

What teachers say and what students perceive – Interpretations of feedback in teacher-student assessment dialogues

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Abstract

It is commonly known and accepted that feedback has a significant effect on learning and that it is a wise investment in the education system to develop good strategies for assessment involving informative feedback. However, despite the effort put into professional development programmes for teachers and despite teachers working with the recommended didactic approaches to assessment, students still sometimes miss out on intended learning. The current study aims to uncover different types of communicative interaction involving feedback. Through a qualitative analysis of observation notes and video, it was possible to distinguish four typical categories of feedback. The common arenas for formative assessment dialogue are identified and typical actions that are taken by the students and the teachers in the different interactional situations are discussed. The findings imply that knowledge and awareness of the context in which the interaction is played out is important for understanding how students relate to feedback.

Keywords: dialogue, intersubjectivity, assessment, classroom interaction

Introduction

During the last ten years, policy makers have turned their attention to assessment and its importance for students' learning. Several studies conducted during this period specifically note the influence of formative assessment on learning (Black & William 2009, Hargreaves 2005, Hattie & Timperley 2007, Shute 2008, Stobart 2004). Through formative assessment, students become aware of their own strengths, weaknesses and potential as related to learning and are hence able to *keep* their learning processes moving towards further learning (Brookhart 2008, Sadler 1998). However, despite manageable learning goals and informative feedback, on occasion students still manage to miss out on intended learning after obtaining feedback from their teachers. Is this fact related to the situation surrounding the attempted feedback or to the way the assessment is communicated?

In this study, the aim is to examine the context in which formative assessment is placed. The research question is as follows: which types of communicative

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interaction can be found in student-teacher assessment dialogues? The question will be illuminated from two angles: 1) what type of communication situations are common arenas for formative assessment?; and 2) how do students and teachers (re)act to feedback in different settings?

To examine these questions, empirical material from classroom observations will be analysed and discussed in light of the theory about formative assessment and dialogue. The study was conducted in a Norwegian school context and all subjects taught in 4th and 7th grade were present in the data material.

Theoretical Foundations

In the current article, communication is placed within the perspective of dialogical theory as understood by Linell (1998) and Rommetveit (2008). The theoretical framework used to define assessment is based on the comprehensive work of, amongst others, William (2011), Black & Wiliam (2009), Gipps (1999), and Sadler (1998).

Communicating Through Dialogue

Teacher-student dialogue can be defined as dialogue where the differences in power, knowledge and participation are implicit and also commonly accepted. Linell (1998, 10) presents quite a broad understanding of dialogue as he uses the definition “... *interaction through symbolic means by mutually co-present individuals*”. By “symbolic means”, he implies that every method used in interaction is included, such as speech, eye contact, tone of voice, body language and even sighs. Linell’s definition is not to be understood in the same way as a more classical Socratic dialogue where the participants have equal power and knowledge. On the contrary, Linell (1998) sets out a basic claim that dialogue presupposes asymmetries of knowledge and participation. Rather than “symmetry”, he uses the notion “complementary” when he describes the characteristic roles in a dialogue. People represent different views and different stands even though, at least in formative assessment dialogues, the aims and learning goals can be the same for all of the participants (i.e., teachers, students and peers).

Yet interaction and, consequently, dialogue always implies some degree of shared knowledge regarding context and background amongst the participants. This shared knowledge is what Rommetveit (Rommetveit 1972, Rommetveit 1979) describes as intersubjectivity. In his conception, intersubjectivity is a collective state of mind that is mutually constructed by the interacting participants. When one participant in a dialogue brings an aspect into focus and this aspect is attended to by the other participants, a state of intersubjectivity is attained (Rommetveit 1992, 23). The degree of intersubjectivity differs, but it can expand if the participants can become attuned with those with whom they are interacting in the particular situation.

Intersubjectivity is about seeing another's perspective to mutually agree on and share the same perception of the issues of the interaction and its aspects.

Although developing a state of intersubjectivity is foremost a responsibility for the teacher, especially regarding assessment dialogues involving young children, the students need to understand the concept. Gipps & Tunstall (1998, 160) found that children believed that the teacher played a significant role in their success or failure. However, their study shows the importance of involving children in making decisions about their own learning and concludes by emphasising a set of assessment strategies on how to achieve this goal. Their strategies focus on meta-cognitive thinking as a key and suggest different ways to work with meta-cognition for the early school age. Meta-cognition in this context is the awareness of how one's learning progress is developed through interaction and dialogue between oneself and the person providing feedback, i.e., teacher, parent, peer etc. (Black & Wiliam 1998, 142, Wiliam 2006, 285). Meta-cognition takes place in the zone of proximate development (Vygotskij 1978, Vygotskij 1986) between what the student can do on their own and what still lies beyond their capacities even with help from more competent others. For the teacher to be able to provide valuable and effective feedback, it is in the student's interest that the teacher holds as much relevant information as possible regarding their learning process. Students who recognise the teacher's need for information can consequently contribute by bringing important aspects into the dialogue. Thus, the student participates in raising the level of intersubjectivity.

Formative Assessment and Feedback as Dialogues

In this article, formative assessment is seen as an assessment that aims at further learning, and formative assessment dialogue is understood as a dialogue that enhances student learning (Black & Wiliam 2009, Sadler 1998, Black & Wiliam 1998).

The assessment process consists of two steps. Firstly, the students must be aware of where they are in their learning and, secondly, of where they are going. The students also must be aware of what actions they need to take to get to their destination. An important tool in this complex operation is feedback. Hattie & Timperley (2007, 81) define feedback "... as information provided by an agent (...) regarding aspects of one's performance or understanding". In a school context, this definition is often understood as teachers providing feedback to students, but it can also involve students providing feedback to each other, information from a book or computer-aided feedback.

Hattie & Timperley (2007, 90) distinguish four types of feedback: feedback about a specific task, feedback about how well the task is being processed, feedback about self-regulation and self-feedback about the self as an individual. The first three are identified as effective in different stages of the learning process. The latter is seen as ineffective when it comes to learning because the feedback in this category often involves only praise and not learning-related information. Shute (Shute 2008, 175)

highlights three additional conditions for feedback to be useful. The first condition is the learners' need for feedback, the second is timing, and the third is the students' ability and willingness to use the feedback provided. These three conditions all depend on a collective state of intersubjectivity because both the teacher and students must share the same perception of why the feedback is being given, what the feedback aims to achieve regarding further learning and how the learner should use the given feedback.

Timperley & Alton-Lee (2008, 359) and Timperley, Parr & Bertanees (2009, 245) all support the claim that feedback should not be regarded as merely a one-way flow of information from the teacher to the student. The dialogue should also contain relevant feedback from the student to the teacher. In other words, the student must be empowered by being taught how to provide the teacher with relevant information. In this way, the notion of dialogue constitutes an important dimension of the formative assessment when it is understood to be intersubjectively dependent "... *interaction through symbolic means by mutually co-present individuals*" (Linell 1998, 10).

Prior Research

Research has repeatedly confirmed that informative and relevant feedback has a positive effect on children's learning (Hattie & Timperley 2007, Shute 2008, Brookhart 2008, Wiliam 2011). However, the research in this field reveals that, to have an impact, feedback must focus on the students' learning and align with the learning process.

Brophy (1981, 16) problematises the absent distinction between feedback and unspecific praise in classroom practices. Hattie & Timperley (2007, 96) make the same claim and argue that praise disguised as feedback can be counterproductive for learners because it does not provide the students with information on their learning and merely functions as a means to regulate behaviour or effort. In his study, Brophy notes that the "meaning-making" in teacher-student interaction is determined "... by the degree of congruence between verbal and nonverbal components and by the context in which the interaction occurs" (Brophy 1981, 15). This statement implies positive student-teacher relationships where mutual understanding is a key element to succeed in the "meaning-making", whether it is provided by verbal or non-verbal communication. Pollard's 1990 study states that it is the teacher's job to provide meaningful and appropriate guidance to the child and that the child correspondingly has to make sense of the guidance provided. The outcome of this process is dependent on the teacher's sensitive and accurate assessment of the child's learning process. Polard's (1990, 252) notion of sensitivity is comparable with Wu, Hughes & Kwok's (2010, 358) conception of the supportive student-teacher relationship, which they claim supports higher academic performance for younger children.

Peled-Elhanan & Blum-Kulka (2006) provide an overview of the types of subject-related talk to be found in ordinary teacher-student interaction as part of the

classroom dialogue. These authors found that the degree of dialogue depended on the compatibility between the implicit and explicit learning goals and topics. The implicit goals and topics determined the teachers' feedback to the students. If the students adapted to the explicit goals and topics whilst not complying with the implicit ones, the student would still receive feedback according to the implicit goals and topics that the teacher had in mind. Another interesting finding was that the teachers practicing a more dialogical approach towards their students also practised a dialogic mode of teaching and did not "... see knowledge as an autonomous entity to be 'passed on' and 'mastered' ..."

(Peled-Elhanan & Blum-Kulka 2006, 124)

However, if the teachers had a normative and monological view on teaching, the teacher would have a monological approach to teacher-student interaction. Wu, Hughes & Kwok (2010, 382) suggested professional development programmes for teachers to enhance positive teacher-student relationships and interaction, but Peled-Elhanan & Blum-Kulka (2006) remind us that how teachers interact with their students basically depends on how the individual teacher defines and understands the concepts of learning, teaching and knowledge.

Because teachers' abilities to establish supportive student-teacher relationships differ, Wu, Hughes & Kwok (2010) note that different professional development projects among teachers might help teachers to enhance their ability in this matter. Thronsen (2011, 172) notes the close relationship between teacher expectations and student performance. Her study supports the claim that students need to believe that their teacher expects them to manage the tasks that they are given. A teacher-student interaction with a high level of intersubjectivity is therefore crucial for teachers to gather accurate information on the student's learning process.

Unfortunately, much of the feedback given in Norwegian classrooms has been reported to be simply praise disguised as feedback (Klette 2003, Haug 2003). Instead of providing students with helpful information on their learning when they need it and helping and motivating them to use this information in the way that Shute (2008, 175) notes as effective, Norwegian learners receive significant praise for effort and good behaviour.

However, the thought-provoking findings from the research in the Norwegian context (Klette 2003, Haug 2003), in addition to the weak results from international comparative tests (e.g., PISA), have resulted in a strong national emphasis on improving the feedback practices in Norwegian schools in accordance with international trends. Many professional development projects for teachers have been organised over the last two decades to improve the quality of the teachers' feedback and the assessment dialogue.

The Study

The study was conducted in two classes at two different schools on the West coast of Norway. One of the classes contained 32 ten-year-old students and the other 15

thirteen-year-old students. Both schools participated in a larger professional development project focusing on helping teachers to enhance their competence within assessment (Engelsen & Smith 2010a, Engelsen & Smith 2010b). The project lasted two years, and the teachers worked with competence development through different methods such as oral and written reflections, monitoring changes in their own practice, participating in lectures on different assessment topics and defining developmental goals for changes in classroom practice. Members of the research team frequented the classrooms and worked as participating observers for several periods during the project. They also conducted a three-week observation one year after the project had ended. Parents, students and staff were informed of the aims of the study and asked to provide their written consent to confirm their participation. Anonymity was an important issue regarding the videotaping of classroom activity and the consent prevented the researcher from using these recordings in any way that could identify any of the participants.

How the Research was Conducted

The current article presents a qualitative, descriptive analysis of the situations and the actions taken by teachers and students regarding the interaction involving assessment dialogue. The data consist of field notes (Silverman 2010) and video recordings. The analysis does not involve in-depth conversation analysis. Instead, the findings are illustrated through narrative stories, including typical features from each category. The narrative stories are based on a comprehensive process containing several analysing steps, to a large extent following Creswell (2007) and his *The Data Analysis Spiral*.

When the recordings were made I took part in the classroom as a participating observer (Hammersley & Atkinson 2007) wandering around the classroom. I acted as one of the teachers and carried a small camera. To avoid covering my face, i.e., to draw unnecessary attention to the video camera, the camera was held waist-high and a small screen on the side of the camera showed what was being recorded at any time. On top of the camera, a small notebook for field notes was placed; hence, I could make notes of occurring situations and code them to match the recordings. These observations can be seen as the first round of analysis and the field notes contained immediate reflections related to what happened in the situations at the times they occurred.

After the observation periods I had approximately 90 hours of video material, and the field notes were used as primary source to select relevant material for the next step in the analysis. In this study I was interested in interactions involving observable learning-oriented feedback in authentic situations. First, situations involving single or smaller groups of students interacting with one teacher were selected since having fewer participants makes the observations more lucid (Kvale 2007). Second, situations involving feedback relevant to subject learning was selected, a process

excluding situations concerning practical information such as what time it was or feedback on behavioural or disciplinary issues. Feedback provided in the remaining recordings was intended to immediately help the learners in their learning process, either by providing information on where the students were in the process, where they were going, or how they could get there. The selected recordings included 47 3 to 15 minute long sequences which were transcribed and further analysed through HyperResearch, a computer program for qualitative analysis. During these analyses, including close readings of the material, several categories emerged regarding: 1) the teacher's observed attention/attitude when entering the interaction; 2) whether the interaction was dialogical or monological; and 3) whether the students were active or passive in the activity after the interaction had taken place. The teacher's attention/attitude in the interaction were used as the main categories as shown in Table 1.

Table 1. Main categories

The teachers' observed attention/attitude			
Non-attentiveness	Double-communication	Attentiveness	Enhanced attentiveness

The main categories were then analysed in order to identify the type of interaction in the situation and students' learning activity after the interaction had taken place, as shown in Table 2.

Table 2. Sub-categories

Interaction	
Monological	Dialogical
Student activity after interaction	
Passive	Active

To avoid identifying the participants, a synthesis was made out of each main category including its characteristics and sub-categories, while a narrative story was written to present the findings.

Findings

In the material, four typical situations where teacher-student interaction took place and assessment occurred as a natural element of the interaction were identified and categorised. The situations are presented one by one as short narratives, and they shed light on the significant features and common actions taken within each category.

Non-attentiveness in Interaction

Situations where the teacher can be categorised as non-attentive refer to interaction where the teacher is attentive to other issues and/or students than the one at hand.

Nina has 32 ten-year-old students in her class. The students are performing a set of tasks and Nina and her assistant are helping the students who signal for help. Tom has had his hand raised for a couple of minutes when Nina approaches him. "Is this right?" he asks and points at the answer he has written down in his book. Nina takes a quick glance, and the answer is wrong. At the same time, two other students, Lukas and Anna, start an argument on the other side of the classroom. Nina turns to them and asks "Are you done with your tasks, Lukas and Anna?". Tom is also interested in what is happening at the other end of the room and turns his attention to the two children. "Lukas is finished, but I am not," Anna answers. "Well, sit down and I'll be with you in two seconds. You are disturbing everyone else and that's not fair!", Nina replies. She then turns to Tom and tells him to look at a similar task that he has done previously and tells him to try again. Then she walks over to Lukas and Anna. Tom follows Nina with his eyes and his attention is directed to what happens next. When the situation has been resolved, Lukas and Anna are doing their work again; Tom looks at his own work and raises his hand one more time. He still does not know how to solve his task.

This is a typical example of a teacher not attending to the interaction with the student. Although Nina intended to give her primary attention to Tom and to help him, she was more aware of Anna and Lukas, and that was where her actual primary attention was placed. She proceeded with her effort to provide Tom with help, but his focus followed her attention, and he did not manage to use the feedback she gave him.

Another version of this category could be a situation where Tom had gotten the answer right. Nina would tell him something such as "Yes, that is perfect!" and then move on to solve the argument between Lukas and Anna. Tom's attention would still have followed Nina's, and when his focus finally returned to his own work, he would not be any wiser regarding his own understanding or learning process. He simply received the information that his answer was right, and he would move on to the next task.

Nina might appear to be an efficient teacher coping by multitasking in a stressful environment. Similar situations are well-known and recognised by both teachers and students. However, in this study a closer look is taken to understand what type of interaction actually takes place in these often brief moments. The first thing to be aware of is that the student's attention appeared to follow the teacher's. If the teacher's actual primary attention was occupied by a situation (A) apart from the intended one (B), both the student's and the teacher's attention were more or less absent in the interaction taking place in situation B.

The types of feedback given in these situations are predominantly monological, brief answers to short questions or comments such as "good work", "well done", or "try one more time". These brief answers are seen as a consequence of the teachers' non-attentiveness. In these situations, the interactions seldom lead to further learning; hence, the impact of the feedback is questionable.

Double Communication

The next type of interaction appears in situations where the teacher communicates contradictory messages through speech, body language, and tone of voice.

In Andy's class of 13-year-old students, he often organises the students in groups of three or four. Steve, Peter and Carl are working together with tasks related to the calculation of the surface area of three-dimensional objects, but Andy is not sure that they all understand the concepts. He is particularly interested in Carl's understanding because Carl had previously been struggling with the subject. He approaches the boys and starts to ask questions. First, he asks Steven and Peter some questions, and they demonstrate different ways of reasoning to arrive at the right answers. Then, he turns to Carl, who has been completely silent during Andy's examination. "Now, Carl," he says, "Can you tell me how to calculate the surface on this one?" holding a 3D model of a cube in his hand. Carl looks uncertain. "Eh" Carl starts. "OK" Andy quickly replies, "How many sides does this model have?" "I know! I know!" Peter says, raising his hand and eager to respond. "Please, Peter, give him a chance now," the teacher says, nodding his head towards Carl whilst looking at Peter. Carl looks at his teacher and not the model when he answers "Um ... Four?". Andy sighs, grabs a chair, and tells the two other students to continue with the next task. "Let us take this from the beginning, one more time" he says to Carl, while he places the model decisively on the table in front of him.

In this situation, the teacher, Andy, tries his best to act as a patient and understanding teacher, even though he is relatively frustrated with Carl's progress. Andy's body language and movements when he chooses to sit down to explain the concept "one more time" appear to tell Carl that he should have understood this concept by now. The lack of understanding makes Carl even more uncertain because Andy's spoken words tell him that Andy will explain the calculations; hence, Andy believes that Carl will be able to understand. However, the nature of the context created by all four participants tells Carl that he is slower than the other students. The context makes him uncomfortable, and he acts confused when answering questions.

This situation of double-communication between teacher and student is typical, and often, situations like this stop the learning process entirely or, in the best cases, delay it severely.

The teacher was present in the interaction, but the interaction itself was monological because it was a one-way questioning of the student, and the student did not even reach the point where an activity was to be started or continued. The feedback provided has been constructed in a situation with a low level of intersubjectivity because the collective understanding of the situation at hand was practically non-existent.

Attentiveness in Interaction

The third category defines situations where the teachers and the students are both attending the communicative act through what Linell (1998) calls true dialogue.

Back in Nina's class, we find Lukas struggling to write a 150-word summary of a fairy tale. He raises his hand, and Nina comes over to him to look at what he has been working on. "OK" she says. "What do you need help with? You have drawn all these keywords out of the texts. This is very good." She looks at him with a smile. Lukas meets her eyes and looks a bit troubled. "But when I start writing the summary, I end up with the whole fairy tale. I can't do it with only 150 words." "Well," Nina starts, as she reads Lukas's keywords, "If you look at the words you have written down, are you sure they are all important to get hold of the story? Remember that summaries are like text without any colours. It only contains the most, most important things that happen". Lukas reads again and decides to cut out a few words. "Now, try to use the keywords in full sentences as small parts of your summary. When you are finished I'll come back and we can read through it together." Lukas begins writing sentences using the keywords and calls Nina back. "I get it," he states proudly. "I can read it for you if you like? I just put all the keyword sentences together, and then I had the whole summary."

In this example, Lukas and Nina both have their attention on the same issue, i.e., how to help Lukas write a summary. Nina starts by looking at Lukas' work and does not immediately recognise what he is struggling with. When Lukas tells her, she takes time to interpret the information that he gives her both through his text and what he is saying verbally. She then gives him information on what to do next without telling him the answer. She provides him with the opportunity to discover the answer for himself and, in this case, he succeeds.

Situations in this category are characterised by the teachers attending the interaction by inviting the students to participate in the dialogue. The result or outcome of the interaction is not defined in advance, but together the teacher and the students move towards further learning. This interaction also places the student in the role of an active participant.

Enhanced Attentiveness in Interaction

Situations within the last category are characterised by an extended mutual intersubjective understanding between the teacher and the student, and the following example is a continuation of what happened in teacher Andy's class.

Andy sits down with Carl to explain the concept of surface calculation. Carl looks uncomfortable in the situation, moves around on his chair with his shoulders high and his eyes staring down at his desk. Andy asks for the second time "How many sides does this model have?" Carl does not answer, but looks at Andy. "Look at the model," Andy says. "Can you count the sides?" He waits for a brief moment, then starts to ask about how to calculate the area of a square. Carl knows this and

explains. "Then, when you know how to calculate one side you can just add them all up!", Andy replies. Carl looks at him and slowly nods his head, still with a confused look in his eyes. "We went through the whole process several times during math class yesterday. Don't you remember?" Andy sounds a bit frustrated now. "But I was at the dentist yesterday," Carl replies. Andy looks at him with a smile and takes a deep breath. "You know, Carl. I started to get a bit worried now. I wondered if I was such a terrible teacher because I could not help you understand this. I'll start all over again but this time I'll start where the rest of the class started yesterday. How's that?" Carl sighs but agrees to make one last attempt to understand the concept. After three minutes and a series of eureka moments for Carl, Andy says "I think you can do some tasks on your own now". Carl smiles and nods his head. He starts working straight away and appears to understand the basic ideas. He does not call Andy back to check whether he has the right answer, but looks confident, smiles and confirms that he understands when Andy passes by and asks. He joins in with the rest of the group by asking them which task they are doing and participates in the group work for the rest of the session.

In this example, several things happen that are different from the other three categories, but it begins with a relatively poor interaction where both Andy and Carl are stuck in their attempts to increase Carl's understanding. The communication is not helping Carl at all. Instead, the communication becomes a means to expose his incompetence in a way that he appears to be uncomfortable with. Then, a piece of information is put forward by Carl that alters the entire interaction and exposes a new direction. The fact that Carl was absent when the rest of the class was presented with the subject of surface calculation has an important meaning for Carl and Andy's level of intersubjective understanding. Until this fact is brought to Andy's attention, they had divergent views of each other's background for this specific interaction. When they start the dialogue over again, they have a common starting point and have tuned into each other's prior knowledge of what is known and what is not. As the example shows, this is a turning point that results in a new learning experience. This shift also provides Carl with the necessary confidence in his own capability to allow him to join the rest of the group.

Situations in this category involve attentive teachers and students experiencing a move from monological to dialogical interaction. Through this movement, both teachers and students take an active role and begin to attune their conception of the situation according to the new aspects brought into the dialogue by both of them.

Change and Development

All four types of feedback were present during the entire process. However, there was a tendency for the teachers to more often provide feedback in category three and, especially, four during the observation period towards the end of the study. This tendency must be seen in relation to the overall professional development project

that the teachers participated in, and it is likely that the constant focus on formative assessment strategies also had an effect on the teachers' classroom practice.

Discussion

The four different types of communicative interaction attended to in this discussion will be presented as they appear in the findings. The main focus will be to problematise the different features and the level of intersubjectivity in the feedback dialogues.

As for the first category, called non-attentiveness in interaction, the students' need for feedback is obvious. The first of Shute's (2008, 175) conditions for feedback to be useful is therefore present. The same is true of the second condition. The student receives the feedback in a timely manner, when it is needed. The third condition is more problematic because it relates to the students' ability and willingness to use the feedback for learning purposes. Within this category, neither the teacher nor the student focuses on the issue originally addressed by the student. When the teacher is more focused on a different situation, the student tends to miss out on the given feedback. The non-attentiveness of the teacher when interacting with the student influences the student's ability to use the feedback.

Another problematic dimension of this category is when the teacher refers to what was said in such situations. The teacher might perfectly well remember what was said in the last interaction even though he or she was behaving non-attentively towards the student. The same is not necessarily the case for the student, whose attention followed the teacher and who did not focus on the teacher's feedback. The level of intersubjective understanding is, as Rommetveit (Rommetveit 1992, 23) states, dependent on the teacher and student having the same amount of contextual background knowledge. When the teacher approaches a student after a non-attentive interaction, the teacher might place the information given in this interaction into his or her perception of the shared understanding with the student. The same information will most likely be missing from the student's perception. This asymmetry can lead to the teacher becoming frustrated with the student's lack of concentration or memory, even though this lack is likely to be caused by the contextual situation of the feedback.

Many of the brief interactions between students and teachers can be placed in this category and often due to what Day (1999, 85) calls the "busyness" of the school day. Many things happen simultaneously in a classroom, and the teachers have a huge task to organise teaching, planning and all of the other issues that occur during the day. The school day might not function without some of the interactions ending up in this category. Still, when being aware of the weakness of these situations regarding the students' perception of feedback, the teachers might also conduct the feedback in a way where any misunderstandings and problematic differences in their joint understanding can be minimised.

The second category, double-communication in interaction, has a more difficult appearance, but Shute's (2008, 175) three conditions are still relevant. The category

relates to students who are in need of some sort of feedback to proceed in the learning process. The teacher approaches the student due to prior experiences and applies a professional judgement when making the decision about whether to provide feedback and what type of feedback to provide. The student might be aware of his or her lack of understanding, but the teacher's mixed signals in terms of body language, sighs and gaze puts the student in a difficult situation, struggling to understand what the teacher is really communicating. There are a number of reasons why teachers send out mixed signals (Sutton & Harper 2009). Mixed signals can arise from frustration related to a student's lack of progress or understanding or the teacher can have disciplinary difficulties with this particular student. Whatever the reason might be, experienced teachers believe that masking their negative emotions will make them better teachers (Sutton & Harper 2009). This belief supports the finding that feedback given in situations where the teachers did not manage to regulate their emotions was not used by the students for learning purposes. Instead, the negative emotions combined with the body language and the spoken words were interpreted as mixed signals and led to confused students. In addition, the interaction in this category and the feedback provided through this interaction can, in the long term, lead to the opposite of positive teacher-student relationships (Wu, Hughes & Kwok 2010, Hughes & Chen 2011) because there is an absence of mutual understanding regarding the interaction.

Interaction in the third category is called attentiveness in interaction and involves students and teachers working together towards the same goal and with an attuned perception of each other's contextual understanding. The feedback is needed, it is given right on time and the teacher makes sure that the student is both willing and able to use the feedback, all according to Shute's (2008, 175) three conditions. In this category, there are findings that also illuminate Hattie and Timperley's (2007) distinction between the different types of feedback. Through the interaction in this category, feedback towards the task and towards how the students processed the tasks were both present; Hattie & Timperley (2007, 102) claim that these types of feedback foster meta-cognitive thinking. As the findings show, the teachers attended the interaction by inviting the student to participate in the dialogue and, as a result, the student paid attention and became involved in the dialogue regarding the task. The students used meta-cognition when describing the learning process (Gipps & Tunstall 1998, 161). Meta-cognition was possible because both the teacher and the student attended to the aspects they both brought into the dialogue.

In the last category, called enhanced attentiveness in interaction, the impact of a high level of joint intersubjective understanding is displayed. All of the conditions from the third category are present; however, the interactions contain something more. The interactions often entail one of the other three categories and emerge as a result of a sudden and sometimes unexpected enhancement in the level of intersubjectivity. In Black & Williams' 2009 article, they introduce the notion

moments of contingency when they discuss formative assessment. These authors state that in formative assessment the interaction must be contingent; hence, the teacher aims to encourage reflection and thought amongst the students. Such encouragement makes the students more active in their learning process and the teachers work more unpredictable. This notion is relevant to the fourth category because the teachers interacting through enhanced attentiveness manages to use this enhancement in the level of intersubjectivity to empower their feedback. In this category, the joint understanding and enlightenment related to the shared contextual knowledge of the situation moves to a higher level. This intersubjective understanding appears when a new relevant aspect of the situation, small or large, is brought to attention by one of the participants in the interaction (Rommetveit 1992, 23). In the example used in this article, the new aspect was connected to a dentist appointment. Yet this shared knowledge was highly relevant for the shared understanding of the students' prior knowledge. In this category, the teacher manages to create and capitalise upon moments of contingency in instruction for the purpose of regulating the learning process (Black & Wiliams 2009). This ability to capitalise on these moments also has an effect on the students' ability to take advantage of the feedback in a more independent way, and Hattie & Timperley's (2007) fourth type of feedback, i.e., feedback on self-regulation, was observed. The students acted more confidently during their own learning activities after receiving feedback and, as the example from the findings shows, the student managed to take some steps in the learning activity on his own without constant reassurance from the teacher.

The two last categories of interaction appeared more frequently during the final observation period. At this point, the teachers had participated in the professional development project for almost three years and had been exposed to a huge amount of theory and literature on assessment. The teachers had also worked to develop their own classroom practice through an intense reflective process. Korthagen & Kessels (1999, 7) discuss teachers' theoretical knowledge and the difference between theory as episteme, phronesis and what they call procedural knowledge. Episteme represents the broad lines in pedagogical theory, whilst theory as phronesis has to do with "perceiving more in a particular situation and finding a helpful course of action on the basis of strengthened awareness" (Korthagen & Kessels 1999, 7). This awareness is what makes phronesis different from procedural knowledge, i.e., plain methods and strategies. Procedural knowledge does not include knowledge on how to recognise which methods and strategies to use in a specific situation. One plausible explanation for why the last two categories become more present towards the end of the project might be that formative assessment strategies, as reflective questioning, have moved from being merely procedural knowledge towards theory emphasising phronesis. This explanation aligns with Black & Wiliams' (2009) moments of contingency and the way that teachers, through experience, learn to recognise and spontaneously take advantage of situations with a potential learning outcome.

Conclusion

The question raised at the beginning of this article concerned which types of communicational interaction can be found regarding formative assessment dialogues in student-teacher interaction. The four different types of interactions identified in this article are to be seen as coarse-grained, and there were no straight categorical lines in the classroom practice but, instead, relatively fluctuating borders between them. However, this study may provide some vital information for both teachers and researchers on how assessment is influenced by more than just plain information through the spoken or written word. This information might again have a strong influence on how students perceive the feedback they are given and the impact of the feedback itself.

The importance of intersubjectivity in teacher-student dialogue, as noted in the article, must be attained by teachers on a daily basis. Intersubjectivity is not something that can be learned by reading recipes on methods or by participating in seminars or workshops, which primarily lead to procedural knowledge (Korthagen & Kessels 1999, 7). The level of intersubjectivity is dependent on theory that is attained as phronesis. To put it concisely, intersubjectivity is dependent on how teachers relate to and interact with their students regularly and over time. How feedback is perceived appears correspondingly closely connected to the level of intersubjectivity.

Further in-depth studies are needed to extend our understanding of how students perceive the feedback they are given and also to understand how they can develop their own ability to provide relevant feedback from their learning processes for their teachers. There is also a need for more research on how students' perceptions of feedback might vary in different subject contexts.

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