

## **Teacher Talk, Pedagogical Talk and Classroom Activities: Another Look**

Rita Silver & Galyna Kogut

### **Abstract**

This paper provides an overview of the activities teachers use in teacher-student interactions in Singapore English language classrooms at primary level and how activities, planned and chosen, work with teacher talk during the lesson to shape the interactions and activities reciprocally. Teacher talk is examined as part of classroom talk and interactions in relation to classroom activities and within two types of participation patterns (Silver, & Kogut, n.d.): whole-class teacher-fronted and pair or group work (peer work). The analysis shows how type and quantity of teacher talk is linked to activities. This paper builds on Kogut & Silver (2009) by also considering the extent to which teacher talk encourages and promotes thinking and learning.

Prior research has examined classroom discourse in whole-class teaching and learning activities such as IRE/IRF, sharing or questioning fairly extensively (e.g., Cazden, 2001; Christie, 2002; Corden 2000; Fitch & Sanders, 2005). In this study, the focus is on teacher talk during various types of activities occurring not only in whole-class teaching but also in peer work within primary English language lessons in Singapore. In our data, classroom talk tends to be determined by the activities teachers introduce in order to achieve their pedagogical goals. Activities chosen by teachers influence the types of talk which occurs during a lesson; activities also impact who talks and how much. We suggest that planning for the use of some types of activities (e.g., Instructions, Exposition, Teacher Questioning) presupposes a teacher-fronted interaction in which, teacher talk dominates. We also suggest that though teacher talk may be heavily curriculum-related it is also strongly-oriented toward a transmission model of teaching.

## **Introduction**

This paper provides an overview of the activities teachers use in teacher-student interactions in Singapore English language classrooms at primary level and how activities work with teacher talk during the lesson to shape the interactions and activities reciprocally. We also examine the quality of teacher talk in terms of how it might promote student learning. In doing so, we build on Kogut & Silver (2009). Data are drawn from the “Expanding the Teaching Repertoire: Rethinking Group Work and Language Learning” project (CRP 07/06 RES), a professional development project on classroom interaction and effective use of peer work. In this analysis, we examine classroom interactions in 28 lessons of 7 teachers at one school.

## **Literature Review**

This paper analyzes teacher talk as one of the components of classroom interaction. Edwards and Westgate (1987) begin their seminal discussion of classroom talk by noting,

*All normal human beings are expert in the practical interpretation of talk. Most of our everyday life depends on skills in talking and making sense of the talk of others, as we work or trade or simply pass the time of day (p. 6).*

Communication – effective communication – is essential to the purposes of schooling (Barnes, 1976). In addition to these general purpose uses of talk, communication in the classroom influences students’ perception of and participation in classroom activities (Farrell, 2002). Based on these notions, we examine teacher talk as part of classroom talk and in relation to classroom activities.

While doing classroom activities, teachers use talk for a variety of purposes and these purposes shape the talk used. In classroom talk the teacher is a conductor or controller of the interaction:

he/she sets the topic, orchestrates the responses, determines who contributes, when, and provides feedback. In consequence, the teacher tends to talk much more than the students, making classroom talk “asymmetrical” with students offering contributions which are bounded before and after by the teacher (Myhill, Jones, & Hopper, 2006). Typically the pattern of IRE (or IRF) – initiation, response and evaluation (or feedback) – develops (Cazden, 2001). This tends to be a teacher’s “default option” unless the teacher makes a deliberate change and uses some other interactional patterns. Certainly we find this pattern in our classroom data. The fact that teachers tend to talk more during the whole-class teaching is one of the reasons why use of peer work during a lesson has been studied and advocated internationally (e.g., Christie, 2002) and in Singapore (Silver, 2003, 2007, 2008). Whether in teacher-led, whole class discussions or in peer work, developing interactive classroom talk depends on the teacher’s ability to ask or set “quality” questions (Corden, 2000) which encourage and extend pupil contributions to promote high levels of cognitive engagement (Alexander, 2004).

Myhill, et al., 2006, following Vygotskian notions of scaffolding, argue that in addition to transmitting knowledge, teacher talk must also provide cognitive assistance and challenge at an appropriate level for children to progress in their learning. Alexander (2004) emphasizes the importance of teaching as discussion and dialogue where there is an exchange of ideas in class with a view to sharing information and solving problems as well as achieving common understanding through structured and cumulative questioning and guided discussion which can engage children, stimulate and extend their thinking and advance their learning and understanding. In essence, quality teacher talk must lead to the development of knowledge, thinking skills, and effective language use by students.

In our analysis, the focus is on teacher talk during various types of activities occurring in whole-class teaching as well as peer work within primary English language lessons in Singapore. We examine the type of teacher talk and how that links to classroom activities, we also consider how the teacher talk may or may not help promote student thinking and learning.

## Methodology

The data were collected as part of a larger project on use of peer work in Singapore primary level English language classes. Twenty-eight lessons taught over the course of two terms (Terms 3 and 4) were observed and recorded (audio and video). Seven teachers at the same school were involved: three of them at P2, one at P4 and three at P5 (Table 1). All observations were planned for lessons in which the teacher intended to use group or pair work.

Teacher	Teaching Experience (in yrs)	Grade level	Subject
T1	20+	P5	EL
T2	0-2	P5	EL
T3	0-2	P5	EL
T4	10--15	P4	EL
T5	6--10	P2	EL
T6	0-2	P2	EL
T7	3--5	P2	EL

Table 1. Teacher Participants

Data were initially analyzed with a classroom coding scheme that identified participation patterns (e.g. whole-class teacher-fronted, small group work, individual seatwork) and activities (e.g. reading aloud, decision-making). All teacher audio recordings were transcribed by trained transcribers and analyzed by two members of the research team who were trained in coding teacher talk. Two transcript types were prepared: a ‘teacher transcript’ of the teacher talk to the class and a ‘peer transcript’ of student talk to peers during peer work. In both cases, broad transcription with limited marking of pauses and other discourse features was used. Since the

purpose of the larger study was to look at how teachers used peer activities within the lesson, selective transcription was used for the teacher transcripts: only teacher talk at the beginning of the lesson and just before and after peer work was included. If there were multiple peer work activities, teacher talk before and after each peer activity was included. This means that the teacher transcripts included talk during teacher-fronted activities only. Peer transcripts included all student speech within one group during peer activities as well as any teacher talk to that one group during the peer activities.

For the analysis of teacher talk, each teacher utterance (in the teacher transcript or the peer transcript) was coded based on a pre-determined coding scheme drawn from Luke, et al (2005). Inter-coder agreement was consistently coded at 80% agreement or higher on a subset of 20% of the data from the larger study. The categories for teacher talk included:

*Curriculum-related* – any talk about the actual content or skills to be taught.

*Organizational* – talk to organize activities and participation patterns, to frame activities, provide general instructions, to set up, to move bodies; to manage time, space, to tell students what is coming next, to manage transitions, etc.

*Regulatory* – disciplining, behavior management, class and student control by teacher. Generally with a negative connotation (cf. organizational).

*Test-strategy* – explicit reference to testing, exams or test requirements; it might include advice on how to take tests.

*Informal* – digressive whole class talk with teacher, e.g., teacher talks about the weather when it has *no* bearing on the topic taught or calls for time-out and chats with students; it does not include a group of students chatting in the classroom.

*Uncodable talk* – talk that does not fall into any category defined above or if the utterance

or the context of the utterance is not clear.

Teacher talk was coded, collated and queried with the help of MMAX2 annotation software which allows for electronic annotation (Müller, & Strube, 2003; Müller, n.d.) and tools developed by the CRPP SCoRE team (Hong, 2005; Sim, Hong, & Kazi, 2005). Findings for the analysis on teacher talk type, participation patterns, and activities are presented below.

An exploratory analysis on a subset of the data – the transcripts of the first lesson for all seven teachers – was also undertaken. The exploratory analysis examined teacher talk for evidence of promoting learning through teacher talk various ways including encouraging collaborative learning, setting goals, encouraging creative thinking and problem solving. Details on the exploratory analysis are presented in the second part of the paper.

### **Findings on Teacher Talk, Participation Patterns and Activity**

#### Quantity and Frequency

As explained in Kogut and Silver (2009), out of 510 analyzed turns of teacher talk, 423 turns were curriculum (83%) and 87 (17%) were organizational (Table 2). In general, turns with curriculum talk were also longer. The average word length of turns with organizational talk was 26.4 with a mode of 5 (1201 words total). For curriculum talk, on the other hand, the average words per turn were 31 with a mode of 7 (14606 words total). There was little informal, regulatory, test-strategy or uncodable talk.

Overall, there was more teacher talk than student talk in most lessons. Since the transcripts under study included only the beginning of the lesson and the beginning and the end of peer work – all teacher-fronted activities – it is not surprising that teacher talk dominates. It is a

	Curriculum-Related Talk (Turns)	Organizational Talk (Turns)
T Exposition	149	4
T Questioning	85	2
Instructions*	107	21
T correction/ Answer checking	45	8
Classroom Management	25	51
Student Reporting	5	1
Other (e.g. "Teamwork. That's very good"; "Okay, anyone else has anything to add on?")	7	0
TOTAL	423	87

\*(including 39 turns with instructions during group work)

Table 2. Total turns for Curriculum-related and Organizational Talk

truism that when an activity is led by a teacher, he/she is the one doing most of the talk (e.g., Cazden 2001; Myhill, et al., 2006).

### Talk Type and Activity Type

What types of talk aligned with the different activities in the lesson? In brief, teacher talk predominated in whole-class activities such as elicitation and discussion, classroom management, and giving instructions. Student talk dominated in peer work activities such as games, decision making activities and writing (Figure 1).

<b>Teacher talk</b>	<b>Both</b>	<b>Student talk</b>
Assessment	Brainstorming	Decision making
Admin matters	Opinion/debate	Game
Classroom management	Reading aloud/recitation	Hands on/experiment
Elicitation and discussion	Role play/drama	Information gap
Instructions	Sharing/telling	Peer editing/correction
T correction/answer checking		Reporting
Teacher exposition		Writing
Teacher questioning		

Figure 1. Who is talking in classroom activities?

In terms of activity–talk type connections, curriculum-related talk was most likely to occur when the teacher was explaining the material or topic of the lesson in teacher-led activities such as

Teacher Exposition, Teacher Questioning, or Elicitation and Discussion. Curriculum-related talk was also common during Teacher Correction/Answer Checking, a teacher-led activity. However, curriculum-related talk also occurred in peer work when the teacher was clarifying instructions for the activity or providing evaluative comments (e.g., “Good”). Organizational talk was most likely to occur during Classroom Management or Instruction activities.

Further discussion and an overview of the most common types of teacher talk in different activities can be found in Kogut & Silver (2009). Crucially, curriculum-related talk dominated not only in *quantity*, but also in *distribution*. It occurred throughout each lesson, in a variety of activity types, indicating the strong focus on content-learning. While we see this as a positive feature of the instruction, the heavy use of teacher-led activities with curriculum-related teacher talk led to a traditional and didactic pedagogy with limited opportunity for extended student response.

### Curriculum-Related Teacher Talk

In examining the curriculum-related talk and activity type distribution, we noted that 35% of this talk type occurred during Teacher Exposition activities while 25% occurred during Instructions and 20% occurred during Teacher Questioning. We wondered why the percentage of curriculum-related talk was high during Instructions and whether it was possible for such talk to be not only ‘curriculum-related’, but also content rich. We found that curriculum-related talk was frequent during instructions because teachers were usually quite specific and explicit. This was probably useful to primary grade students. In addition, the teachers frequently linked the instructions and the content explicitly, as in Example 1.

### Example 1. Curriculum-related talk in teacher instructions

*All right, the other day we did the pre-writing task so that you know roughly what type of picture composition we are going to discuss. Ok? So today we're gonna look at the actually picture composition. Ok. And we're gonna learn how to write continuous writing. Now, at P5 level and also when you are taking PSLE you are given similar type of composition with three given pictures. Ok. Three given pictures. And then you have to develop, ok, make it into a story, a narrative.*

Clearly teachers use talk, including curriculum-related talk, to achieve pedagogical goals. As Myhill, et al. have noted, “The talk that occurs between teacher and children, especially during whole-class teaching, is not like conversation; the teacher has a clear purpose and intention for conducting the talk, and although the talk itself is rarely planned, neither is it entirely spontaneous” (2006, p. 13). Teachers tend to plan for the activities in lessons, and activities chosen not only determined the types of talk which occurred during a lesson but were also crucial in determining who would do the talk and how much. Above and beyond concerns for who is given opportunities to talk and for how closely teacher talk is connected to the curriculum content, there is the issue of how teacher talk might promote student learning. This led us to further examination of the teacher talk, especially the curriculum-related talk, as discussed below.

#### Teacher Talk and Promoting Student Learning

In our re-examination of the talk in teacher transcripts, we considered different ways that teachers might promote learning in each lesson. We considered six areas: encouraging collaborative learning, encouraging students to use or build on their prior knowledge, setting goals for learning, encouraging/discouraging independent learning, encouraging/discouraging creative thinking, encouraging/discouraging problem-solving. These six areas were taken as

themes (Berg, 2004) and all seven transcripts were analyzed for evidence of these themes in the teacher talk by recursive readings of the transcripts.

Briefly, collaborative learning was a focus of the main study which examined the use of peer work in the classroom. Therefore, we would expect that teachers would encourage collaborative learning. In addition, peer group interactions are considered to be beneficial for cognitive, social and emotional development (e.g. Kagan, 1992; Gibbons, 2002; Roskelly, 2003). The use of students' prior knowledge is an intrinsic part of developing understanding since pre-existing schema influence the way learners interpret and understand new information (e.g. Rumelhart, 1980). In a survey of 500,000 studies on effectiveness in teaching, Hattie (2003) found that setting challenging goals had a positive outcome on student achievement. Challenging goals means setting goals to motivate students, to enhance students' perceptions of themselves as learners, to give challenging learning tasks, in addition to setting academic goals (p. 9). Our data could not speak to all of these aspects of challenging goals, but we did examine the teacher transcripts for evidence that teachers articulated learning goals to students within the lesson.

We also considered 'thinking skills', broadly defined. The teacher's approach to promote pupils' learning should be done in a way that "stimulates interest, creativity, and develop[s] skills in independent learning, problem-solving, and decision-making" (Ministry of Education, 2006, p. 25) of pupils. This can include the way the teacher interacts with the students, the way the students are encouraged to interact with each other and the materials, and the way the activity is structured. Therefore, we considered whether the teachers seemed to encourage or discourage independent learning, creativity and problem-solving within the lessons. These three areas were defined following Silver and Pak (2009). Definitions for each of the areas related to promoting learning are given in Figure 2.

---

**Goal setting:** Teacher talk which refers to learning goals, objectives, outcomes for the lesson. This should go beyond instructions, task-orientation or statement of what students will *do*; should include setting a goal for what students will *learn*.

**Prior Experience:** Teacher talk which encourages students to use or build on their own prior experiences for understanding of the lesson content.

**Encourages independent learning:** Teacher talk that encourages students to learn independently (especially independent of teacher) including to search for information independently, to go beyond the set materials (e.g. textbooks) or resources.

**Encourages/discourages collaboration:** Teacher talk that encourages or discourages students to collaborate with each other in their learning.

**Stimulates/discourages creativity:** For our purposes, 'creative thinking' refers to considering multiple and varied ideas, providing more details about ideas, and creating or using analogies and metaphors (Swartz & Parks, 1994). This category covers teacher talk that stimulates creativity and creative thinking or teacher talk that actively discourages creativity, considering other options, building on ideas of others. Emphasis on 'one right answer, reproduction of a model' would be considered to discourage creativity.

**Promotes problem solving:** Teacher talk which the teacher or the activities in the PP stimulate clarification and understanding (through comparison and contrast, classification, sequencing), critical thinking (e.g. considering reliability of sources, using inferencing and deduction, checking accuracy of observation), decision-making and/or problem-solving (considering options, predicting consequences, choosing best solutions)? (See Swartz & Parks, 1994).

---

Figure 2. Descriptors for Teacher Talk which Promotes Learning

We found evidence of all areas in the teacher talk across the 7 teachers and 7 lessons with collaboration the most frequently addressed and goal setting the least frequently. There was considerable variation across teachers with some teachers using teacher talk to promote learning frequently and variously while others used teacher talk to promote learning more restrictedly (Table 3).

As shown in Table 3, there was very little teacher talk to *discourage* collaboration, independent thinking, or use of creativity. On the other hand, there was very little teacher talk aimed at setting of learning goals or statements of expected learning outcomes. In addition, goal setting statements, when they occurred, tended to be brief and oblique. When there were attempts to elicit students' prior experiences, these were usually simple statements about something students

	T1	T2	T3	T4	T5	T6	T7
Goal setting	1	0	0	0	1	0	0
Elicit prior experiences	2	5	0	1	0	0	1
Encourages collaboration	4	12	9	3	8	4	2
Discourages collaboration	0	0	1	1	1	0	0
Encourages indep learning	2	4	0	0	0	0	1
Discourages indep learning	0	0	0	0	1	0	0
Stimulates creativity	2	1	2	0	1	1	0
Promotes problem solving	1	2	4	0	2	1	0

Table 3. Overview of promoting learning in teacher talk

had done before. In Example 2, we see that the teacher addressed students' prior experience (a pre-writing activity done during another lesson), and learning goals ("learn how to write continuous writing") as well as test-related goals (PSLE preparation) and content goals (develop a narrative). However, the learning goals were not very elaborated: the teacher did not explain what it meant to learn continuous writing or why this might be important to the students other than the PSLE.

#### Example 2. Student prior experience

*Thank you! All right, the other day we did the pre-writing task so that you know roughly what type of picture composition we are going to discuss. Ok? So today we're gonna look at the actually picture composition. Ok. And we're gonna learn how to write continuous writing. Now, at P5 level and also when you are taking PSLE you are given similar type of composition with three given pictures. Ok. Three given pictures. And then you have to develop, ok, make it into a story, a narrative.*

Similarly, although all of the teachers encouraged collaboration, the most common way to do so was simply to tell student to work together as in Example 3.

#### Example 3. Encouraging collaborative learning

*Ok, now! So, just in pairs. It's quite easy. You look at the pictures, from the first pictures to the third picture, all right, and then with your partner. That's why you don't need to long a time.*

However, in two instances, teachers brought together teacher talk which encouraged

collaborative learning and promoted problem solving, as in Example 4. In that example, we see that the teacher encouraged the students to consider options, choose the best solution, and set a purpose for collaboration – rather than simply telling the students to work together. The teacher also encouraged them to think of additional options on their own and to use those (stimulating creativity)

#### Example 4. Encouraging collaborative learning and problem solving

*Teacher Class Ok, now! What we should do now in groups again. Ok, in groups again, now, you look at the picture. One picture at a time. Now, can you see this picture here with helping words?*

*Child Teacher Yes.*

*Teacher Class Do you think they are enough?*

*Child Teacher No.*

*Teacher Class Do you think these are enough to write a story?*

*Child Teacher No.*

*Teacher Class Ok, if there are not enough, what should you do now in groups?*

*Child Teacher (unclear).*

*Teacher Child Pardon?*

*Child Teacher (unclear).*

*Teacher Class Use more helping words! Very good! So, I want all of you, ok, in groups, your task now is to look at one picture at a time, ok? And expand on the helping words that are given to you. Can you all understand that?*

*Child Teacher Yes!*

*Teacher Class Once you have finished picture one, then you go on to picture two and at last go to picture three. Ok? You think you can do that? All right! I am going to give you this (inaudible word) paper. One group, you only have one piece. But you are going to put the helping words of the three pictures. What do you think you can do with this piece of paper?*

We find that even though the sample is small, each teacher has a distinct profile in how he/she addressed these different areas of thinking. The profiles show not only how much or how often each teacher targeted each of these areas (e.g. how many times teacher talk was used to explicitly encourage collaboration) but also the extent to which a given teacher addressed a *variety* of these

areas. This is evident in Table 4 which shows positive moves to promote learning by each teacher: Teacher 265 used teacher talk to promote learning through all six areas, Teacher 267 explicitly used teacher talk in each area except goal setting. In contrast, Teacher 277 not only had fewer explicit references to any of these areas in her teacher talk (only four examples total), but she also used teacher talk in only two different areas.

	265	267	273	277	280	284	290
Goal setting	1	0	0	0	1	0	0
Elicit prior experiences	2	5	0	1	0	0	1
Encourages collaboration	4	12	9	3	8	4	2
Encourages indep learning	2	4	0	0	0	0	1
Stimulates creativity	2	1	2	0	1	1	0
Promotes problem solving	1	2	4	0	2	1	0

Table 4. Positive moves to promote learning

## Conclusion

As we have seen in this analysis, teacher-talk predominates in the classrooms investigated. A finding that is in keeping with other research on classroom interaction. However, we also see that teacher talk predominates in conjunction with the type of activities which teachers plan for their lessons and that teachers' continuing focus on specific pedagogical points and topics leads to a predominance of curriculum talk. We suggest that the activities selected – along with teachers' underlying concern for covering the material in a timely manner – work reciprocally to encourage the dominance of curriculum-related teacher talk. While the predominance of whole class teaching and curriculum-related teacher talk can keep the students on track and help the teacher move the lesson along, consideration of the quality of curriculum-related talk and the extent to which teachers promote thinking in their teacher-led interaction is equally important.

Even in our small exploratory analysis of how teachers might use curriculum-related talk to promote learning, we see distinctive differences among teachers, with some promoting learning in multiple and varied ways while teacher talk of others is more restricted. These qualitative distinctions are likely as important as the quantitative differences in teacher talk.

### **Acknowledgements**

This paper makes use of data from the research projects, “Expanding the Teaching Repertoire: Rethinking Group Work and Language Learning” (CRP 07/06 RES) funded by the Centre for Research in Pedagogy and Practice, National Institute of Education, Singapore (<http://www.crpp.nie.edu.sg>). The views expressed in this paper are the author’s and do not necessarily represent the views of the Centre or the Institute.

We gratefully acknowledge the assistance of Raslinda bte AHMAD RASIDIR, BI Xiaofang, FOONG Poh Yi, and HUYNH Thi Canh Dien on various aspects of the project.

### **References**

- Alexander, R. (2004). *Towards dialogic teaching. Rethinking classroom talk*, 2<sup>nd</sup> ed. UK: Dialogues.
- Allerton, M. (1993). Am I asking the right questions? *International Journal of Early Childhood Education*, 25(1): 42-48.
- Barnes, D. (1976). *From communication to curriculum*. London: Penguin
- Berg, B. (2004). *Qualitative research methods for the social sciences*. Boston, Pearson.
- Cazden, Courtney B. (2001). *Classroom discourse: the language of teaching and learning*. Portsmouth: Heinemann.
- Christie, F. (2002). *Classroom discourse analysis: A functional perspective*. Continuum: New York.

Corden, R. (2000). *Literacy and learning through talk: Strategies for the primary classroom*.

Open University Press: Philadelphia.

Edwards, A. D. & Westgate, D. P. G. (1987). *Investigating classroom talk*. London: The Falmer Press.

Farrell, T.S. C. (2002). *Classroom discourse: an introduction*. Singapore: National Institute of Education, Nanyang Technological University.

Fitch K. L. & Sanders R. E. (2005). *Handbook of language and social interaction*. Psychology Press: New Jersey.

Gibbons, P. (2002). *Scaffolding language: Scaffolding learning. Teaching second language learners in the mainstream classroom*. Portsmouth, NH: Heinemann.

Hattie, J. (2003). Teachers make a difference: What is the research evidence? Paper presented at Australian Council for Educational Research Annual Conference on Building Teacher Quality. October, 2003. Retrieved from [http://www.education.auckland.ac.nz/webdav/site/education/shared/hattie/docs/teachers-make-a-difference-ACER-\(2003\).pdf](http://www.education.auckland.ac.nz/webdav/site/education/shared/hattie/docs/teachers-make-a-difference-ACER-(2003).pdf)

Hong, H. (2005). SCoRE: A multimodal corpus database of education discourse in Singapore schools. Proceedings of the Corpus Linguistics Conference Series Vol. 1, No. 1 (ISSN 1747-9398). Birmingham, UK, July 14-17, 2005.

Kagan, S. 1992. *Cooperative learning*. San Juan Capistrano, CA: Kagan Cooperative Learning.

Kogut, G. & Silver, R. E. (2009). Teacher Talk, Pedagogical Talk and Classroom Activities. Proceedings of the Redesigning Pedagogy Conference, Singapore, June, 2009. Available at <http://conference.nie.edu.sg/2009/search/frame.php?id=PAP066&isexitpaper=1>

- Luke A., Freebody, P., Cazden, C., & Lin, A. (2005). *A Coding Scheme for the Analysis of Classroom Discourse in Singapore Schools*. Singapore: Center for Research in Pedagogy and Practice, National Institute of Education.
- Ministry of Education. (2006). *Health education syllabus for primary level 2007*. Singapore: Curriculum Planning & Development Division, Ministry of Education.
- Müller, C., & Strube, M. (2003). Multi-level annotation in MMAX. Proceedings of the 4th SIGdial Workshop on Discourse and Dialogue, Sapporo, Japan, 4-5 July 2003, 98-107. Retrieved May 26, 2009 from <http://www.aclweb.org/anthology-new/W/W03/W06-2712.pdf>
- Müller, C. (n.d.) Multi-level annotation with MMAX2. Heidelberg, Germany: EML Research, gGmbH. Retrieved May 26, 2009 from <http://www.aclweb.org/anthology/W/W06/W03-2117.pdf>
- Myhill, D., Jones S., & Hopper, R. (2006). *Talking, listening, learning. Effective talk in the primary classroom*. Open University Press: Philadelphia.
- Pica, T., & Doughty, C. (1985). Input and interaction in the communicative language classroom: A comparison of teacher-fronted and group activities. In S. Gass & C. Madden (Eds.), *Input in second language acquisition* (pp. 115–132). Rowley, MA: Newbury House.
- Roskelly, H. (2003). *Breaking (into) the circle: Group work for change in the English classroom*. Portsmouth, NH: Heinemann.
- Rumelhart, D. E. (1980). Schemata: The building blocks of cognition. In R. Spiro, B. Bruce & W. Brewer (Eds.), *Theoretical issues in reading comprehension* (pp. 33-58). Hillsdale, NJ: Erlbaum.

- Silver, R. E. (2008). Monitoring or observing? Managing Classroom Peer work. In T. Farrell (Ed.), *Classroom management*, (pp. 45-55). Waldorf, MD: TESOL Publications.
- Silver, R. (2003). Communication games for language development. In E. L. Low (Ed.), *Teaching Tips for primary teachers* (pp. 79-86). Singapore: Society for Reading and Literacy.
- Silver, R. E. (2007). Intervening in peerwork, P1-P6 (Final Research Rep. for Project No. CRP 20/05 RES). Singapore: National Institute of Education, Centre for Research in Pedagogy and Practice.
- Silver, R. E., & Kogut, G. (n.d.). Peer work and peer talk coding scheme: Language learning in Singapore primary classrooms, v1 (Technical Report). Singapore: Centre for Research in Pedagogy and Practice, National Institute of Education.
- Silver, R. E. & Pak, S. (2009). Curriculum Implementation in Early Primary Schooling in Singapore (CIEPSS): Coding Scheme Manual. Singapore: National Institute of Education, Centre for Research in Pedagogy and Practice.
- Sim, T. J., Hong, H., & Kazi, S. A. (2005). A survey of the transcription, annotation, and query tools for the development of a classroom discourse corpus. Proceedings of the Conference of Redesigning Pedagogy: Research, Policy, Practice. Singapore, May 30 - June 1, 2005.
- Swartz, R. J., & Parks, S. (1994). *Infusing critical and creative thinking into content instruction: A lesson design handbook for the elementary Grades*. Pacific Grove, CA: Critical Thinking Press & Software.