Title: Teacher understanding of and teacher concerns about questioning the author and negotiation for meaning (OER 09-10 RS & OER 40-12 RS)

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CRC Annotation Manual

Teacher Understanding of and Teacher Concerns about Questioning the Author and Negotiation for Meaning

OER 09-10 RS & OER 40-12 RS

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**INTRODUCTION**

This manual outlines the procedures and coding categories to address teacher understanding of reading comprehension in a local primary school setting – that is, what teachers understand reading comprehension to be and how they understand the development of students reading comprehension. The coding also allows for analysis if the ways teacher understanding of reading comprehension changes through participation in a long-term (3 year) professional development project. Specifically, data are coded for teacher understanding of a reading comprehension instructional strategy – Questioning the Author (QtA) (McKeown, Beck & Worthy, 1993; Beck et al, 1996; Beck & McKeown, 2002) – and a strategy for managing misunderstanding or possible misunderstanding in reading and classroom discussion – Negotiation for Meaning (NfM) (Pica & Doughty, 1985; Pica, 1994; Van den Branden, 2000). The manual aims to help coders operationalize the features of the Knowledge Dimension and the Cognitive Dimension of a neo-Bloomian matrix based on Anderson, et al (2006). We include details on the procedures, typical cases and difficulties in annotation.

Sources of data for annotation includes field notes taken during the intervention sessions conducted with teachers, transcripts of the intervention sessions with teachers, interviews with teachers, teacher written and oral reflections, transcripts and field notes of lesson observations.

**DEVELOPMENT OF THE CODING SCHEME**

The initial stage of annotation for teacher understanding of QtA and NfM included looking for patterns in teacher expression of their understanding, beliefs, concerns, and questions coming up from teachers during the sessions and interviews regarding reading comprehension. This resulted in the further mentioned categories which emerged from field notes and transcripts. Based on the coded categories it would be possible to view and consider how teacher understanding changes over time.

Neo-Bloomian taxonomy was taken as bases for our coding scheme. However one of the problems was that the taxonomy was geared towards student understanding of content knowledge.
learning. Therefore, we had to make some adaptations in definitions and examples to fit specific goals of our project: examining the development of teacher understanding of QtA, NfM and Reading Comprehension and how teachers manage classroom discourse for student learning. Specifically, the category of “Lack of Understanding / Misunderstanding” was added in the adapted coding scheme.

**CODING CATEGORIES AND DEFINITIONS**

**Teacher understanding** – the way teachers understand reading comprehension, QtA, classroom interaction and NfM and the level to which they understand those based on the cognitive and knowledge dimensions. It comprises not only the presence of teacher understanding of the aforementioned categories but also what they understand about them, how they understand them as well as how deeply they understand them.

Definitions of **Cognitive Dimensions** and **Knowledge Dimensions** and the framework for our analysis are drawn from Anderson et. al (2006) and adapted according to the research questions of our study. (See appendix 1 for comparison of original and adapted definitions). Anderson et. al (2006) is an updated Bloomian taxonomy that incorporates “new knowledge and thought into the framework” (page xxii). The knowledge dimension has four components: factual, conceptual, procedural and metacognitive knowledge. The cognitive dimension has six components: remember, understand, apply, analyze, evaluate and create. The taxonomy is intended to help us to assess teacher understanding of concepts introduced by intervention. The purpose of our project is to examine teacher learning and understanding of QtA, NfM and Reading Comprehension as evidenced by the teachers’ discourse and actions. Below we give our adapted definitions for each component as they fit within the purpose of our project.

**Knowledge Dimension**

**Factual Knowledge** – discrete isolated content elements / ‘bits of information’. It includes teacher knowledge of terminology and knowledge of specific details, elements and basic facts about QtA, NfM, classroom interactions and reading comprehension.
Example 1:

In Example 1, (lines 1, 6, 8-13, 15-16) the teachers are showing understanding of the isolated content elements.

Example 2:

In Example 2, (lines 3, 5, 7, 9), the teachers is showing the knowledge of basic facts about one of the reading strategies taught to her earlier.

**Conceptual Knowledge** – main concepts and principles and structure of QtA, NfM, classroom interactions and reading comprehension, knowing how they are organized and implemented, being able to recognize the mentioned strategies and differentiate them from others. It includes their knowledge of theories, models, classifications, categories and generalizations.

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3 All names used in the manual are pseudonyms. See Appendix 2 for list of participants.
Example 3:

1. Grace Pauline
2. The goal of QtA is to get students to make the text understandable to themselves. And if they do not, they do not uh, know or answer anything, the first thing that they have to do is to recognize that they don't know and then after that they find a solution to counter whatever that they do not know. So…Pauline
3. Grace Pauline
4. Uhhm. So the goal, you're saying the goal of QtA is uh, the first thing the students have to uh, recognize that they (pause) admit that there is [something that they might not know.]
5. Grace Pauline
6. [Ahh…]
7. Pauline Grace
8. And then to…
9. Grace Pauline
10. And then find solutions to repair… to, how should I say, solve whatever they don’t know

(CRC_S9_QtA Intro_P3-4_26.01.11_Transcript)

In Example 3, (lines 1-7, 10-11), the teacher is demonstrating her knowledge of the main concepts of QtA.

**Procedural Knowledge** – how to plan and carry out procedures for QtA, NfM, reading comprehension and classroom interactions. It includes sharing prior practices as well as what they want to do or they think they would have done regarding implementing QtA, NfM and reading comprehension.

Example 4:

1. Brian Pauline
2. Maybe for me, I tried on a lesson before.
3. Pauline Brian
4. Oh!
5. Brian Pauline
6. So, uh, in fact, last year I tried a few lessons. So to me it’s a well if they help them to answer the ques…uh understand the uh passage better. Interaction is more. But not always the, not always the effect that you'll have. Especially, uh for the bigger classes. Uh, like my class. There are a few times when it's very difficult to get them to you know, think deeper. They, they tend to give you more, sometimes they tend to give you more superficial answers. XX questions that really, they, uh, need that to, but for the better classes I find that uh, for good class, yes. It helps them quite a bit. But uh, the normal classes, because they are very weak pupils, uh those very weak pupils cannot follow up. Ah, in the sense they tend to be lost.
4. Pauline Brian
5. Oh, ok. You feel so, you feel so.
6. Brian Pauline
7. Ah this is, how, what I observed.
8. Pauline Brian
9. Ok, ok.
10. Brian Pauline
11. For the better pupils, maybe they X notes. I got 2 or 3, 3 or 4 of them very impressive. There is always these few XXX. Every time question, they always say, they are done, asking. But once you X to others, they are very quiet. So, it's difficult to maintain a balance in this sense. Ya.

(CRC_S9_QtA Intro_P3-4_26.01.11_Transcript)
In Example 4, (lines 1, 3-10, 13, 15-17), the teacher is sharing his prior practices and ways of implementation of QtA.

Coding for procedural knowledge also includes cases when the teachers are discussing procedures of carrying out QtA lessons from the literature while reading and discussing articles during intervention sessions (turns 1 and 3).

Example 5:

1  Brian Rachel    So you must decide when to chunk up, that means how do, are we going to chunk up the parts of the stories.
2     Rachel Brian  Ahmm…
3  Brian Rachel    When to ask questions and uhm ok how long before we to decide to stop and we need to come in and throw a question to them.

(CRC_S9_QtA Intro_P3-4_26.01.11_Transcript)

Metacognitive Knowledge – awareness of their own understanding of QtA, NfM, reading comprehension and classroom interactions, awareness of their own practices and performance.

Example 6:

1   Anita Pauline       I think they are saying that as teachers right? I think. (laughs) Uh, that we are equipped with a lot of reading strategies. But they fear that sometimes that we spent too much time uhm sharing of the strategies than to focus on the text. Because I think that last paragraph right is very uhm significant to me lah because I read the part about…if we ask people to make predictions right, which we often do in class and we’ve always thought it was right, that you know we are limiting them to paying attention to certain events in the text rather than the [whole sequence of the story.]
2     Pauline Anita  [Ok.]
3   Anita Pauline   So, what I gathered from here is that they fear that if we uhm, want to teach pupils certain strategies that we focus too much on carrying out the strategy rather than uhm trying to teach them to focus on the text.

(CRC_S9_QtA Intro_P3-4_26.01.11_Transcript)

In Example 6, (lines 1-6, 8-10), the teacher is talking of her understanding and awareness of her own practices, their drawbacks and limitations.
Example 7:

Anita Rachel I mean I’m just thinking back about the classroom situation.

(CRC_S9_QtA Demo_P3-4_16.02.11_Transcript)

In Example 7, the teacher is reflecting on her classroom practices.

**Cognitive Dimension**

**Remember** - relevant knowledge from long term memory, with or without a prompt. This category has to do with identifying, retrieving, recalling or recognizing relevant knowledge, events, procedures, etc.

Example 8:

1. Alice Regina I think we mentioned earlier about not predicting the difficulties but addressing the difficulties on the spot.

(CRC_S9_KWL Demo_P3-4_09.02.11_Transcript)

Example 9:

1. Anita Regina Hmm…the original text is sort like changed to make it easier, simpler.
2. Brian Regina To simplify to their level. For the pupils level understanding.

(CRC_S9_KWL Demo_P3-4_09.02.11_Transcript)

In examples 8 and 9 the teachers are retrieving information and recalling facts, (lines 1 and 2 in both examples).

**Understand** – relevant knowledge about QtA, NfM or reading comprehension through interpreting, exemplifying, classifying, summarizing, inferring, comparing or explaining.

By coding of understanding only of QtA, NfM and reading comprehension our data analysis is more targeted in answering our research questions and more consistent. We code it as “Understand” only when there is evidence of connecting the ideas and not just giving information “bit by bit”.

Example 10:

1. Anita Pauline I just think that when they uhm, ask questions, ya, they will try to summarize and reformulate that difficult piece of text into something that is easier for them to understand. That if they are able to find out what the author is trying to tell them uh, what else that the author is trying to tell them. That they would be able to know the core of that text. Ya.

(CRC_S9_QtA Intro_P3-4_26.01.11_Transcript)
In example 10, (lines 1-5), the teacher is demonstrating her understanding of QtA strategy by inferring about how her students might take it in a class.

In example 11, (lines 2, 3) the teachers are showing their understanding by responding to a facilitator’s question about the implementation of QtA as they read it in the article where the two groups of students are compared.

**Example 11:**

1. Regina Group So unmodified input, successful or not?
2. Grace Regina Hmm...no.
3. Anita Regina Lowest...
4. Regina Group He says...right, irrespective of the order, [the lowest scores...]

(CRC_S9_KWL_Demo_P3-4_09.02.11_Transcript)

**Apply** – use of relevant knowledge through real or hypothetical applications. This covers carrying out familiar or unfamiliar tasks, activities, strategies. This includes when teachers talk about how they have applied the knowledge, how they want to apply the knowledge, how they might apply the knowledge in their classroom teaching.

**Example 12:**

1. Brian Rachel I, I will correct them on the spot. This is...got nothing to do with the lesson itself lah. But the thing is I think you will...if let's say I'm in the lesson itself, I think you will see me doing that naturally.
2. Rachel Brian Oh ya.
3. Brian Rachel XX it's just the correct answer, how to phrase it correctly. So it might drag a bit of time. I might instead of just continue with the discussion I might just stop there and ah...

(CRC_S9_LssnPlan-Critique1_P3-4_23.02.11_Transcript)

In example 12, (lines 1-3, 5-7), the teacher is talking about how he might be applying the strategy in class with his students.

**Example 13:**

1. Brian Anita [So what is the author trying to say,] ya, ok. Then we expect them to give this answer ah of course.
2. Grace Brian Hmm...
3. Brian Grace Then how are we going to link, that means the question we should ask is, so why do you think...

(CRC_S9_LssnPlan-Critique1_P3-4_23.02.11_Transcript)
In example 13, (lines 1-2, 4-5), the teacher is talking about the sequence of procedures for carrying out a QtA lesson and how they are applied with the students.

**Note:** If the teachers are talking about carrying out their lessons but do not discuss NfM, QtA or ideas related to their application, it is not coded.

**Analyze** – this category covers differentiating, organizing, attributing or deconstructing. This includes evidence of examining parts or components of the strategy, seeing how different elements can be organized or fit together, as well as understanding or deconstructing different points of view.

**Example 14:**

<table>
<thead>
<tr>
<th></th>
<th>INT</th>
<th>CLT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>INT</td>
<td>CLT</td>
</tr>
<tr>
<td>2</td>
<td>CLT</td>
<td>INT</td>
</tr>
<tr>
<td>3</td>
<td>INT</td>
<td>CLT</td>
</tr>
<tr>
<td>4</td>
<td>CLT</td>
<td>INT</td>
</tr>
</tbody>
</table>

Okay so what this part is that you ask them to predict what’s going to happen right. Hmm. Why did you do that? Hmm … Yah actually I was thinking that just now. When I ask them like what was going to happen next right, I could link in CYL, whatever CYL said earlier actually about the mother. It’s that attachment lah. Like the mother told him to wash but he didn’t want to wash yah. But I didn’t link it to whatever CYL said.

*(CRC_S9_2G_Int5__An_11.10.2013_Trans)*

*In this example INT refers to the interviewer – one of the workshop leaders – and CLT refers to the classroom teacher.*

**Evaluate** - making a judgment based on some criteria or standards, measuring against a set of standards. This includes judging, critiquing, detecting inconsistencies, and/or considering appropriateness.

**Example 15:**

<table>
<thead>
<tr>
<th></th>
<th>Yvonne Regina</th>
<th>Regina Yvonne</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hmmm…looks like. (pause) But are they really conclusive?</td>
<td>[So that's why I was thinking in other countries ah.]*</td>
</tr>
<tr>
<td>2</td>
<td>[Correct, correct]. Maybe different age group, it may also have slightly different findings you know.</td>
<td>[Younger children, older children.]</td>
</tr>
<tr>
<td>3</td>
<td>[Right, that’s right.]</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>I’m not too sure.</td>
<td></td>
</tr>
</tbody>
</table>

*(CRC_S9_QtA Demo_P3-4_16.02.11_Transcript)*
In example 15, the teacher is critiquing the results of the implementation of QtA strategy (lines 1, 2, 5 and 7).

Example 16:

1  Pauline Group Is it anything the authors did not explain clearly in this section? (long pause)
2  Alice Pauline  The language used in the textbook.
3  Pauline Alice  What, what about…
4  Alice Pauline  When, when he says that it gives, this authority that will displaced it above, does it means, it's like this textbook is kind of perfect.
5  Pauline Alice  Uh, hmm.
6  Alice Pauline  No one can criticize the textbook.
7  Pauline Alice  So you…
8  Alice Pauline  So, ya…probably the author needs to elaborate on that part.  

(CRC_S9_QtA Demo_P3-4_16.02.11_Transcript)

In examples 16, (lines 2, 4-5, 7, 9), the teacher is judging the language used in the textbook.

Create – generating relevant knowledge, creating alternatives, reorganizing relevant knowledge in new ways. Planning, designing, and constructing relevant knowledge, materials, resources or products.

Example 17:

I allowed more time for my pupils to think and answer my questions rather than give them the answers whenever they take a long time to answer me. My questions are now geared more towards getting the pupils to think through the texts rather than getting them to see or search for the answers to answer the questions that were asked.

(CRC_S9_RFN2_Laura_Dec 13)

Lack of understanding / misunderstanding – explicit expression or observable behavior showing limited or no understanding of QtA principles by teachers. For example, providing incorrect or unclear or not accurate answers to the questions about QtA/NfM principles or about conducting a QtA lesson, showing doubts in their understanding of the principles of QtA or procedures of conducting a QtA lesson.

Example 18:

1  Brian Regina  Uh and then, ok then there’s also the modified, this is the part that we are not clear ah.
2  Brian Regina  Modified input and unmodified input. What does it [mean by that?]
3  Brian Regina  Because we don’t see how it’s modified you see. Who modified it and what is happening here?

(CRC_S9_KWL Demo_P3-4_09.02.11_Transcript)
In examples 18, (lines 1-5) the teacher is explicitly saying that some of the concepts of the introduced strategy are not clear to him.

Example 19:

1. Yvonne SLF  Are the strategies used applicable to children of different age, ok, maybe extend a bit ah, age groups and different ethnic backgrounds.
2. Carol Regina  Ya, so what if the child answers wrongly?

(CRC_S9_KWL Demo_P5_10.02.11_Transcript)

In examples 19, (lines 1-3), the teacher demonstrates lack of understanding of how the QtA can be applied across different groups of students and how to overcome if the difficulties arising from the implementation of the strategy.

Example 20:

1. Anita Pauline  Like this is what I want the kids to know but for Brian, let’s say he wants them to know something else. Then how? Does it matter? No ah? (laughs)
2.  

(CRC_S9_LssnPlan-Critique1_P3-4_23.02.11_Transcript)

In example 20, (lines 1-2), the teacher is showing lack of understanding of how to work about unforeseen outcomes while implementing the new strategy with the students).

Other Coding Categories

A few other categories (Teachers Concern, Teacher Behavior, Teacher Interest/Engagement, Teacher Prior Experience) were added into the coding scheme together with the categories of understanding and coding dimensions. These categories were generated out of the data. Earlier it was noticed that the teachers often expressed their concerns about the project, use of QtA, etc. Even though it did not really fit in as part of teacher understanding the coding team decided to track that so that it is possible to keep teacher concerns in mind and adapt the intervention as needed to address those concerns.

Teacher concern – expression of worries by teacher about the feasibility of QtA implementation and its impact on student learning process and classroom management. For example, comments related to excessive class size, teacher control over the class, peer negotiations, the duration of the lesson, practicality of the strategy in the classroom, book topic, difficulty of the text, the ability to cover all the material during the lesson, the ability of students in the class, etc.
Example 21:

1  Brian  Pauline  But what happen if the pupils are not...no matter how we lead them
2  Grace  Brian  they are not able to you know...
3  Grace  Pauline  Come to [this point.]
4  Brian  Pauline  [Come to this point.]
5  Grace  Pauline  Hmm...hmm. Were they able to do that? Like give you the connection?
6  Grace  Pauline  Is it, is it quite time consuming? As in is it really practical to implement
7  (CRC_S9_LssnPlan-Critique1_P3-4_23.02.11_Transcript) in the classroom?

Example 22:

1  Yvonne  Pauline  I don't think the children would be able to do it.
2  Yvonne  Pauline  [Because we afraid that not, not enough time] to cover you know what
3  I mean. If you do extra is different you see.
4  (CRC_S9_LssnPlan-Critique1_P5_16.03.11_Transcript)

Example 23:

1  Anita  Pauline  As in I think [we are so worried like...]
2  Pauline  Anita  [Uh huh.]
3  Anita  Pauline  Are we carrying out [this strategy correctly...]
4  Pauline  Anita  [Ok.]
5  Anita  Pauline  As oppose to uhm...yes.
6  Pauline  Anita  As, as compared, as suppose to whether they are, they are learning
7  something.
8  Anita  Pauline  Ah...ya. Something like that.
9  (CRC_S9_QtA Intro_P3-4_26.01.11_Transcript)

In Example 21, 22 and 23, (lines 1-8, 1-3 and 1, 3, 5, 8, respectively), the teachers are expressing their concern about the ability of the teacher and students to cope with the strategy as well as their concern about lack of time for the implementation of the strategy.

**Teacher interest / engagement** – evidence of expressing interest (disinterest) or engagement (disengagement) in the project, in QtA, in classroom negotiations, in the teacher sessions or in lessons. For example, expression of wanting to know about the implementation of QtA in the classroom, the usefulness of QtA for student learning process, active participation in preparation for QtA practice sessions (active discussion on how to conduct a lesson), providing constructive critiquing of colleague conducting of QtA practice sessions (Example 24).
Example 24:
That … regardless of the … dynamics of the classroom or the students, the profile of my students, these that I’m able to use the strategies with … al the classes that I’m going to. And maybe not just English. If let’s say … Science … I don’t know if Science is applicable. We can use it for Science subject. But the thing is I’m not teaching Science this year. So I’m hoping that maybe I can try it on English and along the way if I feel that I can use it for other subjects. Yah, we can do that.

(CRC_S9_3B_Int1_Ha_15_02_12_trans)

Teacher prior experience – any utterances of the teachers related to their prior teaching experiences and practices, the way they have been conducting their lessons (reading lessons in this study), procedures they have been going through to conduct reading comprehension lessons or QtA lessons (Example 25).

Example 25:
Yeah, in fact, last year after the X, I tried the lessons before as I’ve said before, erm and I find that yeah the interaction time between the pupils and teachers are actually more, even though it might not be totally what you wanted, but at least I can see that they are more involved, they are talking they are articulating their ideas all those stuff. It’s better than normal comprehension lessons whereby sometimes those good pupils they know how to answer they will raise up their hands and answer, the rest of them will just erm keep quiet. Yeah ya loh, that’s why. Yeah.

(CRC_S9_P3_INT1_Br_24.02.11_Trans)

Teacher behavior – teacher behavior throughout the sessions, interviews, classroom observations throughout the study, repeated patterns of behavior. For example, teacher being repeatedly late for sessions, missing sessions, unwillingness to participate, fear of talking, fear of expressing opinion, drowsiness, asking numerous questions, being silent most of the time, etc.).

Example 26:
No examples found in data.

ANNOTATION PROCEDURES
An NVIVO project was created for the purpose of the analysis of teacher understanding of reading comprehension, QtA and NfM includes the aforementioned coding categories⁴ (Figure 1):

⁴ NVivo 10 was used for this project. This software places the coding categories in alphabetic order which does not fully correspond to the order in our coding manual. The default order for coding is as indicated in this Manual.
General Annotation Procedures:

- While coding for teacher understanding, coders look for the evidence of understanding of QtA, NfM and reading comprehension. Utterances not pertaining to the abovementioned concepts are excluded from the coding.

- Only teacher utterances and not those of the session facilitators’ are coded unless it is necessary to include the latter into the coding for a broader context (see Appendix 2 for list of teacher and facilitator pseudonyms).

- Only the utterances and not the names of the speakers are coded (Figure 2). For future references to each teacher in the analysis the coding category “Participants” has been created as an additional layer of coding to analyze each participant’s understanding of QtA, NfM and reading comprehension.

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5 Procedures described in this Manual are specific to this project. For those who want to know how to use NVivo more information can be found at [http://www.qsrinternational.com/products_nvivo.aspx](http://www.qsrinternational.com/products_nvivo.aspx).
- Utterances like “Hmmm”, “Uh”, “Ah”, “Ya”, etc. are not coded. “Ok” or “Yes” are coded when carrying content and not coded when they do not bear any content or their use is unclear.

Levels of Annotation:

- First level of coding includes coding for knowledge dimension and cognitive dimension of teacher understanding as well as lack of understanding / misunderstanding (Figure 3).

- Second level of coding includes coding for other patterns: teacher concern, teacher engagement, prior experience, teacher behavior. If an utterance is coded for “Lack of Understanding / Misunderstanding” category is not coded for Knowledge Dimension or Cognitive Dimension (Figure 4).

- Third level of coding includes coding of the coded utterances for the category of participants enabling to analyze understanding of each individual participant (Figure 5).
Coding is done turn by turn while keeping the research questions in mind and going back to the research questions and the coding manual in doubtful cases. If it is difficult to decide upon a doubtful case, it is left as uncoded. There is no separate Node for uncodable utterances and instead an annotation is created for such cases.

After the coding of the transcript is complete a broad coding is checked to see if anything is missed or if there are any areas which have not been coded or if there is anything to add.

**Difficulties in Annotation:**

**Deciding between Factual Knowledge or Conceptual Knowledge:**

Teacher utterances based on the passage from the article which they read during the session are not always factual knowledge. Usually, an observed detail is factual knowledge; however, generalization about an observed detail is conceptual knowledge. In Factual Knowledge the details are stated and the question “What?” is answered. In Conceptual Knowledge even though the question “What?” is answered, it is related to describing theories, classification, generalization, models or structure, fundamental and underlying principles.
Figure 4

Figure 5
Example 27:

1. Brian Rachel  
   Uhm he’s trying to bring up here is uh issues that we would as teachers, we will face as we try out this, uh, types of questions and queries…
2. Rachel Brian  
   Hmm…
3. Brian Rachel  
   Hmm…I think one of the issues they bring up here is uhm, the purpose of the theories, how to explore the ideas? In contrast using questions to check on student’s recall facts and information.
4. Rachel Brian  
   Hmm…
5. Brian Rachel  
   How to differentiate between these two types of questions?

(CRC_S9_QtA Demo_P3-4_16.02.11_Transcript)

In Example 27, the teachers are stating what was read in the article (lines 1-3, 5-7, 9). Factual Knowledge

Example 28:

1. Grace Pauline  
   The goal of QtA is to get students to make the text understandable to themselves. And if they do not, they do not uh, know or answer anything, the first thing that they have to do is to recognize that they don’t know and then after that they find a solution to counter whatever that they do not know. So…
2. Pauline Grace  
   Uhhm. So the goal, you’re saying the goal of QtA is uh, the first thing the students have to uh, recognize that they (pause) admit that there is [something that they might not know.]
3. Grace Pauline  
   [Ahh…]
4. Pauline Grace  
   And then to…
5. Grace Pauline  
   And then find solutions to repair…to, how should I say, solve whatever they don’t know.

(CRC_S9_QtA Intro_P3-4_26.01.11_Transcript)

In example 28, the teacher is explaining her understanding of one of the main principles of QtA, (lines 1-5, 11-12). Conceptual Knowledge.

Deciding between Factual or Procedural Knowledge

In this case, the teachers are discussing the book in order to understand how the lesson based on this book should be planned. The teacher is talking about the book. He is not talking directly about how he is going to do the lesson. He talks about how he is going to plan the lesson in later utterances, however, his later utterances are built on his understanding about the book (lines 1-2, 4, 6, 8-9 below). Thus, it is important to include it into coding, as part of the overall procedure of their lesson planning.

Example 29:

1. Brian Group  
   [Basically if I think you read] the whole book ah. It's talking about ants.
2. Grace Brian  
   Ya loh.
3. Brian Group  
   It's telling [about ants…]
If the anticipated student answer given by the teacher is woven inside a sentence aimed at explaining, planning, discussing the procedure of carrying out their QtA lesson that answer is coded as Procedural Knowledge (lines 1, 2, 7, 8, 10 below).

Example 30:

1. Grace: [Ants are insects.]  
   Brian: [Ants are insects. Ants are tiny.] But these are listed there.
   Brian: Ok, tell XX. I'm ok with it. (pause) Actually, basically if you ask the same questions they will tell you eh. Ok, what is the author trying to say here? If you ask, start off with this question.
3. Grace: Hmm. All ants work very hard.
4. Anita: Ok.
5. Brian: [Ok, so what does he want...]

This is not to be confused with the Practice Lessons when the teachers are role playing the students. In those cases we do not code “student” answers.

When dealing with the “true” situations in our data where the teachers are discussing and showing the evidence of understanding QtA, NfM and Reading Comprehension we code teacher utterances for knowledge and cognitive dimensions accordingly. However, when we come across the so called “mock” or “practice” lessons in our data (where the teachers and the researches role play the QtA lessons) those parts are not coded for Knowledge and Cognitive Dimensions.

Deciding between Understand or Apply

Apply

In cases where the teachers are discussing the content of the text based on which they are going to carry the QtA lesson out it is coded as Apply and not Understand (understanding of the text) as their discussion is aimed at carrying out a lesson. In the example below (Example 33, lines 7-9,
The teachers are talking about how they are going to apply the strategy (content goal).

**Example 33:**

1. Rachel Group So content goal, by the end of the reading uhm this is what I want my students to know or to understand or to take away from reading that passage. So maybe as you read this, try to identify one content goal.
2. Brian Rachel [From the whole…] Ok? Maybe we [have some time…]
3. Rachel Brian Ah, from reading this.
5. Rachel Grace Symptoms before right.
6. Brian Grace Hmm. Ah it's actually talking about the experience of a volcano eruption like, what will happen before the eruption of a volcano.
7. Rachel Grace Ok.
8. Grace Rachel Like uh animals uh they feel uneasy.
10. Grace Rachel Then uh it started to rain uh fragments.
11. Rachel Grace Ok.
12. Grace Rachel Hmm.
13. Rachel Grace So uh is, is that uh your content goal? Content goal meaning uhm as they read this passage, that’s the main idea that you want them to understand.
14. Brian Rachel Actually I think to me it's more of uh what happens during an eruption itself.
15. Rachel Brian [Ok.]
16. Brian Rachel [Because] I think basically the whole thing down here is actually describing the whole process.
17. Rachel Brian Right.
18. Brian Rachel From the beginning until uh. Although they didn’t really say uh when it ends ah. But the thing is that, I think the process whereby volcanic eruption takes place. So to me is I will, that means, if you are asking for the content right, I will want the pupils to know ok, what actually happens during a volcano eruption.

**Understand**

In the example below (Example 34, lines 1-3, 9-10, 12-13, 15-20), the teacher is talking about his understanding of what is reading comprehension versus reading lesson. Even though it might seem like he is talking about carrying the lesson out, we code it for Understand. They are not talking about how they are going to applying it. They are talking about how they understand it.
Example 34:

Will you expect to be a reading comprehension lesson or is it just a...because there's a difference between a reading lesson and a reading comprehension.

If it is a reading lesson, it's more of like ok, they don't have the worksheet in the end. It's just a reading lesson.

Comprehension wise that means in the end they are expected to have a worksheet [that X answer the questions, yes.]

That's the difference between X when we say reading and reading comprehension.

Reading wise it's just that maybe there's oral interaction. That means as we read along they'll ask questions about the story. What do you think it's going to happen next? All those stuff. Ah but after which that's it. Once we cover the whole story, that's where, when they finish reading the whole story and that's the full stop to that lesson itself.

Ya, then...come back XX will be [coming later on.]

[Need not be done at all. Ya.]

[Ah...yes.] Correct.

(CRC_S9_LssnPlnCritq2_P3-4_10.03.11)
References
taxonomy of educational objectives. New York: Longman.
Leadership, 60(3), 44-47.
classroom implementation to engage students with text. The Elementary School Journal, 96(4), 385-
414.
The Reading Teacher, 46(7), 560-566.
conditions, processes, and outcomes? Language Learning, 44(3), 493-527.
Pica, T., & Doughty, C. (1985). Input and interaction in the communicative language classroom: 
A comparison of teacher-fronted and group activities. In S. M. Gass & C. Madden (Eds.), 
Appendix 1. **Comparison of Original and Adapted Definitions**

<table>
<thead>
<tr>
<th>Cognitive Dimension</th>
<th>Key concepts</th>
<th>Definitions (From Anderson et al 2006)</th>
<th>Revised definitions for coding</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Remember</strong></td>
<td>Recognizing</td>
<td>Retrieving relevant knowledge from long term memory in order to compare it with presented information; searching long term memory for a piece of information that is identical or extremely similar to the presented information. (p.66)</td>
<td><strong>Remember</strong>: retrieving relevant knowledge from long term memory, with or without a prompt. This category has to do with identifying, retrieving, recalling or recognizing relevant knowledge.</td>
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<td></td>
<td></td>
<td><strong>Recalling</strong></td>
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<tr>
<td></td>
<td></td>
<td>Retrieving relevant knowledge from long term memory when giving a prompt to do so. The prompt is often a question; searching long term memory for a piece of information to working memory where it can be processed.</td>
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<tr>
<td><strong>Understand</strong></td>
<td>Interpreting</td>
<td>Converting information from one representational form to another; (translating, paraphrasing, representing, clarifying)</td>
<td><strong>Understand</strong>: constructing relevant knowledge through interpreting, exemplifying, classifying, summarizing, inferring, comparing or explaining.</td>
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<td></td>
<td></td>
<td><strong>Exemplifying</strong></td>
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<td></td>
<td></td>
<td>Giving a specific example or instance of a general concept or principle; identifying the defining features of the general concept or principle and using these features to select or construct a specific instance.</td>
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<td></td>
<td>Classifying</td>
<td>Recognizing that something belongs to a certain category; detecting relevant features or patterns that fit both the specific instance and the concept or principle.</td>
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<td></td>
<td>Summarizing</td>
<td>Suggesting a single statement that represents presented information or abstracts a general theme; constructing a representation of the information; (generalizing, abstracting)</td>
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<td></td>
<td>Inferring</td>
<td>Finding a pattern within a series of examples or instances. The process of inferring involves making comparisons among instances within the context of the entire set.</td>
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<td></td>
<td>Comparing</td>
<td>Detecting similarities and differences between 2 or more objects, events, ideas, problems or situations, such as determining how a well-known event is like a less familiar event; including</td>
<td></td>
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<tr>
<td>Process</td>
<td>Description</td>
<td>Apply</td>
<td>Apply:</td>
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<tr>
<td>Explaining</td>
<td>Constructing and using a cause-and-effect model of a system, including each major part in a system or each major event in a chain, and using the model to determine how a change in one part of the system or one “link” in the chain affects a change in another part. Explaining, constructing a model.</td>
<td>Applying using or discussing use of relevant knowledge through real or hypothetical applications. This covers carrying out familiar or unfamiliar tasks, activities, strategies. This includes when teachers talk about how they have applied the knowledge, how they want to apply the knowledge, how they might apply the knowledge in their classroom teaching.</td>
<td></td>
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<tr>
<td>Apply</td>
<td>Executing</td>
<td>Carrying out a procedure when confronted with a familiar task. Executing, the use of skills and algorithm rather than techniques and method (procedural knowledge). Skills and algorithm consist of a sequence of steps that are generally followed in a fixed order when the steps are performed correctly; the end result is a predetermined answer.</td>
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<tr>
<td>Executing</td>
<td>Selecting a using a procedure to perform an unfamiliar task. Because selection is required, students must possess an understanding of the type of problem encountered as well as the range of procedures that are available.</td>
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<td>Implementing</td>
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<td>Analyze</td>
<td>Differentiating</td>
<td>Distinguishing the parts of a whole structure in terms of their relevant or importance, involving structural organization and, in particular, determining how the parts fit into the overall structure or whole. (Discriminating, selecting, distinguishing and focusing)</td>
<td>Analyze: this category covers differentiating, organizing, attributing or deconstructing. This includes evidence of examining parts or components of the strategy, seeing how different elements can be organized or fit together, as well as understanding or deconstructing different points of view.</td>
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<tr>
<td>Organizing</td>
<td>Identifying the elements of a communication or situation and recognizing how they fit together into a coherent structure; building systematic and coherent connections among pieces of presented information.</td>
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<tr>
<td>Attributing</td>
<td>Ascertaining the point of view, biases, values or intention underlying communications; a process of deconstruction, in which a student determines the intentions of the</td>
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<tr>
<td><strong>Evaluate</strong></td>
<td><strong>Critiquing</strong></td>
<td><strong>Create</strong></td>
<td><strong>Planning</strong></td>
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<tr>
<td>Checking</td>
<td>Judging a product or operation based on externally imposed criteria or standards; noting the positive and negative features of a product and making judgment based at least partly on those features.</td>
<td>Generating</td>
<td>Devising a solution method that meets a problem's criteria, that is, developing a plan for solving a problem.</td>
</tr>
<tr>
<td>Evaluate: making a judgment based on some criteria or standards, measuring against a set of standards. This includes judging, critiquing, detecting inconsistencies, and/or considering appropriateness.</td>
<td><strong>Create</strong>: generating relevant knowledge, creating alternatives, reorganizing relevant knowledge in new ways. Planning, designing, constructing relevant knowledge, materials, resources or products</td>
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</table>

### Knowledge Dimension

<table>
<thead>
<tr>
<th><strong>Factual</strong></th>
<th><strong>Conceptual</strong></th>
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<tbody>
<tr>
<td>Knowledge of discrete, isolated content elements / 'bits of information'. It includes knowledge of terminology and knowledge of specific details and elements.</td>
<td>Knowledge of 'more complex, organized knowledge forms'. It includes knowledge of classifications and categories, principles and generalizations, and theories, models and structures.</td>
</tr>
<tr>
<td>Knowledge of discrete isolated content elements / 'bits of information'. It includes teacher knowledge of terminology and knowledge of specific details, elements and basic facts about QtA, NfM, classroom interactions and reading comprehension</td>
<td>Teacher knowledge of the main concepts and principles and structure of QtA, NfM, classroom interactions and reading comprehension, knowing how they are organized and implemented, being able to recognize the mentioned strategies and differentiate them from others. It includes their knowledge of theories, models, classifications, categories and generalizations, and theories.</td>
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<tr>
<td>Procedural</td>
<td>‘Knowledge of how to do something’. It includes knowledge of skills and algorithms, techniques and methods, as well as knowledge of the criteria used to determine and/or justify ‘when to do what’ within specific domain and disciplines.</td>
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<tr>
<td>Meta-cognitive</td>
<td>‘Knowledge about cognition in general as well as awareness of and knowledge about one’s own cognition. It encompasses strategic knowledge, knowledge about cognitive tasks, including contextual and conditional knowledge, and self knowledge.</td>
</tr>
</tbody>
</table>
Appendix 2. List of Teacher and Facilitator Pseudonyms

Teachers:

- Alice
- Anita
- Brian
- Carol
- Grace
- Yvonne

Facilitators:

- Pauline
- Rachel
- Regina