'Diving into Reading': Revisiting Reciprocal Teaching in the Middle Years

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This paper reports on a project that was designed to support teachers to introduce Reciprocal Teaching and student-generated questioning in the middle years. The project began as a solution to teachers expressing a concern that there was a lack of professional development related to the teaching of reading in the middle years.

Introduction

The project reported here was designed to support teachers' professional learning about high yield, evidence-based instructional approaches in the teaching of reading. The strategies were aimed at increasing student engagement, higher order thinking and deep comprehension. Reading kits were produced that included Reciprocal Teaching prompt cards with a range of options to support student-generated questioning. The underlying premise was that small group dialogic approaches that include student-generated questioning can lead to increased student engagement and intellectual rigour, deeper engagement with and comprehension of texts, and higher order thinking.

This paper will summarise the research that informed the development of the reading kits, including Reciprocal Teaching with its Vygotskian foundations, research about dialogic approaches, and student-generated questioning. The paper ends with a discussion of how these approaches were drawn together to create the reading kits to support the teachers' professional learning and encourage pedagogical renewal.

Reciprocal Teaching

Reciprocal teaching (Brown, 1994; Brown & Palincsar, 1986; Palincsar & Brown, 1983; Palinscar & Brown, 1984) is an evidence-based, dialogic instructional approach that supports students within the context of a collaborative community of learners, to be active leaders in small group reading discussions. It is a form of guided, co-operative learning that includes expert scaffolding by the teacher, direct instruction, modelling and practice (Brown & Palincsar, 1986), and it incorporates multiple strategy instruction (Pilonieta & Medina, 2009). Reciprocal teaching has been documented widely as an effective instructional routine that can improve reading comprehension through the co-ordination of four comprehension strategies (Brown & Palincsar, 1985; Coley, DePinto, Sharon, & Gardner, 1993; Kelly & Moore, 1994; Myers, 2005; Oczkus, 2003; Palincsar & Brown, 1983; Palincsar, Ransom, & Derber, 1988; Palinscar & Brown, 1984; Pilonieta & Medina, 2009; Rosenshine & Meister, 1994; van Garderen, 2004a).

The four comprehension strategies that traditionally constitute Reciprocal Teaching are predicting, clarifying, questioning and summarising. In the project reported in this paper, these strategies were extended to include orientating, connecting and giving feedback, in addition to a range of questioning options which included the students' wonderings.

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Volume 18 Number 1

February 2010

Volume 18 Number 1 February 2010 Reciprocal Teaching is said to support readers of variable abilities to extend their zones of proximal development, defined by Vygotsky (1978) as:

the distance between the actual development level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers ... the zone of proximal development today will be the actual development level tomorrow. (pp. 86–87)

Classrooms can be conceived as overlapping multiple zones of proximal development in which individual students' current levels of learning are extended to higher levels with the support of people, tools or artefacts (Brown, 1994). In reading contexts across the curriculum in the middle years of schooling, teachers must cater for multiple zones of proximal development across multiple contexts and content area reading demands.

The essential role of teachers is to guide disciplined inquiry (involving deep conceptual content) to the upper bounds of each student's potential. There is an assumption that this potential would not be reached without expert guidance, capitalising on varieties of student talent to provide multiple ways into the learning that presupposes distributed expertise and the legitimisation of differences (Brown, 1994). The challenge for teachers is to select reading tasks that are challenging but not frustrating (Joshi, 2005) and that move each student forward within his/her individual zone of proximal development. There are times when the literacy demand level may pass the capacity of most students and Lemke (1998) suggests that, if those moments are not sustained for too long, they may help to stretch students' capabilities.

Reciprocal dialogue is another important factor in Reciprocal Teaching, which is based on the premise that group participation and dialogue aids learning as well as promoting conceptual change. A further foundation is that individual thought processes originate in social interaction (Brown & Palincsar, 1986). Freire (1997) argues that it is only through dialogue that critical thinking can be generated and that without communication there is no true education. In contrast to a 'banking' view of knowledge, Freire contends that authentic education is collaborative, dialogical and mediated by the world (p. 74). In relation to pedagogical processes, Giroux and McLaren (1992) state that:

A critical theory of schooling needs to acknowledge that the pedagogical process itself represents an important aspect of the production of knowledge in classrooms. This is crucial not only in order to understand how students actively draw upon their own cultural resources in order to produce meaning, but also because it theoretically legitimates the various forms of investments that students make in the learning process itself. (p. 23)

Furthermore, in regard to pedagogical rigour, Cazden suggests that:

It may be that the interaction itself mediates intellectual demand or that intellectual demand may be constituted interactionally (Personal communication, 20.04.09)

That is, pedagogical rigour and intellectual demand for students may be mediated through reciprocal dialogue and dialogic instructional approaches, both features of Reciprocal Teaching.

Similarly, Almasi (1995) argues that participation in peer-led discussions promotes higher level thought processes, evidenced through significantly more elaborate and complex responses, as compared to students' responses in teacher-led discussions. Furthermore, she argues that participation in peer-lead discussions provides the opportunity for significantly greater amounts of student verbalisation, which is the key to promoting conceptual change. In relation to dialogue, Brown and Campione (1986) state that:

Understanding is more likely to occur when a student is required to explain, elaborate or defend his or her position to others; the burden of explanation is often the push needed to make him or her evaluate, integrate, and elaborate knowledge in new ways. (p. 1066)

Volume 18 Number 1 February 2010

In their meta-analysis of nine small group discussion approaches, Soter, Wilkinson and Murphy (2008) report that the most productive discussions are structured and focused and occur when students hold the floor for extended periods of time, when students are prompted to discuss texts through open-ended authentic questions, and when discussion incorporates a high degree of uptake. They found that authentic questions led to longer incidences of student talk and greater elaboration which generated reasoning and high-level thinking. They also found that affective connections between readers and text played a role in eliciting high-level comprehension and critical-analytic responses.

Brown and Palincsar (1986) suggest that future work would build on the foundations of Reciprocal Teaching to examine more elaborate argument devices and epistemic roles, which could involve the use of prompt cards to maintain discussion. The project reported in this paper extends the Reciprocal Teaching sequence to include a range of studentgenerated questioning options, through the use of prompt cards and dice. Encouraging students to generate their own questions supports the development of deeper conceptual understanding, as evidenced in the following brief examination of the research related to question-generation by students.

Student-generated questioning

Engaging students in generating and answering their own questions when reading, through higher order or meaningful-learning questions, produces a more thorough processing of text (Wong, 1985). According to Reid and Green (2004), teaching students to think is the most important aspect of literacy teachers' work. Students engage in multiple processes when generating questions, requiring deeper interaction with text, building knowledge structures from texts through the conceptual levels of questions (Taboada & Guthrie, 2006).

In a review of 27 studies that were designed to increase students' processing of prose through self-questioning instruction, Wong (1985) identified two constraints in self-questioning: a lack of prior content knowledge and metacognitive deficiency. Miyake and Norman (1979) found that it takes considerable domain-specific knowledge to ask questions that demand intellectual rigour. In contrast, Toboada and Guthrie (2006) found no evidence of an interaction between prior knowledge and student-generated questioning because, in their study, questioning contributed to the reading comprehension of students with both low and high knowledge of ecological science. They found that it was not the presence or absence of questions, but rather the presence of higher level questioning that resulted in higher-level comprehension.

In a study of accountable talk, Wolf, Crosson and Resnick (2006) found that rigour was limited when teachers used talk in formulaic ways. These patterns included providing little wait time or teachers answering their own questions. This study provided evidence that classroom interaction which incorporates listening to others, questioning each other's knowledge and exploring one's thinking has a positive correlation to the academic rigour of reading comprehension (Wolf, Crosson & Resnick, 2006).

In a review of 50 question-generation studies, Rosenshine, Meister and Chapman (1996) reported that teaching students the cognitive strategy of generating questions resulted in gains in comprehension. They found that scaffolds – including support from the teacher, other students, cue cards, modelling, question stems, prompts, think-alouds and so forth – were particularly useful for teaching higher-level cognitive strategies. A study of sixth grade students generating 'think-type' questions for expository texts found that reading skill did not relate significantly to question-generation quality or form and that students who participated in question-generation training out-performed four comparison groups

Volume 18 Number 1 February 2010 on post-passage literal and inferential comprehension measures (Davey & McBride, 1986). This supported an earlier finding that higher order questions may involve more thorough processing of text (Davey & McBride, 1986).

Nystrand and Gomoran (1989) identified two types of student engagement: procedural engagement (focused on classroom rules and regulations) and substantive engagement (involving sustained engagement with the content and issues of study). Their study found that substantive engagement had a strong, positive effect on achievement and featured authentic open-ended questions, with reciprocal interaction and negotiation between students and teachers. Similar to Nystrand and Gomoran's (1989) concept of 'authentic questions', Scardamalia and Bereiter's (1992) 'knowledge-based' or 'wonderment' questions were more spontaneous, were about things students genuinely wondered about and were found to lead to significant conceptual advance.

Beck (1998) used case studies of students in the fourth-grade to study student-generated questioning in a classroom where a community of inquiry was established through which students sought answers to authentic questions. This study did not align questions to a taxonomy of questioning levels or to the intention of the questioner, but instead focused on each question's potential for learning. Student-generated questions were viewed as 'steps to curriculum' and lower level questions, when viewed through the lens of their potential could become the means for the formulation of more sophisticated questions. The challenge, then, according to Beck, was not only seeing the potential within questions, but seeing that potential realised (Beck, 1998).

Awareness of strategies for question generation provides readers with a metacognitive strategy through heightened awareness of their own comprehension and a cognitive strategy by generating and answering higher level 'think-type' questions (Davey & McBride, 1986), in addition to targeting critical components of the reading process (Dreher & Gambrell, 1985). Asking students to explain their thinking before, during and after reading also provides powerful insights for teachers into students' use of strategies (Afflerbach, Pearson, & Paris, 2008).

These theoretical perspectives and studies around student-generated questioning informed the development of the reading kits reported in this paper. One of the Year 7 students commented after the introduction of the reading kits in 2009:

What's different this year is that our teacher asks us what we think. She wants to know what we think instead of in the past when teachers want us to guess what they think. I am really enjoying reading this year, because my teacher encourages me to ask my own questions, instead of just trying to find the answers to hers. (Student response, 07.08.09)

Connecting Reciprocal Teaching with student-generated questioning research This paper reports one approach to the teaching of reading in the middle years of schooling that links the foundations of Reciprocal Teaching with the student-generated questioning research. Building on the four strategies within Reciprocal Teaching – predicting, clarifying, questioning and summarising – the process was extended to include orientating students to the text, student wonderings and connections, and giving feedback to the group about its interactions. A strategy that combined the Reciprocal Teaching and student-generated questioning research was therefore introduced in the middle and upper primary years (from Years 4 to 7).

Building on the work of US reading specialists (see for example, Harvey & Goudvis, 2000, 2007; Keene & Zimmerman, 1997, 2007; Tovani, 2000, 2004, 2005), and Vygotsky's (1978) notion that learning is embedded in social interaction, the project combined both strategy and content approaches to reading comprehension. This included a balanced

Discuss and ask questions about the:

Orientating

Literacy Learning: *the Middle Years*

Volume 18

Number 1 February 2010

 Title Cover illustration Author Illustrator Publisher Year published Title page Contents page Blurb 	 about the text. Use the Who, What, Where, When, Why and How die. Each person rolls the die and then asks a question of the text using the question starter on the die. Group members try to answer each question as it is asked. Invite members of the group to make a wondering I wonder what would have happened if I wonder what might I wonder if
 Predicting Ask members of the group to predict what they think the text will be about: Ask each group member what they think the text will be about Share your own prediction During the reading After each section, you might ask someone to predict what they think might happen next, or what the next section might be about I think I predict My guess is that 	Connecting Invite members of the group to make connections to other books, texts, movies, events, experiences After the text has been read, ask: Does this remind you of anything else? Does this text remind you of any other texts, books, movies or events in your life? Text: text, text:self and text:world connections This reminds me of I remember when A similar thing happened when
Reading Invite members of the group to volunteer to read each paragraph The person with the 'Predicting' card might ask someone to predict what the next section (or paragraph) is about, before reading commences. Who would like to read the next paragraph/section? Who would like to read the caption? Who would like to read and interpret the graph/diagram?	Summarising Summarise what the text was about. Invite members of the group to add to your summary. After the text has been read, summarise the text and then ask: Who would like to add to my summary of the text? Is there anything else we could add? 7
Clarifying Invite members of the group if anything is not clear and needs to be clarified. After the text has been read, ask some prompts: Is there anything that isn't clear or that is confusing? Are there any tricky words? Does anyone know the meaning of? How could we check whatmeans? Perhaps we should look that word up in the dictionary? What type of text is this? What is the purpose of this text? What is the text trying to do? Why do you think the author wrote this text?	 Giving Feedback Reflect on the group reading process - What worked well? What could be improved? Give feedback to each group member about their participation in the reading group (remember warm and cool feedback) focus on the positives I really like the way Another point that could have been made is Another question could have been As a group, we could improve
Why do you think the author wrote this text? Why do you think the author wrote 4 the text this way?	8

Questioning I

Invite the group to ask questions of each other

Graphic:Turbo Thinking Hat

http://school.discoveryeducation.com/clipart/clip/thinkingcapwhoa.html

All clip art in Discovery Education's Clip Art Gallery created by Mark A. Hicks, illustrator.

Volume 18

Number I

February 2010

Table 2. Questioning options (for Card 5)

 Questioning I Invite the group to ask questions of each other about the text. Use the Who, What, Where, When, Why and How die. Each person rolls the die and then asks a question of the text using the question starter on the die. Group members try to answer each question as it is asked. Invite members of the group to make a wondering I wonder what would have happened if I wonder if 	 Questioning 2 Place the <i>Thin/Thick</i> die in the middle of the reading group. Group members take it in turn to roll the die and ask a <i>thin</i> or <i>thick</i> question of the text using the question starters. (A <i>thin</i> question is a question that requires limited information. A <i>thick</i> question is a question that requires elaboration or details). Group members try to answer each question as it is asked. Invite members of the group to make a wondering <i>I</i> wonder what would have happened if
 Questioning 3 Place the Question Generator in the middle of the reading group. Distribute a coloured die to each group member. Group members take it in turn to roll the die and ask a question of the text using the question starters. Group members try to answer each question as it is asked. Invite members of the group to make a wondering I wonder what would have happened if 	I wonder if 5 Questioning 4 Give out the QAR (Question Answer Relationships) cards. Invite members of your group to ask a range of question types: Right There Think, Search and Find Author and Me On My Own Group members try to answer each question as it is asked. Invite members of the group to make a wondering
I wonder what might I wonder if 5 Questioning 5 Invite the group to ask questions of each other	I wonder what would have happened if I wonder what might I wonder if
about the text. Use the <i>Four Resources Role Card</i> questions. Each person takes a role card and asks a question of the text using the question starter on that card (code breaker, text user, text participant or text analyst). Group members try to answer each question as it is asked. Invite members of the group to make a wondering <i>I wonder what would have happened if</i> <i>I wonder what might</i>	Dive into Reading
I wonder what might I wonder if 5	Dive into Reading

Graphic: Underwater Reader http://school.discoveryeducation.com/clipart/clip/reading_fish.html

All clip art in Discovery Education's Clip Art Gallery created by Mark A. Hicks, illustrator.

approach to scaffolding the students' use of strategies, for example, predicting, clarifying, summarising, connecting, questioning and inferring, and building a representation of ideas through discussion and the joint construction of meaning (McKeown, Beck, & Blake, 2009). The approach promotes critical thinking and the explicit teaching and sharing of active comprehension (or high yield) strategies through reciprocal dialogue and the collaborative generation of meaning.

As part of the professional development that supported the introduction of Reciprocal Teaching in the middle years, the 20 teachers in the middle and upper primary years of the school were each provided with a reading kit that included Reciprocal Teaching prompt cards, a range of dice, and reading comprehension resources downloaded from the internet. A list of these resources is included in the Online Resources section of this paper. The question types included Question Answer Relationship scaffolds, Thick and Thin Questions charts and the Four Resources Model prompt cards. The project was supported by a range of professional development initiatives, including workshops, team teaching, modelled lessons, podcasts and stimulated video recall sessions.

The Reciprocal Teaching prompt cards in the reading kits include eight role cards, with five questioning options within the Reciprocal Teaching sequence (see Table 1 and Table 2). Most teachers at our school work with groups of six students. Therefore, some students may either take on an additional role or the Orientating and Giving Feedback cards may be removed from the process. These additional roles were included to accommodate teachers who preferred working with larger groups, so that these teachers were not excluded from the process of pedagogical renewal due to the logistics of classroom management.

The Reciprocal Teaching prompt cards feature a clip art picture of a boy reading a book underwater and therefore the cards were named *Dive into reading*, with the graphic and label attached to the back of each prompt card (see Table 2).

Interestingly, one of the Year 5 students stated:

If you're in the water and if there's buried treasure at the bottom, you have to dive down into the deep. Our teacher teaches us like this: when you're just at the top, that's when you get the thin questions, but to get thick questions, you have to dive in way deeper. (Student response, 28.08.09)

The five questioning scaffolds in the reading kits

The first questioning option involves the use of the 5W and 1H die (Who, What, Where, When, Why and How). In the questioning phase, the standard 'Can anyone think of a question?' can lead to a 'No' response. Such a response can shut down student contributions. Therefore, in this approach students are encouraged and supported to each generate a question using the question starter on the die and they are then encouraged to answer each other's questions. This leads to deeper thinking about, and engagement with, the text and scaffolds the students' learning of how to question texts. Tovani (2004) states that too often in the past students have learnt that it is the teacher's job to ask the questions and that their job is to guess what the teacher's preferred response might be. However, asking students to generate their own questions increases students' agency within the pedagogical process, in addition to their engagement with the text and depth of comprehension.

The challenge in this project, however, was to provide a range of scaffolds to support the students to learn how to generate their own deeper and more critical questions about the texts they were reading. The approach uses the Gradual Release of Responsibility model (Pearson & Gallagher, 1983) in which the teacher, through modelling, scaffolding and guidance, gradually releases task responsibility to the students. Volume 18 Number 1 February 2010

Volume 18 Number 1 February 2010

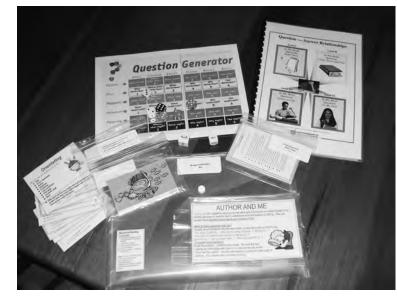


Figure 1: The Dive into reading kits

After several sessions using the 5W and 1H die, teachers were encouraged to introduce the students to other questioning scaffolds that promote critical and higher order thinking, including the use of:

- Thick and thin questions (cf. McLauchlin & Allen, 2002; Young, 2009) through the use of a thick/thin questioning die;
- The question generator (Pohl, 1997) with its use of Bloom's taxonomy (1956) and six corresponding coloured dice that link to the different levels of questioning;
- Question answer relationships (Raphael, 1982; Raphael & Au, 2005; Raphael & Wonnacott, 1985); and
- The four resources model prompts (Department of Education, Science and Training, 2002) based on the four resources model (Freebody & Luke, 1990, 1999).

As this approach is about building capacity in the teaching of reading for teachers, it is important that teachers are encouraged to develop the flexibility to choose the questioning approaches that they feel are most appropriate to their students' learning needs and their own teaching priorities. One of the teachers commented that the use of the dice made reading groups more interactive, which increased the students' engagement and active participation in their learning. Furthermore, the students were able to participate at their own level of thinking and therefore the process was an inclusive strategy that enabled all students to experience success with their learning.

Teachers have been adapting Reciprocal Teaching to mathematics, with the inclusion of a mathematics investigator role that identifies any mathematics in the text and encourages other students to clarify their mathematical understandings and make connections to similar mathematical word problems or situations. Reciprocal Teaching has had many other adaptations over time (Coley et al., 1993; Marks et al., 1993; Myers, 2005; van Garderen, 2004b) as teachers have adapted the approach to their local context, subject area and student learning needs.

Conclusion

This paper has reported one initiative designed to support teachers' professional learning around high yield instructional approaches for the teaching of reading in the middle years of schooling. I have detailed the theoretical foundations upon which the initiative was based.

The approach involved the integration of the Reciprocal Teaching and student-generated questioning research through the development of the *Dive into reading* kits to support teachers' professional learning.

Whilst the dice and the cards have a novelty factor, it is evident that the metalanguage around the reading strategies and the use of reciprocal dialogue, student-generated questioning and collaborative meaning-making are becoming embedded in everyday practice. Therefore, these scaffolds and prompts will probably, in time, be superseded by transformed pedagogical practices within the metalanguage of everyday classroom practices and discourse. As one Year 5 teacher stated, the students will not have dice with them when they are out in the world, so it is important that we develop critical thinking and critical literacy skills that become a natural part of being an active citizen and an active reader of the 'word and the world' (Freire & Macedo, 1987). The scaffolds described in this paper are just one step (or 'splash') into a deep pool of professional learning.

Online resources

Teaching students to use reading strategies http://cst.cast.org/cst/staff/Strategy_Lessons.doc Reading strategies http://www.greece.kl2.ny.us/instruction/ela/6-12/reading/Reading%20Strategies/reading%20 strategies%20index.htm Reading strategies http://reading.ecb.org/teacher/makingconnections/index.html Into the book http://reading.ecb.org/teacher/makingconnections/index.html Curriculum Services Canada, Teacher-developed resources http://www.curriculum.org/tcf/teachers/projects.shtml ReadingLady.com http://www.readinglady.com/index.php?module=pagemaster&PAGE_user_op=view_page& PAGE id=2 Reading quest http://www.readingquest.org/ MyRead http://www.myread.org/ Higher order thinking strategies https://www.det.nsw.edu.au/proflearn/links/ts.htm Department of Education, Tasmania, School Education Division, English learning area http://wwwfp.education.tas.gov.au/english/ Read like a reader, read like a writer http://www.k-12tools.com/pdfs/read_like_a_reader_writer_packet.pdf

Thick and thin questions

Thick and thin questions http://hill.troy.k12.mi.us/staff/bnewingham/myweb3/thick_or_thin.htm EMints thick and thin questions http://www.emints.org/ethemes/resources/S00002293.shtml Thick and thin questions http://reading.ecb.org/downloads/qu_lp_ThickandThinQuestions.pdf Thick and thin questions Powerpoint http://edweb.fdu.edu/anyfile/WolfM/ThickandThinpowepoint.ppt Read write think lesson plan: Thick and thin questions http://www.readwritethink.org/lessons/lesson_view.asp?id=408

Literacy Learning: *the Middle Years*

Volume 18 Number 1 February 2010

Volume 18 Number 1 February 2010

QAR

Greece Central School District, Reading strategies http://www.greece.k12.ny.us/instruction/ela/6-12/Reading/Reading%20strategies/QAR.htm Read write think lesson plan http://www.readwritethink.org/lessons/lesson_view.asp?id=227 FCAT express http://fcit.usf.edu/fcat8r/home/references/additional-reading-strategies/qar.html Question-answer relationships http://www.wilmette39.org/DI39/dipdf/booktalkquestions.pdf Teaching children where to seek answers to questions http://www.readinglady.com/mosaic/tools/QARQuestionAnswerRelationshipTeachingChildren WheretoSeekAnswerstoQuestions.pdf QAR strategy of the month http://forpd.ucf.edu/strategies/stratqar.html

Reciprocal teaching

Victoria http://www.eduweb.vic.gov.au/edulibrary/public/teachlearn/student/reciprocalore.pdf Prompt cards http://www.adrianbruce.com/reading/room4/recip/ English online http://english.unitecnology.ac.nz/resources/resources/reciprocal.html Reciprocal teaching http://pers.dadeschools.net/prodev/reciprocal_teaching.htm

Online teacher PD resources

Curriculum Services Canada, Webcasts for educators http://www.curriculum.org/secretariat/may2.shtml Victoria Department of Education and Early Childhood Development, Literacy professional learning resource – teaching strategies http://www.education.vic.gov.au/studentlearning/teachingresources/english/literacy/strategies/ guidereadvideos.htm Critical Literacy – webcasts about high yield strategies http://www.curriculum.org/secretariat/november29.shtml Reciprocal teaching http://www.coe.usu.edu/ecc/images/pdf/presentations/reciprocal_teaching.pdf

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Volume 18 Number 1

February 2010

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Volume 18 Number 1 February 2010

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