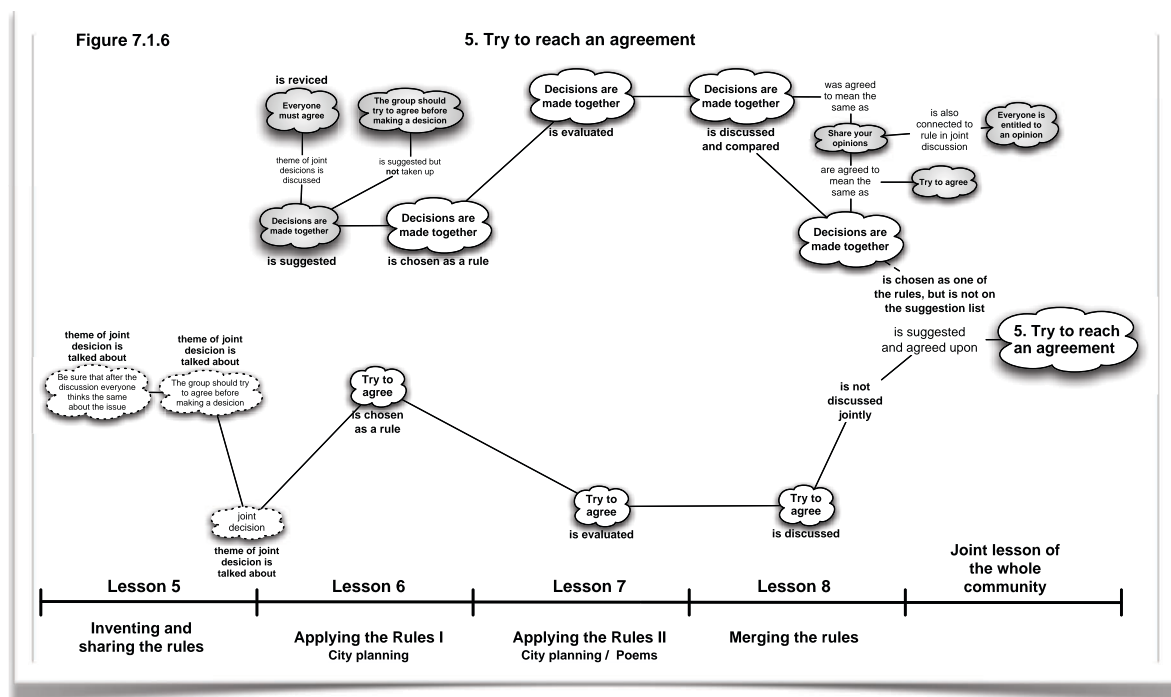
In contrast, the negotiation path was continuous for rules with an intact trajectory. This meant that all the decisions concerning the rule positioned it as a part of the set of six agreed rules in each lesson. This feature is well represented by the trajectory of Rule 1 'Everyone is entitled to an opinion and the sharing of information and ideas' depicted in Figure 7.1.1. What can be seen in the figure is that the line connecting the clouds is intact from the joint lesson of the whole community to lessons 5 and 6. The dotted lines between branch B's lessons 5 and 6 are due to time constraints experienced in the fifth lesson. Because there was insufficient time to recap all the rules invented in individual small groups,

the teacher thought it best to do an preliminary pruning of overlapping rules between the lessons and to agree on the set of six rules in the beginning of lesson 6. This pruning was not captured on tape and hence the connection could not be established from the data.

In all, the third dimension highlights that there was variance in the kinds of decisions made about the rules along their negotiation path. This is interesting taking in consideration that all the analyzed rules were part of the final set of six rules. It seems that even though discarded at one point, this does not preclude the rule from emerging again later in the lessons as a good rule. One could view this as an indication of the health of the implementation. If a discarded rule is taken up again, it shows that possibly reasons are being given and listened to.

*Dimension 4: Explicitness*

The fourth dimension denotes the explicitness of decision making on the negotiation path of a ground rule. The trajectory was considered murky when at some point a decision made concerning the rule was not explicitly visible in the data, but could be deduced from the trajectory. The trajectory of Rule 5 ‘Try to reach an agreement’ depicted in figure 7.1.6. gives an good example of this feature.



The point to focus on in figure 7.1.6 is branch A's lesson 8. What can be seen is that the rule ‘Decisions are made together’ is agreed to be one in the set of six. However, for some

reason not deducible from the data, the rules is not included in the in joint lesson's set of suggested rules. Two reasonable questions spring to mind. The first concerns the reliability of the data set: is the observation evidence of the incompleteness and/or incoherence of the data set? One possible to reach an answer is to think that perhaps the negotiations around the ground rules is somewhat of an unbounded phenomenon, that can't be captured in all its wholeness. Negotiations concerning the rules are quite possibly been done to some extent outside the scope of the data. However, whole group situations and the joint lesson of the community represent points of focused joint discussion about the rules, that are accessible to all and where the rules are decided. Decisions happening outside this realm happen also outside the collective decision making process, which in turn is represented completely in the analyzed data set.

The second question is, whether there is any significant difference between the criteria of dimensions 2. and 3. In both dimensions the decisive factor is traced down to decision making about the rule. However, from a participant perspective there is significant difference in whether a rule was decided on jointly or by someone else as compared to what that decision was. What this differentiation serves to show is that in some trajectories the participants had equal opportunity to take part in decisions concerning the rule, while in other trajectories the decisions were made partly outside the lessons, and were not made explicit.

A further answer to both of these questions is provided by the trajectories that were considered as clear. In these trajectories the decision making process could be made out explicitly from the data. Rule 6 'Give reasons and think what's your view on the subject' in figure 7.1.4 exemplifies a clear trajectory. The figure also highlights the difference between dimensions 3. and 4. by being clear in decision making but broken in terms of decisions made at the same time.

#### *Coda: Summing-Up the Trajectories*

The aim of the first research question was to describe the negotiation trajectories of ground rules created in the implementation. The trajectories were investigated by contrasting them against each other to bring out similarities and difference between them.

The contrastive analysis revealed that the trajectories could be characterized through four dimensions: symmetry, composition, continuity and explicitness. The symmetry of trajec-

tories could be either even or lopsided depending on the relative distribution of thematic episodes between the branches of a trajectory. The composition of a trajectory could be mixed or uniform depending on whether there was a dominant form (small group / whole group) in the negotiations.

The third and fourth dimensions both relate to decision making concerning the rule. The continuity of the negotiations effected whether the trajectory was either intact (continuous line from first appearance to joint lesson) or broken (rule discarded at some point in the negotiations). Explicitness of the decision making, on the other hand, determined if a trajectory was clear (all decisions are visible in the data) or murky (a decision is made but outside the data). The results of the contrastive analysis on the trajectories of the ground rules are summarized in table 7.1.7 below.

<b>Rule</b>	<b>Symmetry</b>	<b>Composition</b>	<b>Continuity</b>	<b>Explicitness</b>
Rule 1. Everyone is entitled to an opinion and the sharing of information and ideas	Lopsided	Mixed	Intact	Clear
Rule 2. Look and listen to others	Even	Mixed	Intact	Murky
Rule 3. Give others a chance to talk	Even	Mixed	Broken	Murky
Rule 4. Respect each other, no one should be ignored	Lopsided	Uniform	Broken	Murky
Rule 5. Try to reach an agreement	Lopsided	Mixed	Broken	Murky
Rule 6: Give reasons and think what's your view on the subject	Even	Uniform	Broken	Clear

What can be seen from table 7.1.7, is that most of the rules share one or two features with other rules. For example, Rule 6 shares only one or two features when compared with any other rule. Also, for example Rule 3 shares two features with Rule 2 (both are even and mixed) and one feature with Rule 1 (both are mixed). In only two cases two rules share more than two features. Rule 3 shares also three features with Rule 5 (mixed, broken and murky) and rule Rule 5 when compared with Rule 4 (lopsided, broken & murky).

However, what table 7.1.7 more importantly shows is that none of the trajectories are completely identical. This is somewhat unexpected. Although contrastive analysis as a method specifically aims to highlight variance within a given set of data, the level of heterogeneity in negotiation paths in terms of the dimension outlined above, because all of the rules end



up as agreed rules. The equifinality of the trajectories, at the outset, would lead to assume that the negotiations would share more similarities with each other. As can be seen from table 7.1.7, this is not the case.

In general, what table 7.1.7, therefore, seems to indicate is that this level of variance does not hinder the formation of the mediating artifact. In other words, it seems that agreed rules can emerge in multiple ways during the negotiations. As noted earlier in discussion on dimension 3, the variance of the negotiation paths can, in this sense, be interpreted as an indication of the health of the intervention. If there would be a dominating form to the trajectories, other important rules with a different trajectory, might be discarded. This also connects with Mercer's previous note on the importance of openness of the negotiations (Mercer, et al. 1999). Variance between trajectories is an indication of the openness of the negotiations.

In addition to this general remark, another more specific observation can be made about the trajectories. To bring this pattern in front, we have to change perspective slightly. Here Mercer's (1996, p. 375) following passage is enlightening: *'It would of course be naive to ignore the extent to which [...] pupils resist, subvert and renegotiate the ground-rules and goals for classroom activity which are promoted by their teachers.'* What Mercer is saying by pointing to the agency of the pupils, is that the participants' views on ground rules are not as harmonious as the negotiations might lead to assume. So, instead of looking at which trajectories share the same features, we have to look at what the features tell us about the overall consistency of the negotiations.

Consistency of the trajectory, in this sense, is an indication of the overall convergence of different features of the trajectory. In other words, if we think that the agreed rules outline the way towards which the community collectively wants to develop its collaborative practices, consistency of a trajectory indicates general agreement on the direction of this change. In terms of consistency, a trajectory can be either coherent or incoherent.

In practice, if a rule has a coherent trajectory, the rule is negotiated in both branches (even) and in both small groups and whole groups situations (mixed). Also, the decisions made about the rule include it in the set of six rules during its path (intact) and all the decisions made about it are made publicly (clear). In contrast, if a rule has an incoherent trajectory, it is

negotiated only in one of the branches (lopsided), and only in whole group situations (uniform). The decisions concerning the rule are not made publicly (murky) and the rule is discarded during the negotiations (broken). This would then indicate a level of inconsistency about the direction of the change.

To highlight consistency of the negotiation paths, the trajectories were cross-referenced with the above descriptions of coherence. The result of this cross-reference is displayed in table 7.1.8 below. To facilitate the readability of the table, only the coherence side of the cross-reference is displayed. Note also that the order of the rules is different in than in table 7.1.7.

<b>Rule</b>	<b>Amount of features shared with description of coherence</b>				
	4 features	3 features	2 features	1 features	0 features
Rule 1. Everyone is entitled to an opinion and the sharing of information and ideas		X			
Rule 2. Look and listen to others		X			
Rule 3. Give others a chance to talk			X		
Rule 6: Give reasons and think what's your view on the subject			X		
Rule 5. Try to reach an agreement				X	
Rule 4. Respect each other, no one should be ignored					X

What we can tell from table 7.1.8, is that the trajectories seem to form at least two pairs, Rules 1 & 2 and Rules 3 & 6. Both rules in the first pair, Rules 1 and 2, share three features with the description of coherence. This means that their trajectories are alike in terms of consistency and that both of the rules present a fairly agreed direction for change. The second pair, Rules 3 and 6, share only two with the description of coherence. This means, that both of the rules share also two features with the description of an incoherent trajectory. Therefore, their trajectories are ambivalent in terms of consistency.

Rules 5 and 6 do not form a third pair, because they do not share the same amount of features. Both, however, are more aligned with the description of an incoherent trajectory. This means, that looking from the viewpoint of the negotiation process both of the rules represent a direction for change that the community is somewhat apprehensive about. Both of the rules are agreed rules, but their negotiation process indicates that the agreement is

not as firm as with Rules 1 & 2. What this section cross-reference helps to point out is an important

To conclude this section, the main results for research question 1 will be summarized.

What the contrastive analysis points out about the ground rules on a macro level is that there were differences between trajectories in terms of the symmetry, composition, continuity and explicitness of the trajectories. What the identification of these dimension helped to show was that the rules emerged in individual ways during the implementation (excluding the equifinality of the trajectories). The dimension also helped to bring out variance the rules in terms of the consistency of the trajectories. However, macro level analysis of the negotiation process does not provide access to what the ground rules were meant for the participants. For this we have to turn to research question 2.

## **7.2. Meanings Negotiated for the Ground Rules**

In the following section the results of this analysis will be given by proceeding one rule at a time and highlighting significant episodes in which the meaning of the rule was made explicit. The meaning of the rule will be summarized and juxtaposed with the guidelines given by the approach for the ground rules (Wegerif et al. 1999, see section 2.4).

To uncover the meanings negotiated for the ground rules, the thematic episodes for each rule were analyzed according to the criteria set by Bloome & Egan-Robertson (1993) and detailed in section 6.2. This meant the all of 118 episodes identified were looked at with the intent to identify the social consequence of the interaction from the viewpoint of the rules and establish what the meanings and positions negotiated for the rule in each episode were.

The episodes in the following sections were transcribed and analyzed in Finnish and later translated into English for the purpose of this study. Punctuation was added at this stage to facilitate the readability of the extracts. Also, the extracts have been shortened to improve readability (ellipsis marked with '...'). The notation used in the transcripts in regards to prosody, overlap and intonation is a loose adaptation of the Jeffersonian system (Jefferson, 1984) used widely in conversational analysis. Explanations of used notations are provided in appendix 2.

*Rule 1: Everyone is entitled to an opinion and the sharing of information and ideas*

Rule 1 is a merge between two separate rules. The first part ‘Everyone is entitled to an opinion’ stems from branch A, and the second part ‘sharing of information and ideas’ is an adaptation of an overlapping rule from branch B. The following transcript is from the first minutes of the joint lesson when the two rules are merged.

The lesson was organized so that one of the teachers (Brian) leads the discussion and Jane (second teacher) acts as the secretary and marks the agreed rules on the overhead projector. The suggestions for rules that come from the prior lesson of the three whole groups are also displayed also on the projector and referred to actively by both the pupils and the teachers. The extract is a fairly typical episode from the joint lesson. It starts with Brian giving the floor to John (pupil) after asking for suggestions on the first rule. After John’s suggestion, Brian asks for evaluation on the suggestion. The rule is then either further elaborated (this time by Brian himself) or agreed on.

Extract 1. Joint lesson. Rule 1: Everyone has the right to an opinion and sharing of information and ideas.		
Line	Speaker	Turn
1	Brian:	Now John you have your hand up, so you’ll get the first turn. Stand up because there’s people sitting right at the back, and it’s hard to hear. Go right ahead.
2	John:	Well I’d like to leave that ‘Everyone has the right for an opinion’ because everyone really has an right for an opinion, you should tell what you think and no should be able to say ”You wont get anything, I’m the one saying that now we take that”.
3	William:	Good John, good good good! ((applauds))
4		Other pupils join in to the applauds
5	Brian:	Ouh! Applauds! Does anyone disagree with John’s proposal at this point?
6	X:	Mmmm↓((denying))
7		...
8	Brian:	Hey! That sounded very good! Do you think it supports either of our goals for this lesson?
9	Mike:	[Everyone] knows that
10	X:	[Yeah]
11	Brian:	So here we have our first agreed rule
12	X:	Good good good good ((echoing William, others join in))
13	Brian:	Everyone is entitled to an opinion. Should we, hey, hey. Now that we have the right for an opinion, should we add to that also ”to ideas and sharing of information”? Could we join them with this same clause here so that we’ll get little more room. I suggest that we connect these two words here=
14	X:	Ok!
15	Brian:	What do you think?
16	Many pupils:	[Yeah]
17	John:	[(Good idea)]
18	Brian:	It would expand this clause right to an opinion, sharing of ideas and information. I anyone disagrees raise you hand now. My suggestion.
19	John:	I disagree! ((said with an alternated voice and with fist in the air)) Well no. ((laughs))
20	Brian:	Ok then. We expanded John’s marvelous suggestion with two things: sharing of information and ideas.

In his first turn John (line 2) proposes a link between the rule he suggest and Brian’s question about what might be a good rule. The link is recognized and acknowledged by Wil-

liam, other pupils and Brian (lines 3 to 11). This changes the position of the rule from a suggestion on the overhead projector to a valid and agreed rule of the community. On line 13, Brian suggests an elaboration by proposing that there is a thematic link between the agreed rule and rule suggestion ‘Share ideas, information & opinions’ which he in situ adapts to better fit the agreed rule. This in turn is recognized and acknowledged as a proper link by the pupils and John (lines 16,17 and 18). As a result the first rule of the final set of six is agreed on.

Concerning the meaning of Rule 1, John’s turn on line 2 is crucial. His justification for the rule holds within it three distinct ideas that have been developed in the prior lessons of branch A. The first part (‘..everyone really has an right for an opinion...’) points to a discussion about personal space in a group, and how each member is entitled to his or her point of view. The second part (‘...you should tell what you think’...) indicates the idea that one should participate in the discussion by sharing their thoughts to others. The third part (‘... no should be able to say ”You wont get anything, I’m the one saying that now we take that”’) points conversely to the idea that decisions should be made together as a group, and no one should dominate the discussion.

In uncovering the meaning of Rule 1, Brian’s turn (line 13) is also important, but rather unclear. His justification stems from the fact that during the joint lesson they have to discard six from the twelve suggested rules to reach the final set of six rules. Hence, ‘making room’ is understandable. However, his turn does not establish the link to prior discussions as clearly as John’s turn. This is better highlighted by backtracking the trajectory to lesson 5 of branch B.

In the second extract, the small group is inventing the first set of rules for their small group. The episode is from a situation where the group has been stuck for a moment and Brian (teacher of that whole group) come to help the group. In addition to pupils (David, Mark, Tina & Stacy) and the teacher, school assistant Margaret participates in the episode.

Extract 2. Lesson 5, branch B. Rule 1: Everyone has the right to an opinion and sharing of information and ideas.		
Line	Speaker	Turn
1	Brian:	What could it be?
2	David:	Could it be argument or idea, all the same to me
3	Brian:	Has idea been use already?
4	Mark:	No
5	Tina:	No it hasn't

Extract 2. Lesson 5, branch B. Rule 1: Everyone has the right to an opinion and sharing of information and ideas.		
Line	Speaker	Turn
6	Stacy:	Information is already
7	David:	Discussion or [give reason]
8	Margaret	[Yeah idea]
9	Brian:	Yeah, but this hey. I think this is important what David said here about the idea. How could it be important?
10	Stacy:	Hmm=
11	David:	Just put something
12	Stacy:	How could you write it?
13	Brian:	If we have a problem in front us. For example, I have given you a math problem and you all look like you don't know what to do. Then someone gets an idea, that we could try this. What should that person do, so that the other know also?
14	Mark:	Tell the idea to others
15	Brian:	Tell the [idea to others]
16	David:	[Gee, I'm good]. Didn't we put down also share
17	Stacy:	((laughs))
18	Brian:	That was information. Information is something [everyone] has, but an idea is something where someone can think of new things from the [information]. 'Hey, now I know how we should do it', and then out comes the idea that some other can continue from. That's how it goes. It's the same in games, someone comes up with a new move, the others=
19	Stacy:	[Hmm] ((agreeing))
20	David:	[Yeah]

From the extract we can see that to a large extent the teacher guides the interaction by recognizing and acknowledging (line 3 and 9) a part of David's proposal about using the word 'idea' in a rule. This is followed up by Stacy's (whose task is to write down the created rules) question and a further elaboration by Brian (line 13) in the context of school and maths. After Mark's proposal is recognized and acknowledged by Brian and David, Brian explains the difference between information and an idea. This in turn is an recognition and acknowledgement of the proposed link by David (line 16) to a prior episode where the group creates the rule 'Share information'.

In consideration of the meaning of Rule 1, Brian's turn on line 18 is clarifying. Ideas are something that can be deduced or created by an individual on the basis of existing and shared information. Sharing both information and ideas is important so that the group can solve the problem at hand. Although much of this is voiced by the teacher, the differentiation is agreed on explicitly by David on line 20. Also, later in the trajectory (beginning of lesson 8) Stacy revoices Brian's example of sharing when explaining why the rule 'Share ideas, information' is needed. Interestingly, this focus group was the only one from Brian's whole group who used these the words 'information' and 'share' in their rules in lesson 5.

Apart from Stacy's revoicing, the meaning of the rule is not made clearer in the data. What happens between this extract 2. from lesson 5 and extract 1. from the joint lesson, is that the initial rules the branch B focal group has invented ('Share information' & 'Tell the idea

to others’) are merged by the teacher between lessons 5 and 6 to form the rule ‘Share ideas, information’. This merge is picked up in later lessons by the pupils without any clear attempts to do repairs. Later in branch B’s lesson 8, a new merge is done with the rule ‘Share opinions’ to form the rule Brian adapts in situ in extract 1, namely ‘Share ideas, information & opinions’.

At the same time in branch A, the first part of Rule 1 is rather more stable in terms of its formulation. However, as the interpretation of extract 1 and the contrastive analysis of the whole trajectory provided in the previous section aim to show, this does not mean that negotiation process is static, rather the opposite. The rule ‘Everyone is entitled to an opinion’ is the focus of attention in both the whole group and small group discussions and other rules are agreed upon to mean the same as the focal rule. The three sides to the meaning of the rule are discussed in these situations.

To summarize, the meaning of the Rule 1 can be interpreted as being the following:

- all members of a group are entitled to their opinion and to stand by it,
- no member should dominate the decision making as it violates the right for an opinion,
- all members are obliged to participate by telling what they think about the matter at hand,
- sharing opinions, information and ideas is important for the group to achieve its goal.

When juxtaposed with the guidelines for the ground rules, the meaning of Rule 1 seems to resonate more with the guidelines shared with cumulative talk. This means that Rule 1 is more aimed at supporting coherence among members, sharing information and knowledge building.

A reasonable question in relation to the summary above is how shared these meanings are, and whether this summary would be the same if made by one of the participants. The first indication of an achieved ‘working consensus’ is that there are no attempts to repair or further elaborate on the rules. Also, the turns from which the meanings are interpreted are clear and audible and therefore accessible to all participants in the episodes. Secondly, for example Stacy’s revoicing points towards mutual understanding of the rule and on these

basis it can be argued that the data does not give reason to doubt the sharedness of the meanings

However, what has to be remembered is that these situations are not empty of power relations which effect who can say what to whom and in which situation. A pupil (or teacher for that matter) could disagree with something said in the lessons, but have no possibility to voice his/her opinion. Power relations were not the focus of the intertextual analysis conducted on the episodes, which leaves viable room to dispute the results. Also, what is evident in for example extract 1 is that the meaning of the second part of the rule is not made explicit to pupils from other whole groups than Brian's.

In regards to the accuracy of the summary above (or the other summaries presented in following sections), one has to recall that meanings are not stable, fixed entities but in constant motion. What this means in practice is that ontologically there is no absolute version of the meanings of the rules as such to which the summary above could be compared to. It also means that this version of the meaning of the rules is not a separate one, but rather within the same reification-participation cycle depicted by Wenger (1998, p. 63; see also Roth, 2004) as one version among others.

The researcher perspective is not any arbitrary interpretation of the meaning but rather, as depicted above, one grounded in the interaction of the participants. However, what separates it from the participant perspective is the 'off-line' aspect of this interpretation. The research has the advantage of re-interpreting the interaction after it has happened and to check inferences by re-searching the data. Participants interact 'on-line' and do not have a similar access to the interaction after it has happened. In this sense the interpretation above is quite clearly different from the participants' interpretation, but one that is justified by the goals of the research to bring out subtleties that otherwise would remain hidden below the surface of the easily apparent interaction.

#### *Rule 2: Look and listen to others*

Rule 2 is also a merge between two rules, but in a different way compared to Rule 1. The merged is done more explicitly in terms of its meaning as the following negotiation in extract 3 brings forth. The extract is an episode from the joint lesson where the rules are merged. The extract begins after Andrew (pupil) has suggested the rule 'Listen to others' to



be agreed on as the second rule. Andrew's justification is based on the group disfunction of the group, if no one listens to each other. The suggestion has been recognized and acknowledged by Brian, but John (pupil) does not agree and wants to suggest a different rule.

Extract 3. Joint lesson. Rule 2: Listen and look to others.		
Line	Speaker	Turn
1	John:	I can argue!
2	Brian:	Are you objecting?
3	John:	Well yes!
4	Brian:	Then object, stand up and argue.
5	John:	Well because I want because it's not as broad as that 'Look and listen the one who talks' which is broader than 'Listen to others'.
6	Brian:	Now we have an extra suggestion. You can sit John. Thank you. That was a good idea. Do you want to comment? ((to Andrew))
7	Andrew:	Well 'Listen to others' is plural and that other one is not.
8	Brian:	I suggest, hey! ((stands up to the overhead projector)). A compromise just like before, to expand a bit. Could we combine these two?
9	John:	No way, [no way]
10	Andrew:	[Yeah, you can]
11	Brian:	Listen to others
12	John:	I [object]
13	Girl in front:	[Listen] and look to others
14	Brian:	Listen and look to others
15	John:	But if, if you take that 'Look and listen the one who talks' you get the, the one who speaks gets the other to listen
16	Brian:	Now it seems we have two rules
17	...	
18	Jane:	Listen and look to others
19	Brian:	Mmm ((agreeing)) so now we expanded a similar thing where one has to take into consideration others in the group. Not just to listen but to look to also so this won't happen ((turns his back to the pupils)). I can talk happy things, and look at the camera there in the corner, and don't want to see you. ((turns back)). That's pretty rude, isn't it? Think for example about a news anchor who mumbles something just to his papers, while millions are looking at home. ((hides his head behind the papers in his hand. Laughter at the back)). No one receives the message, the idea or the news.

On line 4, John proposes that the rule he is suggesting has a wider scope than the prior suggestion, because it entails looking in addition to listening. Brian recognizes and acknowledges this and offers the floor to Andrew who notes (line 7) the difference to whom the suggestions are directed to. After this Brian suggests a compromise between the two by merging them. John objects and further elaborates on his position, but Andrew, Brian and a girl not identifiable from the camera do not recognize these attempts (lines 10, 11, 13), and agree on Rule 2 being 'Listen and look to others'.

It can be argued that John's attempts to object (line 15) fail in part because what he's trying to argue for is not stated clearly enough. To understand his point of view more, his argument can be backtracked to lesson 6 in branch A, where he has an active role in the creation of rule 'Look and listen to other'. During the negotiations he answers Jane's (teacher) question about what does looking help in talk as follows: "Well if you don't look, the

*speaker does not get the attention. Normally you look, and the speaker gets the feeling that someone is listening*". Understood against this, his insistence on line 18 about looking the at *one* who speaks is clearer. He is trying to argue that a general position of others is not enough. You have to look right at the one doing the talking. Although this is not recognized or acknowledged in the extract, John's effort is not in vain because through it, the final version of the rule entails the idea of looking. This is seen in Brian's last turn, in extract 3.

After Jane has also acknowledged Rule 2 and written it down on the projector, Brian (line 19) sums up the negotiation by elaborating on the meaning of the rule. Brian's turn entails two explicit references to the meaning of the rule. 'That's pretty rude' focuses on politeness and taking what the others in the group feel and think into consideration. 'No one receives the message, the idea or the news' on the other hand focuses on the functioning of the group, and reasserts Andrew's prior justification for the rule. This justification can in turn be backtracked to the beginning of lesson 6 in branch B and to Brian's statement about listening: "*Listen to others is the first. If you don't listen to others the joint conversations won't work. Everything would be a mess and a ruckus.*" However, Brian's enactment of the rule is a slight variation of its theme, which expands the meaning of the rule to the one doing the talking and to how he/she is taking others into consideration.

To summarize, the meaning of the Rule 2 can be interpreted as being the following:

- You should look and listen to others to be polite and take them into consideration
- If you do not, then the group will not function because ideas are not heard.

When compared to the guidelines for the ground rules, the meaning of Rule 2 seems to connect with guidelines 2 and seven. This means that Rule 2 is focused on binding the group together and has a cumulative orientation.

### *Rule 3: Give others a chance to talk*

In contrast with the first two rules, Rule 3 is not a clear merge. The trajectory of 'Give others a chance to talk' is broken due to a similar rule ('Give a turn to talk to others') being discarded in lesson 8 of branch A. In the joint lesson (extract 4 below) the rule 'Give others a chance to talk' from branch B is picked up and agreed upon.

Extract 4. Joint lesson. Rule 3: Give others a chance to talk.		
Line	Speaker	Turn
1	Mike:	Well, 'Give others a chance to talk'
2	Brian:	For what reason?
3	Mike:	Well, because it wouldn't be fun, if you would speak all the time. You don't give others a turn, 'cos you just speak about something. And the other (unclear)
4	Brian:	That was a suggestion for 'Give others a chance to talk'. If you do not, it won't be fun. That was Mike's good argument, so what do you think? Is it important when we think about sharing ideas, information and opinions or working in a group. Does anyone oppose?
5	John:	I'm not opposed, but wanna elaborate
6	Brian:	Go right ahead
7	John:	Now really, everybody should have a chance to talk. For example, in our small group who was it, it was Hanna who the other day, we like didn't like notice her, 'cos she didn't, we just talked together and didn't see her. And when she did say something, then we noticed her. It's not fun to be left alone in the group so that you can't talk anything.
8	Brian:	That was a very very good reason. Hey a really good reason John! You have something of a statesman's stature.

Extract 4 begins after Brian has again opened the floor to new suggestions. His request for justification (line 2) recognizes and acknowledges Mike's turn as a proper suggestion for a rule. Mike's turn (line 3) proposes that the rule would be needed in situations where someone in the group constantly keeps the floor. Brian recognizes and acknowledges this justification and returns the evaluation of the rule to the other pupils. On line 5 John also recognizes and acknowledges Mike's proposal and his turn on line 7 provides further argument for the rule by drawing on a specific incident in his own small group. The interaction in the episode continues, after the extract, by clarifying all the previously agreed rules and establishing Mike's suggestion as an agreed rule. Hence, in this episode rule 'Give others a chance to talk' changes position from a potential resource to a suggestion (lines 1, 2) and from a suggestion to an agreed rule (lines, 4, 5, 8).

In regards to the meaning of the rule, both Mike's justification (line 3) and John's elaboration (line 7) are uncovering. Mike's turn seems to be directed at the individual level in the group and at the one dominant in the interaction. He justifies the rule by explaining that having no room in the interaction is not fun. John's justification grounds this image to an specific episode in his small group that Brian recognizes and acknowledges as a good justification. John's elaboration also aims the rule more to the direction of the group members taking responsibility in supporting each others' participation. This expansion comes clearer when viewed against the discarding decision in lesson 8 of branch A. The rule chosen instead of 'Give a turn to talk to others' was 'No one should be ignored'.

Along both branches of the negotiation path, there was discussion about how Rule 3 is dif-

ferent from Rule 2. This is well portrayed in extract 5, which is from lesson 6 of branch A. The extract starts by John's turn in which he proposes a new rule which Jane (teacher) recognizes and acknowledges.

Extract 5. Lesson 5, branch A. Rule 3: Give others a chance to talk.		
Line	Speaker	Turn
1	John:	We had 'Give the floor'
2	Jane:	'Give the floor', hey!
3	Anna:	'Don't talk on top of me'
4	Jane:	Yes, how, like 'Don't talk on top of me'. How is it here? ((indicates rule 'Look and listen to others')) he, we haven't considered that in there.
5	X:	We've got 'Give the (floor)' ((unclear))
6	Jane:	Does anyone else 'Give the floor' (written down)
7	Sam:	Mmm↓((denying))
8	X:	No
9	(4.0)	
10	Jane:	How could we phrase it in to a rule? (unclear)
11	John:	Well like, if when, like if you don't get to talk, but everybody can do like their own listening. So no one get's to say their own opinion.
12	Jane:	How do we say it so that it won't just be, but so that we take care that others get their turn also. How could we say that as a rule? What do we have to remember to give?
13	Sam:	A turn to talk
14	X:	A turn to talk
15	Sam:	'Give the other a turn to talk' ((turns to Jane at the same time))
16	Jane:	'Give the other a turn to talk' or 'Give a turn to talk to others' ((Writes on the blackboard at the same time))
17	X:	Others

What is interesting in extract 5 is the difference proposed between the suggested rules and rule 'Look and listen to others' by Jane (turn 4 & 10) and recognized and acknowledged by the pupils (turn 11, 13 & 14). What this exchange elaborates on is that looking and listening are not seen as providing sufficient room for participation. These are done after a turn to talk is given and so in order to get a turn a new rule must be inserted.

To summarize, the meaning of the Rule 3 can be interpreted as being the following:

- You should not talk all the time. Others have something to say also.
- Give others a turn to talk, and include them into the discussion.

Juxtaposing these meanings with the guidelines for ground rules, reveals that Rule 3 leans more to the side of cumulative talk. Both parts of the meaning to point to guideline 7, which aims to encourage all members to support each other to participate. Giving others interactional space (room to talk) and actively including them in the talk are both practical ways to encourage others to participate.

*Rule 4: Respect each other, no one should be ignored*

Rule 4 is again a merge between two previously separate rules. Interestingly, the first part of the rule ‘Respect each other’ comes from the third whole group, which was not included in the analyzed data set. The theme of respect is also discussed in both of the analyzed whole groups, but due to an unidentified decision made outside the data set (the trajectory of Rule 4 is murky) rule ‘Respect the one who speaks’ is not included in the set of suggestions in the joint lesson. What makes the first part also interesting is that its trajectory is also broken, like in Rule 3. In lesson 6 of branch B, the rule ‘Respect others’ is discarded as self evident, but in lesson 8 voted on as being important. The second part ‘No one should be ignored’ of the rule is easier to trace to branch A because no other rule used the term ignore.

The merging of the rules happens in two parts in the joint lesson. First in extract 6 below the second part is proposed and agreed upon. After this the first part is first suggested as a separate rule, but later in the episode merged with the second part. This negotiation is presented in Extract 7.

Extract 6. Joint lesson. Rule 4: Respect each other, no one should be ignored.		
Line	Speaker	Turn
1	Amanda:	‘No one should be ignored!’ ((laughs at the end))
2	(unidentified)	Can’t hear you
3	Brian:	‘No one should be ignored’ was the suggestion. Give some justification, why do you want it?
4	Amanda:	(unclear) ((noise in the back))
5	Brian:	Yes, it is not nice to be left out [was the justification. What do you think? Let’s hear some opinions. John has his hand up and gets a turn.
6	John:	[Can I like summarize, can I elaborate? I’d wanna take that too ‘cos it doesn’t feel nice if everybody else or if like you have that kind of an opinion, that everyone else has a different one. And the other different, so that I’d want to, I’d take one. Or say for example in a small group, a task or or I can’t come up with an example. But yeah, everybody else has the same opinion, like ”That’s lousy, you don’t have any clue about it”. So like you have to include it, if someone has a poorer opinion or something.
7	Brian:	What do you think about John’s opinion?
8	Many students:	Good, good, good
9	Brian:	That clearly got the general support. And I think that John’s way of doing has something good in it. He can like take the other person’s viewpoint and feelings, and think what it feels like to be the underdog. The rule suggested here really helps. Does anyone oppose
10	Jake:	No!
11	Many students:	No!

Extract 6 starts by Amanda’s turn, where she proposes that rule ‘No one should be left out’ be chosen. Brian (on line 3) recognizes and acknowledges Amanda’s proposal and asks for justification. Amanda’s response is not audible to the camera, but we can tell from Brian’s turn, that her justification focuses on the feelings of the one who does not get access to the interaction. After this, John (line 6) provides further elaboration on one probable source of this (different opinions) and gives an hypothetical example of the group ignoring and writ-

ing off the opinion of the one being left out. Brian and other pupils recognized and acknowledged John's elaboration. In essence this confirms that the position of Rule 4 has changed from a resource to a proposal (line 1) and on to an agreed rule for the community (lines 8 & 9). Later on in the episode Tina (pupil) provides further justification for the rule along the lines of John's justification. This tells of a 'working consensus' being achieved on what the second part of Rule 4 means.

Extract 7 begins after Emma (pupil) has suggested the first part of Rule 4 ('Respect each other') as a good rule. Emma tries to provide justification for the rule, that Brian has asked for, but her voice does not carry over to the other end of the room. On line 1, Brian suggests that he could help Emma by acting as her 'loudspeaker'.

Extract 7. Joint lesson. Rule 4: Respect each other, no one should be ignored.		
Line	Speaker	Turn
1	Brian:	Come here next to me so I can act as your loudspeaker, which-
2		(19. during which Emma whispers to Brian's ear)
3	Brian:	She justifies the proposal by saying that, if you don't respect the other, like in the group there is no respect for everybody who's there, then the one who does not get the respect is not having any fun in the group. That's her justification.
4		((applause))
5	Brian:	Does anyone want to add or disagree? Mike! Mike has the turn!
6	Mike:	It would not be fun, if all the time just one would talk. Like that's why the other has to respect, when the other one is speaking. So it's or it's not fun if the other is talking and the one listening is like blabbering ((looking around)). That would not be nice.
7	Brian:	Well is it already within any any already established. Or a theme like it. John?
8	John:	Respect the other that would-
9	Brian:	Yes, but which of these four, is it somewhere within these rules
10	pupil:	No one should be left out
11	pupill:	No one kinda withholds
12	Brian:	Basically it's written inside rule four. We could add that, to that same number four that respect others, no one should be ignored. The're kinda like the same caliber.
13	pupil:	Yeah
14	Brian:	Does anyone object?
15	pupil:	No
16	pupill:	No

What happens in extract 7, in terms of the position of Rule 4, is that after Emma's and Mike's justifications are recognized and acknowledged, the already agreed rule is renegotiated to incorporate a new theme in it. This starts with Brian's turn (line 7) which can be read as a rhetorical question, by which he is signaling that the theme discussed is already present in the agreed rules. His response to John's turn (line 9) is an indication of this. Turn 10 is a proposal for a connection between the second part of Rule 4 and Emma's proposal. Lines 11 and 12 are recognitions and acknowledgements of this connection. As a result Rule 4 is renegotiated to its final form.

Emma's and Mike's justifications for the first part of Rule 4 seem to resonate with what has previously been said in the joint lesson. Emma's turn is based on a similar 'group against one' situation as Amanda's (Extract 6, line 4) justification. The idea of 'having fun' is repeated also in previous lessons in other groups. On the basis of these episodes (and ones presented here) it seems that 'fun' in this context refers to feeling secure, unthreatened and being able to participate in the group, rather than having fun by doing something else than school work for example. Mike's turn offers the same kind of an interaction problem as before (Extract 4, line 4), but by this time emphasizing the role of the listener. These aspects further elaborate the meaning of Rule 4, which can be summarized as the following:

- Everybody in the group has to be respected for everyone to feel secure
- Respecting is that you don't talk on someone else's turn and that you listen to him/her
- Everybody's opinions have to be recognized in the group and included in the discussion
- No one should be exposed to group pressure

When juxtaposed with the guidelines for the ground rules, Rule 4 can be seen as being aligned towards the guidelines shared with cumulative talk, especially 1 and 7. This means that Rule 4's function is to bind the group together and support a positive atmosphere in the group.

As mentioned, what is interesting about Rule 4 is that its trajectory is broken. During lesson 6 of branch B, the whole group decides to discard the rule 'Respect others'. When the episode is observed more closely, the decision comes down to choosing between the rule 'Respect others' and the rule 'Consider the reasons given and think what's your view on the subject'. The group chooses the latter, but the discussion does not offer clarification as to why this is done. However, despite this decision, the theme of respect returns in lesson 8, when the rules created in all the whole groups are shared and compared. The rule 'Respect the one who speaks' from branch A, is proposed and voted as a new rule. In the discussion around the vote, the argument against the rule given by Brian is based on the idea that respecting produces an unequal foundation for the interaction: when respecting, you are looking up to them. The pupils vote for the new rule and it is accepted as part of the

whole group's set of six. This idea of an unequal power relation being inherent in regards to respecting does not come up in the joint lesson.

In regards to branch A, the intertwining of both parts of Rule 4, respecting and ignoring, emerges already in lesson 6. While formulating the rule 'Respect the one who speaks' Jane (teacher) asks what does respect mean in talk, to which John replies: *'when there's a lousy idea or something, you don't say "Shit" or curse. You should respect, like "Yeah, maybe that's not that a good idea, but it's ok. Like so that you don't hurt anyone's feelings"*. John uses a similar justification also for rule 'No one should be ignored'. John's turn also displays how earlier in the lesson, the whole group decided that rules dealing with cursing in small groups fell under the idea of respecting.

*Rule 5: Try to reach an agreement*

Rule 5 has a similar trajectory as Rule 3 in the sense that it is not an clear merge between two or more rules. However, the distinction is in how explicit the decision making is. The rule 'Try to be unanimous' on which Rule 5 is built in Extract 8 comes from branch B. The effort to reach an agreement is also negotiated in branch A under the rule 'Decisions are made together', but this rule does not appear as in the joint lesson's list of rule suggestions. The discussions from branch A, are however present in the joint lesson as the following extracts 8 and 9 will demonstrate.

Extract 8 is from the end of the joint lesson. What is special in this extract, as compared to the previous ones, is that two of the teachers, Jane and Brian in addition one of the researchers, Timothy, participate actively in the discussion about the rule. From line 14 onwards the interaction is exclusively teacher-teacher or teacher-researcher sequences that are rare in other episodes are rare and do not concern the meanings of the rules.

Extract 8. Joint lesson. Rule 5: Try to reach an agreement		
Line	Speaker	Turn
1	Vivian:	'Try to be unanimous'!
2	Brian:	Give reasons
3	Vivian:	Well, 'cos it's like better then, the assignment, when everybody thought the same in the end. And it's easier when everybody thinks the same in the end.
4	Brian:	Ok, 'try to be unanimous'. Should we always reach it Vivian in your opinion. We can try to reach it, but should we always reach it?
5	pupil:	No
6	pupil:	yes
7	pupil:	I object
8	pupil:	We must



Extract 8. Joint lesson. Rule 5: Try to reach an agreement		
Line	Speaker	Turn
9	Brian:	Hey! With this addition, that we try. But like someone said here, that let's not ignore because of it. That in the end disagrees. I think that was a good, good reason that in Vivian's one that the end result is better when the group is unanimous about the result. If all in the group disagrees then the result is a
10	Anna:	Chaos
11	Brian:	Chaos says Anna here and is very right about it
12	Mark:	Write it [down
13	Brian:	[Does anyone oppose
14	Jane:	I'm not opposing but I'm just thinking that unanimous could entail also like. Or I was thinking that although you have a different opinion, then you can be unanimous with the group on that everyone should change your opinion with the group
15	Brian:	What do you suggest that we add then? [Is it enough that we try to achieve it, but [do not always get there?
16	Jane:	[Well [yeah
17	Brian:	That would mean that it should demand that you have to be unanimous. That would be the rule then. [But it has try, so sometimes you're not unanimous
18	Jane:	[Yeah, well this is different... 'cos this here we have everybody is entitled to an opinion and it's good for them to support this that everybody has an opinion. That can be any opinion, but then unanimous...the group being unanimous is a bit different
19	Brian:	Timothy. You have something to say.
20	Timothy:	Yeah. I was thinking that Jane you are thinking about that word unanimous. What occurred to me was maybe another word that might be better for what you meant. It's a bit hard, I'm not sure if you understand it. I'm proposing that it could be 'Try to reach an agreement' like everyone understands each others' opinions but does not necessarily think the same. Understands anyhow, that's my suggestion.
21		((Scattered applause that grow during Brian's turn))
22	Brian:	Timothy is suggesting that we should not try to be unanimous, but in a agreement. Does anyone oppose? No hands so Andy's suggestion is our fifth rule.
23		((applause))

The extract begins with Vivian's (pupil) proposition for a rule which is recognized and acknowledged by Brian. Brian's next turn (line 4) is a divergence from prior responses to pupil justification. Instead of asking for the other pupils to evaluate Vivian's justification, Brian makes a clarifying question to Vivian about the meaning of the rule. Vivian herself does not clarify and other pupil responses show that the answer is not straightforward. Brian on line 9 proposes an answer himself by elaborating on what 'try' in the rule would mean in practice. This is recognized and acknowledged by Mark, but not acknowledged by Jane whose turn starts the new kind of a sequence mentioned before.

Jane's turns (on lines 14 & 18) are efforts to clarify what the term 'unanimous' means in the rule. Her argument is made clearer with the knowledge that the idea of 'agreeing to disagree' and 'you can change your mind if you hear a good reason' were discussed in lessons 5 and 6 of branch A in accord with the rule 'Decisions are made together'. On this basis, it seems that she is trying to settle the contradiction between supporting both group decision making and individual opinions. Timothy's turn on line 20, is a recognition and acknowledgement of Jane's effort. He also proposes for a new formulation of the focal rule, and provides an elaboration on what the difference to the standing formulation would be. Brian's turn (on line 22) and the applause recognize and acknowledge Timothy's pro-

posal and as a result the rule moves from a suggestion to an agreed rule.

Backtracking the rule down its trajectory to both branches reveals that from the perspective of branch B, extract 9 is the first occasion when the meaning of the rule is elaborated on together. In prior episodes, the importance of joint decisions had been stressed, but the only clarification about its meaning in this segment of the data set is made by Michael in lesson 8, as follows: *'If everybody, let say chocolate ice cream and some ask for like banana ice cream and everyone asks a different sort, how are they going to get something?'*. Michael's elaboration focuses on the negative side of not being able to make decisions together.

Branch A, on the other hand, has more discussion on the same thematics, but concerning the rule 'Decisions are made together'. In addition to talking about disagreeing within a group and changing opinions, the notion of joint decision was connected also to the theme of Rule 4, ignoring, as extract 9 below shows.

Extract 9. Lesson 8, branch A. Rule 5: Try to reach an agreement		
Line	Speaker	Turn
1	Marie:	Hmm 'Decisions are made together', well?
2	Tony:	Then... ['Decisions are made together'
3	Danny:	['Decisions are made together', well thats the best thing
4	Angela:	((laughs))
5	Tony:	If you [think
6	Marie:	[so that, that you won't be like Danny told us about, like who was it, Sam or someone had said to Charlie "Hey let's play tag! Your it!"
7	Danny:	Hmmm ((agreeing))...or hide and seek
8	...	
9	Tony:	Well 'Decisions are made together' because-
10	Marie:	Well
11	Tony:	like so nobody is the only one who thinks that
12	Marie:	Yes
13	Danny:	That's that
14	Marie:	Like so that someone just says "Well no, we're playing this and no buts"

In the extract the small group is doing the first part of the lesson's task: reading and thinking through the rules agreed on in lesson 6. After the focal rule is established as the topic, Marie revoices (line 6) Danny's prior example about playing tag as a example of this rule. This is recognized and acknowledged by Danny. After a short off-topic talk, Tony continues on the topic by describing a situation in which one group member is left alone with his/her opinion (line 9 & 11). Marie and Danny recognize and acknowledge this. The episode ends by Marie's example of a situation where someone is dominating the decision making.

To summarize, the meaning of the Rule 5 can be interpreted as being the following:

- You should try to understand each others' opinion, because the quality of group work will be better
- Members do not always have to agree with other members of the group

Juxtaposing this meaning with the guidelines for the ground rules, reveals that Rule 5 resonates well with guideline 2: the group seeks to reach agreement. In addition the first part of the meaning can be interpreted as pointing to guideline 6: alternatives are discussed before a decision is made. This means that Rule 5 is different from previous rules: it is aligned with both cumulative and exploratory talk.

*Rule 6: Give reasons and think what's your view on the subject*

Rule 6 is a merge between the rule 'Give reason' from the third whole group and 'Consider the reasons given and think what's your view on the subject' from Brian's whole group (branch B). As with Rule 4, in Jane's whole group (branch A) the theme of giving reasons is also discussed, but in lesson 8 the group decides to discard the relating rule to choose others. Hence, the trajectory of Rule 6 is broken.

In the joint lesson, the negotiation of the final rule is done differently to other rules. The short extract 10 below starts from the middle of the negotiation. The situation is that in the beginning they have three rule suggestion, of which they could choose one. Between this segment and the beginning of the extract two of the pupils have suggested that the rule 'Everybody should take part' be chosen as the last rule. The reason for this is that not everybody participates in small groups. Brian has argued that the rule is self-evident because everybody should play a part from the beginning. The extract starts with Brian asking for support from Alex (pupil), to which another pupil, Steve responds to.

Extract 10. Joint lesson. Rule 6: Give reasons and think what's your view on the subject		
Line	Speaker	Turn
1	Brian:	Do you support this Mike's proposal or what I just suggested as a [counter proposal
2	Steve:	[No, he doesn't
3	Brian:	Alex thought that my suggestion was like..had more sense. But now we really have two. We have two left, if it is accepted that the two top ones can be merged into one rule. Which do you think is more important. Amos, you have your hand up for the first time. Tell us what your opinion is and the reasons for it.
4	Amos:	Well, I think that what do you think 'cos otherwise you'll get ignored if you don't tell what you think about the matter.
5	Brian:	So like you think that considering the reasons and thinking what you think is important. That's important to you isn't it, that's what you meant, right? Amos offered us something in the lines of myself and Alex. Do we have to vote or can we reach agreement? Hey Mike, can you settle with your suggestion being self evident? So that everybody take part? ((Mike nods his head)). You would? Mike agrees so we can accept this give reasons rules as our sixth rule.

Steve's turn (line 2) recognizes and acknowledges Brian's suggestion, which could mean that the previous suggestion ('Everybody should take part') is discarded. Brian, however, on line 3 still treats the question as an open one, and returns the question to the floor. This is more clear from turn 5, in which Brian directly asks Mike who suggested the rule, if he can withdraw his suggestion. Also on line 3, Brian suggests that the top two rules ('Give reasons' and 'Consider the reasons given and think what's your view on the subject') could be merged. Amos (Line 4) proposes that the latter would be better, and justifies it by arguing that by voicing out what you think you won't get ignored.

After line 5, Brian's proposal on the merge of the two rules is accepted and so the final rule changes position from a suggested rule to an agreed one. Few turns later, the researchers are asked to shortly evaluate the agreed set of six rules, and Timothy gives the following elaboration on Rule 6: "If I give give reasons on what I think, it's easier for you to understand me compared to when I'd just say 'that's a good set of six rules' Without reasons you wouldn't know what I think".

What is not evident enough from extract 10, is that Rule 6 is mostly decided on by discarding other rules. In a way it seems that Rule 6 is a 'nothing else is left' choice, because other rules have already been taken of discarded as self evident. This is supported by there being no justifications that clarify the meaning of giving reasons in the episode. More negotiation is done in the episode about the meaning of the discarded rule, than the agreed one. The only participant justification related to Rule 6 is Amos's turn on line 4, which thematically is more closer to Rule 4. Timothy's clarification is done after the rule is decided on, but within the bounds of the same thematic episode.

When backtracking the rule's trajectory, the meaning of the rule does become somewhat clearer. For example, in branch A, lesson 6 the theme of giving reasons is discussed in connection to Rule 1, when Jane suggests that "*If you hear a good reason, you can change your mind*". This idea is also voiced by Brian in branch B's lesson 8 as relating to the groups rule 'Consider the reasons given and think what's your view on the subject'. On lesson 6 Brian provides the following clarification: "

*"Now, think carefully before you change your mind in the city planning task. So that you won't get talked into any kind of suggestion before you've had the*

*chance to think about it, right? Otherwise somebody will fool you like in a card game where you try to get the other player to get a certain bad card. You know that game don't you?"*

The quote is part of a longer turn of the teacher, in which Brian has drawn on the contexts of politics and research on the reliability of eye witness accounts to argue that considering the reasons you are given is very important. His point seems to be that by doing so you won't get cheated into or out of anything. What is interesting is that neither of these arguments (Jane's or Brian's) are as such voiced out in the joint lesson. Also, there are no pupil turns that argue for the importance of giving reasons in the data set.

To summarize, the meaning of Rule 6 can be interpreted as being the following:

- Say what you think so that you won't be ignored
- Give reasons so that others understand your point of view
- You can change your mind, if you hear a good reason

When juxtaposed with the guidelines for the ground rules, the meaning of Rule 6 can be seen as aligned more with the guidelines that are exclusive to exploratory talk (guidelines 4 & 6). However, the first part of the meaning connects with guideline 7, and so Rule 6 also shares a connection with cumulative talk.

#### *Coda: Summing-Up the Meanings*

The aim of the second research question was to uncover the meanings negotiated for ground rules created during the implementation. The meaning of each rule was investigated by adapting the intertextual analysis method of Bloome & Egan-Robertson (1993). In addition, the uncovered meanings were compared with the guidelines given by the Thinking Together approach to further highlight the characteristics of the negotiated rules.

In addition to highlighting the meanings of individual rules, the analysis revealed that the rules mainly addressed a situation where the interaction of the group did not work. A particularly salient image was a situation where one group member was either being overrun by others or left out of the interaction. Also, relating to this theme, the image of a dominant group member controlling the interaction was drawn on to justify the ground rules. This idea of an 'dysfunctional group' is well exemplified by how 'having fun' is talked about in

connection to the rules. Having fun was mentioned in many pupil turns as the reason why a certain rule would be needed. In this context, fun implies feelings of security and trust that precede participation. For the pupils, in other words, to actively contribute to group work, they had to have a sense of being safe from possible malicious intentions. What the analysis here indicates is that the meaning of the ground rules was to function as something in between the group and the individual, as something that protects and supports the participation of the individual.

This emphasis on feeling secure is also seen when the created rules are compared to the given guidelines (Wegerif et al, 1999) (see table 7.2 for a summary). Guidelines that are shared with cumulative talk and are intended to bring the group closer together, are represented well in the meanings of the ground rules. Especially the idea of encouraging others to participate and to share their thoughts are both present, but with more focus on what the individual should do to take part in, however. Another indication is the absence of rules that could be connected to guideline 5 (challenges are acceptable) for, in order for challenges to happen in a small group, it would require an atmosphere of trust and safety.

What was also clear in the comparison was the absence of connections to guidelines exclusive to exploratory talk. Only Rule 5 and Rule 6 each have each one connection to exploratory talk when compared to their meaning. This is interesting in considering the goal of the approach, which is to promote the use of exploratory talk in small groups.

These results on research question two resonate well with prior research done on the Thinking Together approach. For example, Littleton et. al. (2005, p. 176) note in regard to second language learners that ‘the explicit discussion of ground rules for talking and working together has the potential to foster a positive, inclusive and supportive learning environment, based on mutual respect and trust’. The results on the meaning negotiated for the ground rules provides a further possible explanation to this potential. As seen in table 7.2 (and as discussed above) major part of the created rules connect to guidelines shared with cumulative talk. In cumulative talk participants build on each others ideas, but without criticism. The orientation is more on ensuring the cohesion of the group. If surmise that the ground rules in other implementations have a similar emphasis, this might offer an explanation to the fore mentioned potential.

Another example, which connects the results of this section to prior research, concerns the importance of the teacher role as an expert who models the use of exploratory talk for the pupils. For example, Mercer and Sams (2006) have shown that the teacher’s modeling is connected to how the pupils learn to use exploratory talk themselves. The analysis on the meaning of the Rule 6 provides further support for the role of the teacher. Rule 6 was the only rule connected to the guideline that emphasized the need to provide and ask for reasons. During the negotiation of this rule, there were no pupil turns that argued for the importance of giving reasons. Also, the trajectory of the rule was uniform as it consisted mainly of whole class episodes. It can be therefore argued, that the role of the teachers was important in introducing this rule into the final set of six rules.

**Table 7.2 Created rules juxtaposed with given guidelines**

Created rules	Guidelines for ground rules						
	Shared with Cumulative talk				Exclusive to Exploratory talk		
	1. Sharing	2. Agreement	3. Responsibility	7. Encouraging	4. Reasons	5. Challenges	6. Alternatives
<b>Rule 1.</b> Everyone is entitled to an opinion and the sharing of information and ideas	X		X	X			
<b>Rule 2.</b> Look and listen to others	X			X			
<b>Rule 3.</b> Give others a chance to talk				X			
<b>Rule 4.</b> Respect each other, no one should be ignored	X			X			
<b>Rule 5.</b> Try to reach an agreement		X					X
<b>Rule 6:</b> Give reasons and think what’s your view on the subject	X				X		

## 8. Discussion

This section will draw together the main results of this study and elaborate on what they tell about the formation of the unit of analysis. These result will be also connected to prior research on the Thinking Together approach. The section will conclude in a short discussion on the implications of the study.

### 8.1. The Trajectory of the Ground Rules

The research task of this study was to examine the negotiation and re-negotiation of the ground rules for talk during the Thinking Together approach. The ground rules were

viewed as an artifact designed to mediate exploratory collaboration. By highlighting how this mediational means forms during the implementation of the approach, the goal of this study was to clarify one central aspect of the implementation previously not researched.

The analysis approached the negotiation process on two levels. First by analyzing the macro level of the trajectories and second on the microlevel of meaning negotiations. What the first analysis revealed was that the trajectories of the rules could be described with four dimensions (symmetry, composition, continuity, explicitness) each having two features that brought to bear different aspects of the trajectories. On the basis of these dimensions none of the trajectories were found to be identical. Moreover, the trajectories shared only one or two same features when compared with other trajectories. This variance was seen to indicating the openness of the negotiations that Mercer (1999) advocates.

In further examination the overall consistency (whether the features of the trajectory indicated coherence) of trajectories was examined. This was done in order to attain a view on how harmonious the agreement on the rules were from the perspective of the negotiation process. The examination revealed that there was variance between the rules also in this respect. This was concluded to mean that the way towards which the community would develop was not as shared as one might expect.

The second analysis focused on the meaning negotiated for each rule of the final set of six rules. In addition to highlighting the meaning of individual rules and the negotiation around them, the analysis pointed out that the rules were seen as means to ensure feelings of safety and inclusion in the groups. To justify this emphasis, the participants drew on an image of an dysfunctional group where either one participant dominated the decision making or where other members were excluding someone from the interaction.

Also, the negotiated meanings were compared to the guidelines for ground rules given by the Thinking Together approach. The comparison revealed that the created rules emphasized the guidelines shared with cumulative talk. In addition, guidelines that related exclusively to exploratory talk were connected only to two of the created rules.

On the basis of these analyzes, it can be argued that the created ground rules form an artifact which in the beginning of the implementation of the Thinking Together approach is more directed at binding the groups together and establishing a basis for new way of work-



ing, than to further exploratory collaboration. In other words, the artifact as a whole is turned more towards cumulative than exploratory talk. This is interestingly evidenced for example by the fact that the Rule 6 was agreed on in the joint lesson by mainly discarding other rules.

This emphasis on cumulative talk connects with what Wegerif (2007) has written on the effect of exploratory talk on the intersubjective orientation of the participants: '*When engaging more effectively in dialogue the children do not only change the way that they use words, they also change the way in which they relate to each other.*' In addition, when we remember that the sense of self in exploratory talk was connected with the dialogue itself, it seems clear that the new collaborative practices towards which the approach aims entail a new identity position for the pupils and the teacher. When we take into consideration that the pupils had never collaborated together, the need to emphasize cohesion and sharing of information is understandable. It seems that this need was captured also in the artifact.

When we think further about this emphasis in the ground rules in connection with the way towards which the approach is directing the renewing of the learning practices, it seems that there is a contradiction within the rules. Most of the rules aim to secure the position of the individual. At the same time, the use of exploratory talk would entail, that this position has to be relinquished to some extent. The contradiction was highlighted also in the joint discussion on Rule 5 (see extract 8.). Although in the beginning of the implementation the emphasis on cohesion is in order to support the later emergence of exploratory talk, it's good to keep in mind that overemphasis might also hinder the emergence (see Wegerif, 2007).

## **8.2. Implications of the research**

### *Theoretical and methodological*

From a theoretical perspective this study provides one point of view into how the ground rules as a mediational means form, and by this elaborates further the research of the Thinking Together approach. Moreover, this study highlights in a novel way a previously relatively unexplored area of research on the approach. In sense, one can argue that this study has further transformed the position of the ground rules within the research literature on the Thinking Together (in terms of Wertsch, 2007) from an implicit mediational means

(transparent to the casual observer) to an explicit mediational means (apparent to the casual observer).

Methodologically this study presents a novel adaptation of the method for analyzing the social construction of intertextual into analyzing the formation of the ground rules. This also opens up a possible topic for further study. What was left out of the scope of this study was a more focused look into the intertextuality of the meaning negotiations. To highlight more clearly from what kind of contextual resources the ground rules are constructed from a separate content analysis of these could be in order.

### *Practical and Educational*

The main practical implication of this study is that it highlights the importance of the expert model (teacher). In addition to modeling the use of exploratory talk for the pupils, the teacher should also make sure that the ground rules incorporate all of the given guidelines. Although this point is also made in the present materials for teachers about the approach, the results of this study provide further empirical support for it.

The fact that the pupils did not provide any justifications for giving reasons (Rule 6), is an important observation considering further implementations. What this points to, is the need to revise the way in which the idea and usefulness of exploratory talk is introduced to the pupils. Pupils have, quite likely, some prior experiences and conceptions about what counts as a good collaboration. The way in which the approach could place more emphasis on grounding the creation of the rules on this kind of experiences and viewpoints of the pupils, is relevant from this observation. By taking their understanding more as the starting point for the ground rules, the implementation will be more sensitive in supporting collaborative ways of working that acknowledge the perspective of all of the participants and are understood by them.

## **9. Reliability and Validity of the Study**

The assessment of the credibility of any scientific effort relies on the general review process of the scientific community. This in turn requires the researcher to leave a clear 'audit trail' (Roth, 2005) about the decisions he or she has made in the different phases of the research process. To facilitate a reading on the credibility of this study, the following section

will summarize three key turning points of this study in terms of reliability and validity and also reflect on these decisions on significance in terms of the results.

The first key turning point in the study was selecting an analysis method that suited the ontological position of unit of analysis (the artifact that the ground rules formed) as defined by the theoretical groundings of the study. The general framework of discourse analysis was chosen as suitable epistemological means to capture the patterns in meaning making concerning the ground rules.

A further and more effecting decision concerning the analysis method, was the adaptation of Bloome's & Egan-Robertson's (1993) method for analyzing the social construction of intertextuality. This provided, in terms of the reliability of the interpretations made from social interaction, a clear procedure on how to conduct the analysis. An important distinction in relation to other methods on intertextuality and meaning making, is that Bloome's & Egan-Robertson's guides the researcher to interpret the meaning making from how the way the participants signal this through concerted social interaction. By the the analysis is grounded on the 'insider', or emic perspective and hence more reliable when compared with interpretations made solely on the impressions of the researcher.

The emic perspective is, however, somewhat problematic, because it can be argued none of the participants of the study actually as insiders have a privileged view on the interaction (see Dixon & Green, 2005). They too, as well as the researcher, have to rely on each others active construction of social situations to understand what's going on. However, to validate the interpretations made about the meanings of rules, the study focused on whether the participants attempted to repair possible misunderstandings in subsequent turns. If not, a 'working consensus' (McDermott, Gospodinoff & Aron, 1978) on the meaning of a rule was achieved. A clear omission on part of the reliability of the analysis, is that it was done only by one researcher. If the interpretations would have been done by two researchers independently, this would have raised the reliability of the results.

The second key turning point in the process of this study was the decision on video recordings as the main means to collect data for analysis. The reason for using video recordings was its ability to re-play the interaction. Relying on just ethnographic field notes, would have not yielded a similar possibility to re-visit and re-research the data (Engle, Conant,

Greeno 2007), although the field notes collected for the secondary data set did provide important background information for the videos.

The selection of video recordings as primary means to gather data, also meant that not all of the small groups could be recorded. Hence, the negotiation process was not attained in full. Although this, and the omission of the third recoded small group, effected on how the breadth of the negotiation process was presented in the data (validity issue), it also provided the possibility to focus on a more coherent and balanced data set (reliability issue).

The third key turning point, was the decision to focus the study on the equifinal trajectories. This effected the validity the final data set, because it omitted from the data set all other rules. This in turn meant that instead of comparing ‘successful’ (i.e. equifinal) and ‘unsuccessful’ (altogether discarded rules) trajectories and their negotiations, the analysis would focus on only ‘successful’ trajectories. This change in the figure | ground relationship also means that the results are limited only to the agreed rules. Also in hindsight, a more successful way to approach the formation process would have been to start the analysis from by identifying different tracer units (Dixon & Green, 2005, Kleine-Staarman) from the meanings negotiated for the ground rules in the joint lesson, than to backtrack the written form of the rule. This would have yielded more context sensitive results on the negotiation of the meanings.

In all the general framework of the study followed the lines of what Guba & Lincoln (1988) call the alternative or naturalistic methodology. This meant that the designing, implementing and reporting of this study has been a somewhat constant to-and-fro between different phases of the research.

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## Appendixes

Appendix 1. Detailed account of the division of thematic episodes among rules, lessons, their form (small group, whole group) and branches.

Episodes according to rules, branch and the form of the episodes						
	Branch A		Branch B		Joint lesson	Total
	small	whole	small	whole		
Rule 1.	10	6	4	5	1	26
Rule 2.	7	4	6	8	1	26
Rule 3.	2	3	5	1	1	12
Rule 4.	8	6	0	3	2	19
Rule 5.	4	7	3	3	1	18
Rule 6.	3	6	2	5	1	17
<b>Total</b>	34	32	20	25	7	118

Episodes according to rules, lessons and the form of the episodes							
<b>Rule 1.</b>							
	Branch A		Branch B		A total	B total	All together
	small	whole	small	whole			
Lesson 5	5	2	2	2	7	4	11
Lesson 6	0	2	0	1	2	1	3
Lesson 7	0	0	1	0	0	1	1
Lesson 8	5	2	1	2	7	3	10
Joint lesson							1
<b>Total</b>	10	6	4	5	16	9	25
							<b>26</b>
Total small group		14					
Total whole group		11					

<b>Rule 2.</b>							
	Branch A		Branch B		A total	B total	All together
	small	whole	small	whole			
Lesson 5	5	0	1	0	5	1	6
Lesson 6	0	2	0	2	2	2	4
Lesson 7	0	0	2	0	0	2	2
Lesson 8	2	2	4	5	4	9	13
Joint lesson							1
<b>Total</b>	7	4	7	7	11	14	25
							<b>26</b>
Total small group		14					
Total whole group		11					

<b>Rule 3.</b>							
	<b>Branch A</b>		<b>Branch B</b>		<b>A total</b>	<b>B total</b>	<b>All together</b>
	<b>small</b>	<b>whole</b>	<b>small</b>	<b>whole</b>			
Lesson 5	0	0	1	0	0	1	1
Lesson 6	0	1	0	1	1	1	2
Lesson 7	0	0	2	0	0	2	2
Lesson 8	2	2	2	0	4	2	6
Joint lesson							1
<b>Total</b>	2	3	5	1	5	6	11
							<b>12</b>
Total small group		7					
Total whole group		2					

<b>Rule 4.</b>							
	<b>Branch A</b>		<b>Branch B</b>		<b>A total</b>	<b>B total</b>	<b>All together</b>
	<b>small</b>	<b>whole</b>	<b>small</b>	<b>whole</b>			
Lesson 5	1	0	0	0	1	0	1
Lesson 6	0	5	0	1	5	1	6
Lesson 7	1	0	0	0	1	0	1
Lesson 8	4	3	0	2	7	2	9
Joint lesson							2
<b>Total</b>	6	8	0	3	14	3	17
							<b>19</b>
Total small group		6					
Total whole group		11					

<b>Rule 5.</b>							
	<b>Branch A</b>		<b>Branch B</b>		<b>A total</b>	<b>B total</b>	<b>All together</b>
	<b>small</b>	<b>whole</b>	<b>small</b>	<b>whole</b>			
Lesson 5	0	0	1	2	0	3	3
Lesson 6	0	4	0	1	4	1	5
Lesson 7	1	0	1	0	1	1	2
Lesson 8	3	3	1	0	6	1	7
Joint lesson							1
<b>Total</b>	4	7	3	3	11	6	17
							<b>18</b>
Total small group		7					
Total whole group		10					

<b>Rule 6.</b>							
	<b>Branch A</b>		<b>Branch B</b>		<b>A total</b>	<b>B total</b>	<b>All together</b>
	<b>small</b>	<b>whole</b>	<b>small</b>	<b>whole</b>			
Lesson 5	0	2	0	1	2	1	3
Lesson 6	0	2	0	2	2	2	4
Lesson 7	0	0	1	0	0	1	1
Lesson 8	3	2	1	2	5	3	8
Joint lesson							1
<b>Total</b>	3	6	2	5	9	7	16
							<b>17</b>
Total small group		5					
Total whole group		11					

## Appendix 2. Explanation of used notations system

<b>Symbol</b>	<b>Name</b>	<b>Use</b>
[text]	Brackets	Indicates the start and end points of overlapping speech.
=	Equal Sign	Indicates the break and subsequent continuation of a single utterance.
(# of seconds)	Timed Pause	A number in parenthesis indicates the time, in seconds, of a pause in speech.
(.)	Micropause	A brief pause, usually less than .2 seconds.
↓	Period or Down Arrow	Indicates falling pitch or intonation.
-	Hyphen	Indicates an abrupt halt or interruption in utterance.
(text)	Parenthesis	Speech which is unclear or in doubt in the transcript.
(( <i>italic text</i> ))	Double Parenthesis	Annotation of non-verbal activity.