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EDUCATION RESEARCH FUNDING PROGRAMME

FINAL WRITTEN REPORT



Talk, Language and Learning in P1/P2 Lessons

By

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EXECUTIVE SUMMARY (300-600 WORDS)

Purpose / Research Question

The Talk, Language and Learning (TLL) project completed a secondary analyses of Primary 1 and 2 data from an earlier OER-funded project (OER 47/08 MS). Specifically the TLL project analysed classroom data, with a focus on teacher talk, to consider use of formal/informal language in Tamil language classes, interpretations and instruction of 'culture' in Chinese, English, Malay and Tamil lessons, and permutations of language in Maths instruction. In addition, an analysis of use of ICT in lessons for all five core subjects (Chinese, English, Malay, Tamil and Mathematics) was conducted.

Background

Analysis of classroom observations for the earlier OER 47/08 MS project relied on the use of an observational coding scheme (Silver, Pak & Kogut, 2010) with support from video, audio and classroom artefacts to validate the classroom coding. Only limited transcription of classroom lessons was undertaken as the focus was on policy-pedagogy links which were built into the coding scheme. However, when viewing the classroom videos in order to validate the coding, it became clear that teacher talk dominated all lessons, across all subjects and both grade levels, and that the quality of teacher talk within the context of different academic subjects was worthy of closer examination.

Participants

Participants were 81 teachers at P1 and P2 in one cluster of Singaporean primary schools as follows:

Chinese	English	Malay	Tamil	Mathematics
17: 9 at P1; 8 at P2	20: 11 at P1; 9 at P2	16: 8 at P1; 8 at P2	10: 5 at P1; 5 at P2	18: 10 at P1; 8 at P2

Research Methodology / Design

Data previously collected included classroom observations (with an observational coding scheme), brief pre-class interviews with each teacher, extended post-observation interviews with a sub-set of approximately 25% of the teachers, analysis of policy documents (eg. syllabi) and classroom artefacts. For this project, detailed transcripts were made of each lesson including relevant visual information, with an emphasis on the audible teacher talk.

Analyses were largely qualitative with various coding schemes used to examine the discourse. These analyses included the development of coding schemes for Standard Spoken Tamil, ICT, cultural representations in the Mother Tongue and English language lessons, and for the analysis of teacher talk in the teaching of the topic 'time' in P1 maths lessons.

Findings / Results

- Following the Tamil Language Review and implementation of a new Tamil syllabus, teacher talk in these P1 and P2 lessons showed evidence of teachers making appropriate use of Standard Spoken Tamil in their language lessons.
- Representation of culture in language lessons:
 - On balance it seems clear that Tamil language teachers in our sample were more likely to address cultural components of the syllabus and links between Tamil culture and Tamil language than teachers for Chinese or Malay. Chinese teachers did address traditional festivals and customs but not on other possible cultural elements such as Chinese morality and traditional Chinese arts. Malay teachers spent very little class time discussing elements related to Malay culture.

- While English language is intended to be for purposes of inter-ethnic communication and without specific cultural content, it was clear that classroom pedagogy was influenced by cultural traditions and expectations related to respect and authority. These can be linked to the broader societal culture in Singapore.
- Language in mathematics: Teachers used elicitations persistently in mathematics lessons to engage and scaffold learners. While this could help to engage students, it could also provide extensive 'leading' which would prevent students from pursuing their own attempts at problem-solving and developing expertise at varied mathematical heuristics.
- ICT is more frequently exploited in MT lessons than in English and Maths. This may be because MT lessons make use of ICT as resources for presentation of materials and for restatement of textbook content while the English lessons in our sample made use of 'Big Books' for early literacy development and Maths teachers frequently used the white board to present materials.

Conclusion

There is progress toward fulfilling policy goals in integrating Standard Spoken Tamil in TL classes and in ICT use in language lessons. Both need to continue to progress to meet the goals of the TL syllabus and the ICT Masterplan 3. There is also evidence across all subjects that teachers are making attempts to achieve curricular goals, especially as presented in required materials. However, in general *the classroom discourse* across all subjects shows teacher talk dominating with heavy use of teacher elicitations that limit student responses by leaving room for only short answers with one possible answer. This can be seen as an attempt to engage students in lessons; however, it also has the result of limiting the type of language students can use in class as well as student opportunities for development of greater communicative competence (e.g. expressing opinions; providing explanations), thinking skills and problem-solving.

Keywords

teacher talk, classroom discourse, Mother Tongue teaching, English language teaching, Mathematics teaching

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RESEARCH BACKGROUND

The “Talk, Language and Learning in P1/P2” (TLL) project made use of existing data collected by the research team as part of the earlier Curriculum Implementation in Early Primary Schooling in Singapore (CIEPSS) project (OER 47/08 MS). Thus, part of our interest in pursuing detailed analysis of teacher talk was based on preliminary analyses from Primary 1 and Primary 2 (P1/P2) classes as in CIEPSS. Analysis of classroom observations for the earlier project relied on the use of an observational coding scheme (Silver, Pak & Kogut, 2010) with support from video, audio and classroom artefacts to validate the classroom coding. Only limited transcription of classroom lessons was undertaken as the focus was on policy-pedagogy links which were built into the coding scheme. However, when viewing the classroom videos in order to validate the coding, it became clear that teacher talk dominated all lessons, across all subjects and both grade levels, and that the quality of teacher talk within the context of different academic subjects was worthy of closer examination. In addition, the teacher audio recordings – though often not the ‘class recordings’ from recorders placed around the classroom at student desks– were of sufficient quality to allow for transcription of teacher talk. Thus an analysis of teacher talk was considered to be feasible, appropriate to the data, and relevant to educational concerns in Singaporean.

Why does teacher talk matter? Language as it is spoken, heard and used throughout schools makes a difference in high quality education (Alexander, 2008; Barnes, 1992; Cazden, 2001; Mercer, 2000; Mercer and Littleton, 2007). Hattie (2003) notes that expert teachers create optimal learning environments by their use of questioning, allowing for student errors, monitoring students learning, and providing feedback. All this requires particular ways of using language to open up learning opportunities across the curriculum.

When lessons are dominated not only by teacher talk but by teacher talk which is heavily didactic and authoritarian, with little opportunity for student questions, student errors, or feedback to students on their understanding, opportunities for learning are lost. Alexander speaks specifically to the importance of teaching and language by asking, “Do we provide and promote the right kind of talk; and how can we strengthen its power to help children think and learn even more effectively than they do?” (2004, p. 10). Thus, an investigation of how teachers use talk in classrooms has important implications for student learning.

Although both Hattie and Alexander refer to the ways that teachers and students speak together, our data is most comprehensive for teachers and the ways that teachers use language during lessons. As Robert O’Neill, a noted English language teacher trainer and educator, opined, “Some kinds of teacher-talk are bad. Other kinds of teacher-talk are good; and even essential.... The question is not 'How much teacher-talk is there in a lesson?' but 'What kind of teacher-talk is there?'" (1994)

Understanding the type of teacher talk used in classrooms requires a detailed analysis of the classroom discourse. We follow Fasold (1990) in seeing discourse analysis as the study of *language use*. We consider the way(s) language is used in terms of linguistic form (eg., ‘standard/non-standard’; spoken v. written variants), in terms of how language organizes or structures learning (eg., how teachers use language to introduce or explain concepts), and how language is used to represent and encode knowledge. Adger (2003) summarizes some of the ways that discourse analysis has been used in educational setting including analysis of classroom interactions as cultural practice, classroom discourse and language learning, classroom discourse and literacy learning. Her key point is that across educational contexts, discourse analysis can illuminate educational processes, critique what is going on in classrooms, and answer questions about how and where teaching succeeds or fails (p. 512).

Thus, the focus of this project was on teacher talk, language use and pedagogy in the crucial early years of education across all five core subjects: Chinese, English, Malay, Tamil and Mathematics. Specifically, the research team investigated three issues central to

effective pedagogy: how language teachers (Chinese, English, Malay, and Tamil) use language to teach language, especially their use of formal/informal, spoken/written, and standard/non-standard forms; how culture is represented and taught across core subjects including culture and ethnicity in the Mother Tongues where it is a key part of the syllabi (eg., 'Chineseness' as part of Chinese language learning), in contrast to English where it is virtually absent from the syllabus, and disciplinary 'culture' (or representation of Mathematics as a discipline) in the language used in maths teaching.

The specific research questions were

(1) The use of formal/information language

- a) To what extent and for what purposes do teachers use informal language in Tamil language classes? Specifically, to what extent do teachers use Singapore Spoken Tamil, an informal variant appropriate for daily conversation in the classroom context?
- b) When informal language is used in Tamil language lessons, to what extent can it be considered to be 'standard' or 'non-standard'?

(2) The representation of culture in classroom lessons

- a) In what ways do MT teachers address the culture component of the most recent syllabi for each language during MT lessons?
- b) How does this compare with the presentation (or lack) of 'culture' in EL lessons?

(3) Language in mathematics lessons

- a) What type of discourse do teachers use to teach mathematical concepts about "time"? Does such teacher discourse develop process skills for the acquisition of mathematical time concepts?

The specific methodology for the project is described below.

METHODOLOGY

This project made use of a pre-existing data set, mining the data for additional information relevant to the questions and objectives of the specific study. In addition to the coding sheets for each observed lesson and the summaries of the classroom coding, existing data from OER 47/08 MS included the original video recordings, audio recordings of the teacher in each lessons, audio recordings of the ‘class’ for each lesson, very brief interviews with teachers to provide limited lesson background, and in-depth follow up interviews. The data are summarized in Table 1.

Table 1. Summary of data collected for OER 47/08MS

	CL	EL	ML	TL	Maths
Video recordings	17: 9 at P1; 8 at P2	20: 11 at P1; 9 at P2	16: 8 at P1; 8 at P2	10: 5 at P1; 5 at P2	18: 10 at P1; 8 at P2
Audio recordings (Teacher)	17: 9 at P1; 8 at P2 [17 hrs]	20: 11 at P1; 9 at P2 [20 hrs]	16: 8 at P1; 8 at P2 [16 hrs]	10: 5 at P1; 5 at P2 [10 hrs]	18: 10 at P1; 8 at P2 [18 hrs]
Brief teacher interview for lesson background, transcribed (w. translation as needed)	17: 9 at P1; 8 at P2	20: 11 at P1; 9 at P2	16: 8 at P1; 8 at P2	10: 5 at P1; 5 at P2	18: 10 at P1; 8 at P2
In-depth follow up interviews (post observation), transcribed (w. translation as needed)	5:3 at P1; 2 at P2 (29% of all lessons)	8: 4 at P1; 4 at P2 (40% of all lessons)	4: 2 at P1; 2 at P2 (25% of all lessons)	3: 2 at P1; 1 at P2 (30% of all lessons)	4: 2 at P1; 2 at P2 (22% of all lessons)
Lesson transcript	All lessons (plus English translation)	All lessons	All lessons (plus English translation)	All lessons (plus English translation)	All lessons
Copy of classroom artefacts	Varies according to use in each lesson	Varies according to use in each lesson	Varies according to use in each lesson	Varies according to use in each lesson	Varies according to use in each lesson

Altogether, 10 schools participated in the original CIEPSS study with a total of 81 hours of video and audio material from the lessons (one hour per lesson). The differences in the number of observed lessons for each subject were due to whether or not each school offered all three MTs (many schools do not), and to scheduling issues (eg., cancellations by

teachers who were ill on the planned observation day). For that study, video and audio recordings were intended only to supplement the observations for accurate coding of each lesson. Transcription and discourse analysis of the lessons were not part of the proposed methods for the CIEPSS project as they are time and labour intensive and were not required in order to meet the research objectives of the initial project. However, these data – especially the teacher audio recordings – lent themselves to transcription and further analysis. Together the audio recordings (supplemented by the videos and classroom artefacts) formed a coherent set of data: all recorded at neighbourhood primary schools, in the same grade levels, in the same time frame.

For the TLL study described in this report the same data were the basis for analysis. the first step was to prepare comprehensive lesson transcripts, referring to the video, classroom artefacts and brief interview data as needed. Visual details from the videos were added to each transcript to provide relevant information about references, classroom position, etc. In addition, all MT transcripts were translated into English so that the team as a whole would have access to all lesson transcripts; thus for MT there are two versions for each transcript – the original (in the Mother Tongue language) and the English translation.

Subsequently, transcripts, lesson artefacts and policy documents were analysed for different features and in different ways relating to the research questions as summarized in Table 2.

Table 2. Summary of research questions, subject areas and analyses

Research Question	Subject Investigated	Summary of Analysis
(1) The use of formal/information language	Tamil	Analysis of Standard Spoken Tamil (SST) following the coding scheme developed by Lakshmi (2011).
(2) The representation of culture in classroom lessons	All	

a) In what ways do MT teachers address the culture component of the most recent syllabi for each language during MT lessons?	Chinese, Malay, Tamil	Each language was analysed separately depending on specific points in the relevant syllabi. Chinese was analysed from a systemic functional linguistics perspective; Malay & Tamil were analysed using a qualitative analysis with close comparison of syllabus requirements and classroom enactment in lesson materials/resources and as represented in classroom transcripts.
b) How does this compare with the presentation (or lack) of 'culture' in EL lessons?	English & MT	Analysis of 'culture' in EL lessons was done through discourse analysis of classroom talk and teacher interviews (see Curdt-Christiansen & Silver, 2012, forthcoming) and through a thematic analysis of teacher post-observation interviews. Comparison of findings between EL and MTs are summarized below.
(3) Language in mathematics lessons		
a. What type of discourse do teachers use to teach mathematical concepts about "time"? Does such teacher discourse develop process skills for the acquisition of mathematical time concepts?	Maths	Thematic coding of teacher talk was undertaken using a coding scheme based on regulatory talk, curriculum/content-related talk, or uncodable talk, with further sub-coding of curriculum related talk.

Formal/Informal Language in Tamil Language Classrooms

Standard Spoken Tamil is the variety used by the educated Tamil speakers of a community. It is a variety standardized by the community of users. For example, in India it is "the variety that emerges when educated speakers of various local and social dialects meet in collect or university hostels in Tamil Nadu and must, perhaps for the first time in their lives, speak a variety of Tamil that is understandable (and acceptable) to other Tamils from vastly different parts of the Tamil-speaking world" (Schiffman, 2010, p. 4). In Singapore, the variety of SST has been standardized by the community since the early 1980s (Lakshmi, Vaish, Gopinathan & Saravanan, 2006). Agasthalingom (personal communication, 2008) has stated that this SST variety is a non-stigmatised variety which adds value to speakers when compared to the stigmatized variety 'Colloquial Tamil'. In Tamil, which is a diglossic

language, Written Tamil is the variety learned through schooling and is used in the formal situations (eg., political and official meetings, public announcements and speeches, news and media). SST on the other hand is the high spoken variety used in conversations and in informal situations. As such, SST adds closeness, friendship and fun in the Tamil class and is a connecting link between home, school and community.

To analyse classroom discourse for use of SST, trained research assistants prepared detailed transcripts of classroom talk from 5 P1 and 5 P2 classes. The transcriptions were analysed with a set of coding conventions developed by the Tamil Co-Principal Investigator on the project (Lakshmi) and based on SST-related theories and practice (Annamalai, 2009; Schiffman, 1998). A total of 20 features were used for the analysis of SST. These ranged from analysis of orthography (spelling) and pronunciation; syntax; code-mixing; and values (ie., showing respect) through morphological and other linguistic choices. The full coding scheme is shown in Appendix A.

The Representation of Culture in Classroom Lessons

Given the close connection between culture and language, cultural heritage has always been regarded in Singapore's educational system as part of the regular course of Mother Tongue (MT) classes. In fact, one of the major purposes of MT teaching in Singapore is to inherit ethnic cultures and values. The syllabi for MTs thus include the requirement of cultural transmission to the younger generation of Singaporean students.

According to Martin and Rose (2008), "a culture is realized as patterns of social interaction in each context of situation, which in turn are realized as patterns of discourses in each text". Culture in a MT classrooms is manifested by certain patterns of classroom discourse. The primary goal of this analysis is to investigate how culture is represented in teachers' talk in the three MTs: Chinese, Malay and Tamil. Each language is considered separately with methodology determined by the Co-Principal Investigator for the specific language (Yang, Abdullah and Lakshmi, respectively).

Chinese Language Lessons

Chinese language (CL) lessons were examined through a functional analysis of classroom discourse. In particular, the analysis explored the way teacher talk and terms were used in explanations of cultural concepts and encoding of cultural knowledge. The realization of cultural meanings was investigated by examining classroom discourse from two perspectives. Firstly, all the words related to culture in Chinese lesson transcripts were identified. Secondly, classroom activities with special meanings in Chinese culture were determined. Following this, the cultural words and activities identified in the transcripts were analysed within a framework based on the theories of Systemic Functional Linguistics. In particular, the cultural words were analysed through an identification of their ideational, interpersonal and textual functions; the cultural activities were examined in terms of the three dimensions of a situation (ie., Field, Tenor and Mode). The detailed framework for the analysis of cultural words and activities is shown in Appendix B. (See also, Yang, ___?___)

Malay Language Lessons

For the analysis of culture in Malay Language (ML) classes, the syllabus guide for primary school (CPDD, 2008) was scanned and details which narrate how culture appreciation must be inculcated in ML teaching were extracted. Notably, the ML syllabus (CPDD, 2008) encourages the inculcation of culture appreciation at all levels of the educational system to develop each pupil to be Arif Budiman – a learned person who contributes to society. Thus, in addition to developing Malay linguistic competence, each student should learn to appreciate Malay culture and values, including a list of 16 values. In addition, National Education based terms from the Malay syllabus were included. Taken together these comprised the coding scheme (Appendix C).

Subsequently, P1 and P2 ML textbooks and workbooks were examined and all elements which related to values and culture were extracted. Among others, evidence such as pictures which portrays Malay women in traditional costumes, festivals celebrated by the Malay community, activities which related to the Malays, (e.g., games, acts of showing

respect by the younger generation towards the older generation), as well as poems and stories which were closely related to the 16 values of the coding scheme were identified. Finally a trained research assistant watched all of the ML classroom videos and noted any references, discussion or other means of highlighting Malay culture during lessons as well as the amount of time spent on these points. This analysis showed how much time was spent on the different cultural topics and which topics/values were addressed most.

Tamil Language Lessons

In Tamil 'paNpaaTu' means 'culture; 'paNpaaTu' literally means we must cultivate ourselves. It refers to our own inner character, behaving as a civilized person, living with modernity or with modern thoughts. However 'modern' here does not mean based on western ideals of 'modern'. Instead it is based on Indian culture and refers to Indian ways of living and following Asian-based Indian culture, specifically the culture of Tamil Nadu, a south Indian state. Being humble, honest, showing respect to elders, use of 'good words'¹, wearing the ethnic costumes, following the traditional festivals, observing a decent family life, respecting for the 'family' unit, these are all part of Tamil culture. Therefore, the analysis considered terms related to Tamil culture including India's Tamil culture, Singapore Indian culture, and Singapore Tamil culture. It also included Tamil Identity based on Indian Tamil Nadu, and Singapore Indian Tamilian's identity based on Singapore's Indian Tamil community. Finally, National Education based terms from the Tamil syllabus were included. These features were later subdivided into 'cultural' and 'citizenship-based' features. Broadly speaking, the coding scheme for TL is similar to that of ML; however, the specific elements differ.

Specific elements of the analysis included life style, traditional practices, moral literature, respect for one's own country, respect for one's own identity, developing cultural knowledge, beliefs, materials used, costumes, jewellery, food, ways of housing, addressing relatives and friends, values, laws, arts, occupations, social norms, food as medicine, way of talking to other, way of behaving at private and public life, obedient to elders and follow the

morals and moral literature based living. A table showing the complete coding system can be found in Appendix D.

English Language Lessons

According to Singapore's language and education policy, English is intended to be the language of inter-ethnic communication. Therefore, English, unlike the MTs, is officially 'culture-free' in the sense that the syllabus does not promote ideas, values, or activities related to a specific ethnic group. Thus our analysis of English lesson did not look for specific ethnic values or cultural elements. Instead, the analysis of culture for EL was carried out on two levels: 1) data were compared with educational policy documents to identify similarities/disparities in enactment and then considered in light of the broader educational culture in Singapore primary classes, and, 2) teacher post-observation interviews were coded using both structured and unstructured thematic coding. Details on the analysis for the first level can be found in Curdt-Christiansen and Silver (forthcoming). The final coding scheme for the second level was comprised of seven categories: 1) Student Comments, 2) Policy, 3) Pedagogy and Practice, 4) Classroom Discipline and Management, 5) Skills for Academic Context, 6) STELLAR, and 7) Beliefs and Values. The categories Student Comments, Policy, Pedagogy and Practice were further sub-categorised. Appendix E provides details on the coding categories with examples from the data.

Language in Mathematics Lessons

Teacher talk of P1 teachers in 5 different schools was examined. These lessons were selected out of 10 possible P1 Maths lessons because all 5 addressed the topic of 'Time'. The curricular objective for this topic at P1 level is to tell and write time to the hour or half hour (MOE, 2007a). Because each turn of teacher talk could address multiple functions, the discourse was analysed based on a breakdown of the functions of teacher talk within each turn. The functions of talk were determined by taking into consideration the kinds of events surrounding the talk. Three basic codes were used: a) 'Regulatory talk' describing

talk related to classroom management issues such as correcting students' actions; b) 'Curriculum/Content-related talk' referring to talk in relation to mathematical skills or concepts; and, c) 'uncodable talk' which included other types of talk (eg., 'Thank you very much' after a student's response). 'Curriculum/Content-related talk' was further sub-categorized as 'Teacher Explanation/Exposition', 'Teacher Questions/Elicitations', 'Problem-solution Statements', 'Instructional Management Talk' and 'Teacher Feedback/Assessment'. The full coding scheme with examples can be found in Appendix F.

A second analysis for mathematics addressed mathematical problem-solving. The instructional discourse for mathematical problem-solving was examined via a case-study of 1 P2 teacher using a non-routine problem to address problem-solving, as per the MOE Framework for Mathematical Problem Solving in the MOE Mathematics Syllabus (MOE, 2007b) . The analysis was comprised of examination of the lesson transcript, video, and materials in comparison with the goals of the more recent MOE mathematics syllabus to understand how the teacher presented the problem, scaffolded student learning, and addressed problem-solving *processes* over *procedures*.

ICT Use in Language Lessons

The analysis of ICT use in language lessons relies on a coding scheme developed by Yang and includes three broad categories:

- Restatement – the same basic technique is used with or without instructional technology, eg., use of the same kind of teaching but projected on the screen.
- Extension – extends the material in some way, technology provides opportunities to extend the teaching technique or approach, e.g. use of animated PowerPoint slides during teacher exposition.
- Enhancement – the technology allows more/different interactions, or enhances interactions between teachers and students, eg. increased interaction because the teacher involves students in discussions based on the slides or whatever is shown on the screen.

FINDINGS AND DISCUSSION

Formal/Informal Language in Tamil Language Classrooms

Based on the analysis of the lesson transcripts, the findings from the TL lessons show the following:

- The teacher plays a key role in facilitating, scaffolding and encouraging students to speak confidently and use SST in class.
- A substantial amount of SST is used in teacher talk and there is an improving trend of SST in student language.
- Students are able to speak in an engaging way in their conversations with teacher and peers.
- There are positive signs of developing speaking skills and use of SST as an additional resource to help students learn Written Tamil. These efforts are in line with the Tamil Language Curriculum and Pedagogy Review Committee (TLCPRC) report (MOE, 2005).
- Generally there is a pattern of using Tamil syntax. At the same time, English syntax based conversations also occur, showing some influence from English.
- Students who are from English-speaking families and some from Tamil-speaking families used Written Tamil and English words in their classroom conversation. At times, teachers too used English. According to the teachers this is a way of facilitating Spoken Tamil by helping students understand the meaning of a Tamil word.
- The authentic content and real life based lessons are very much liked by the students. This relates as well to the cultural content of the lessons.

The Representation of Culture in Classroom Lessons

Chinese Language Lessons

According to the 2007 Chinese syllabus, the culture components to be addressed in Chinese lessons are as follows:

- (1) to nurture Chinese morality and maintain the standard of morality in our life;
- (2) to know traditional Chinese festivals and customs;
- (3) to learn traditional Chinese arts;
- (4) to get familiar with historical figures and stories.

The observation of 17 Chinese lessons showed that the P1 and P2 teachers focussed their explanation of Chinese culture on the second and the fourth points, although the textbook included culture content from all these four perspectives. This preference may arise from the fact that Chinese arts and morality are really too complicated for P1 and P2 students to understand. Chinese festivals and customs are ordinarily introduced in detail with images and videos. Given Singapore's Chinese-dominated society, these introductions were normally well received by students. Festivals such as Chinese New Year and the customs related to these festivals were good points for discussion in the lessons observed. On the other hand, historical figures and stories were perhaps not as interesting for teachers and students although they are also an important aspect of Chinese lessons.

The explanation of culture components was rarely isolated as an individual part of teaching in the Chinese lessons observed. The teacher began to introduce basic knowledge when a cultural point came up in the process of listening and reading. More explanation might have followed depending on the reaction of students. In a majority of cases, Chinese teachers were reluctant to spend too much time on the discussion of Chinese culture. A possible reason was pressure to complete many teaching tasks in a set period of time.

Malay Language Lessons

Despite examining all lessons for multiple possible elements of Malay culture, it was found that less than 4 minutes were used to discuss issues related to culture. This indicates that overall, opportunities for inculcating Malay culture along with Malay language were missed in these P1 and P2 lessons. In particular, teachers did not pick up on possible visual

cues (eg pictures showing individuals in native costumes) nor on those related to vocabulary or other linguistic aspects.

Tamil Language Lessons

Tamil culture was addressed in a variety of ways throughout the lessons. Teachers included explicit explanations of culture and traditions as well as linking them to language. In some case this was done with explicit reference to Tamil cultural elements; in many cases it was done with reference to values or respect but not specifically to Tamil culture. For example, one teacher said,

All of you should behave in a proper manner during class. Okay. You must pay proper attention and listen carefully to my instructions and abide by it by being obedient children. Only if you follow my instructions and be good, I will conduct the rest of the activity. Understand?

In another lesson, when a teacher was explaining the word 'ring' to her students, she also explained in great detail all about when it is worn, by whom is it usually worn, the significance it has and so on. For example, the teacher said: "Will you wear it in a wedding?" "Relatives who attend the wedding wear big rings but in a wedding who is the most important person who wears the ring? "Okay. Bride Groom. In Tamil? The bridegroom puts the finger for the bride. That's very important. And if you see, all races follow the tradition of wearing ring during the wedding ceremony. Only then, it will signify that they are married. ROM. Register marriage." (Teacher comments translated from Tamil.)

Through the introduction of this vocabulary item, she also imparted traditions and cultural values that she was aware of as well as linking the importance of these traditions to different ethnicities. Furthermore, teacher clarified the differences between toe rings that are worn by married Indian ladies and rings that are worn on the fingers:

Toe rings... Aa..Toe rings are not known as rings. But it does look like a ring. Let it be Christians, Hindus or Muslims, they normally wear their proposal rings in their right hand finger. Like now you see, do you see a ring in my finger?

Generally the Tamil class teachers highlighted most of the given cultural terms in their Tamil syllabus and added further features like phrases, idioms and proverbs.

English Language Lessons

Although teaching culture is not emphasized in English curriculum guidelines, implicit cultural values are found in classroom practices involving instructional activities, patterns of student participation, classroom interactions and learning atmosphere (Curd-Christiansen & Silver, 2012). The results showed that within English lessons that cultural practices and values are heavily influenced by Confucianism which encourages loyalty, diligence and filial piety, promotes meritocracy and gives priority to collective interests, and emphasises education, respect for authority, and social obligations (Hill, 2000; Chang, 2003).

We found that 19 different teachers, at 9 different schools and 2 grade levels had a relatively high degree of uniformity in their teaching, not only in the ways in which they followed the curriculum suggestions for physical setting, materials and activities such as choral reading, but also in the ways in which they opted not to incorporate more open-ended teacher-student interaction, make use of peer work or learning centres, or include more learning games and dramatic activities. Whole class teacher fronted participation patterns predominated, peer work was used quite infrequently and learner centres (which would be part of 'free movement') were not observed. Our data suggest that *societal* values which conflict with policy initiatives can also explain the ways in which teachers do/do not implement policy reforms.

While the above findings imply a teacher-centred, rather than student-centred teaching style, teacher comments during post observation interviews emphasised student behaviour and student learning (42% of all comments in post observation interviews concerned students), showing a high degree of concern for students in the midst of teacher-dominated classroom discourse. In the post observation interviews, teachers also commented on their own pedagogy (22% of all comments), with only 14% of all comments relating to classroom management (Table 3). This was in contrast to an analysis of the

classroom discourse which showed extensive use of teacher talk and classroom discourse to closely manage student interactions and behaviour throughout all lessons (Curd-Christiansen & Silver, forthcoming). In addition, in post observation interviews, teacher comments about the newly adopted English curriculum (STELLAR) were rare although all teachers were seen to be closely following STELLAR lesson plans in these lessons (ibid).

Table 3: Main issues brought up by teachers during follow-up interviews

Main issues	No.	%
Student comments	303	42%
STELLAR	18	3%
Skills for academic context	12	2%
Policy	49	7%
Pedagogy and Practice	161	22%
Classroom discipline and management	97	14%
Beliefs and Values	77	11%
Total	717	100%

Language in Mathematics Lessons

Time (P1)

The analysis of the teaching of Time in 4 P1 Mathematics lessons showed that teacher talk was predominantly focussed on the content of the lesson: 89% of all teacher talk was content-based. In addition, the teachers were able to link the content to essential aspects of language necessary for maths. For example, “There’s another way of saying it. Whenever the minute hand is at 6, whenever the minute hand is at 6, you call it half past. So since just now you know that it is, this is 12.” Within the content-based talk, the prominent functions of teacher discourse were elicitations and feedback (Table 4).

Table 4. Functions of teacher talk in P1 Maths lessons on Time

	Elicitation	Feedback	Instructional Management	Explanation	Problem solution	Sub total
Turns	537	425	258	176	17	1413
%	38%	30%	18%	12%	1%	100%

The heavy use of elicitations showed that teachers were conscious of attempting to engage students in lessons; the frequent use of feedback suggests concern for accuracy and confirming student understanding. Although teacher elicitations were most frequent, they were usually brief (eg, “What time is this? “What is another way of saying this?” “What is your answer?”). Teacher explanations, on the other hand, comprised only 12% of the teacher turns, but were usually more extended with teacher defining concepts or providing examples:

Half past 6. I have some children, they will tell me this is half past 7. Okay because they look at the hour hand, it is very close to 7, so they say it is half past 7. (Teacher points to the hour hand.) But always remember, the hour hand must pass that number, then you call it half past. Must pass that number. This hand, has it pass (sic) 6?

Most frequently, teacher explanations were combined with elicitations to engage and involve the students, as in the example above when the teacher ends with the elicitation, “This hand, has it pass 6?” In these lessons, teachers also engaged in frequent use of visual representations to explain, elicit and engage by pointing at and manipulating objects, but very infrequently by drawing or writing.

Mathematical problem solving (P2)

In an in-depth analysis of one P2 mathematics lesson, it was found that though the teachers tried to bring in a novel problem which would encourage students to work with problem-solving processes in maths, the teacher discourse re-shaped the lesson through persistent questioning so that student thinking was narrowed and opportunities to choose or use problem-solving heuristics of their own choice were limited. Specifically, the teacher started with a problem using chickens (two legged animals) and goats (four-legged animals). Students were supposed to come up with their own assumptions and heuristics to solve the problem. However, when the teacher introduced the problem, the following leading questions were used,

- How many legs does a goat have (sic)?
- How many legs does a chicken have (sic)?
- Can we use the table to solve this problem?

The pupils were led to solve the problems using the heuristics suggested by the teacher rather than being encouraged to think of their own problem-solving strategies.

ICT Use in Language Lessons

As previously reported, MT lessons in general made more extensive use of ICT than EL or maths lessons, and this was especially true of CL lessons (Yang, Abdullah & Lakshmi, 2010). However, for the most part, ICT was found because tools such as computer and projector were used by the teacher. In this sense, ICT uses tended to perpetuate traditional, teacher-fronted instruction rather than developing student competencies for self-directed learning. The latter is a goal of the current incarnation of the ICT Masterplan (MOE, 2010-2011). In CL and TL lessons, ICT was most often used as a means of restating material in the textbook, sometimes simply reproducing textbook pages on screen. In Malay, on the other hand, ICT was more frequently used to enhance lessons and materials. For example, teacher employed the internet on many occasions and used the projector to discuss student-produced materials of different types. However, the types of activities in which ICT was integrated were still quite traditional – drill & practice, teacher answer-checking, and teacher questioning.

In English lessons, on the other hand, ICT was rarely used. However, this is most likely due to the teachers extensive use of 'Big Books' (oversized books which are easily visible to the children during group reading, a helpful strategy for early literacy) as part of the STELLAR curriculum for early literacy development. Use of Big Books allows young readers to see and touch the books the class is reading together; it also allows teachers and students to make use of text and images together.

CONCLUSION

To sum up, there is progress toward fulfilling policy goals in integrating Standard Spoken Tamil in TL classes and in ICT use in language lessons. Both need to continue to progress to meet the goals of the TL syllabus and the ICT Masterplan 3. There is also evidence across all subjects that teachers are making attempts to achieve curricular goals, especially as presented in required materials. However, in general *the classroom discourse* across all subjects shows teacher talk dominating with heavy use of teacher elicitations that limit student responses by leaving room for only short answers with one possible answer. This can be seen as an attempt to engage students in lessons; however, it also has the result of limiting the type of language students can use in class as well as student opportunities for development of greater communicative competence (e.g. expressing opinions; providing explanations), thinking skills and problem-solving. We see many efforts by teachers to engage learners through the use of materials and activities; however, we suggest that further efforts need to be made toward creating opportunities for students to express and explore ideas. This was evident in some lessons, some of the time. For example in one P1 Maths lesson, when introducing the concept of short/long hands for telling time with a clock, the teacher said:

Both of them are very good friends. They must go together. If they do not go together, what happens?

This evolved into a short discussion:

- | | |
|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Student | The time go wrong. |
| Teacher | Yes, the time will go haywire, it will go wrong. We do not, you cannot tell the time, what time is it. What time for us to eat, what time for us to bathe, what time for us to watch our favourite cartoon shows. Correct? |
| Student | Do our homework. |
| Teacher | Yes, time to do your homework. Ah what time to go to school. That's why time is so important. Without time, what happen to us? |
| Student | [You don't know where (unclear).] |
| Student | [Don't know when to sleep.] |

Teacher Ah we don't know what time to sleep, what time to wake up.

Student (unclear) the alarm clock, we don't know what time we must wake up.

Teacher Yes. Okay put up the hand. Put up the hand. (Teacher raises her hand.) Yes. JP, what would you want to say? (A few students raise their hands.)

CJP After that wrong ah, then you sleep in the afternoon. Then (unclear).

Teacher Yah, so get all your time mixed up. You will sleep in the morning, you will wake up at night. (A few students raise their hands.) Yes, JX.

CJX Later like hour, hour glass.

Teacher Yah, long time ago, very long time ago, they don't have clocks. They use other forms of clocks. Different people use different types of clocks to tell them the time. (A boy sitting on his chair in the front row raises his hand. Teacher nods at him.) Yes?

Student (unclear) use this thing (unclear).

Teacher Mm-hmm.

Student (unclear)

Teacher Yes.

Student (unclear)

Teacher Yah, very good point. Last time, very long long time ago, they actually use this what they call sundial. It's actually made from a board and they have a needle in the middle. (Teacher puts out her palm and points to its middle.) So they depend on the shadow. ...

The teacher continued to explain the function and parts of the sundial and then moved back to the main discussion of the clock hands and telling time. Importantly, in the example above, the teacher asked for student comments and made use of student knowledge which was related to the broader topic of time, though not specifically to telling time with a clock. This allowed the children to show their prior knowledge, explain their thoughts, and explore the idea of measuring time in different ways. Ideally, we would see a shifting balance in the classroom discourse to allow for more of this type of exploration of student ideas.

In addition, specific to MT, we were surprised to see little integration of culture and missed opportunities for linking culture and language. Teachers could make more effort to

exploit the cultural content of their materials and to link these to the language being taught and used in lessons. Our data show that when this was done, students were more engaged in the discussion and the lesson overall.

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NOTES

1. 'Good words' means words which do not harm others psychologically and are not sarcastic, words which provide respect to the speaker and the listener, use auspicious words instead of colloquial ones without cursing or using poor manners, words which are encouraging and offer praise.

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APPENDIX A. CODING TABLE FOR ANALYZING VARIETIES OF TAMIL LANGUAGE IN EARLY PRIMARY CLASSES

எண். No	மொழி வகை. Language variety	விளக்கம். Description	எடுத்துக்காட்டு. Example
1.	SST	எழுத்துத்தமிழின் எழுத்துக்கூட்டலிருந்து வேறுபட்டது. Generally the spelling of SST differs from the spelling of WT.	வார்த்தைகள். vaarttaikaL.Words(WT) வார்த்தைங்க. vaarttenga. Words(SST)
2.	SST	கேட்பவருக்கு மரியாதையைத்தருவது; பேசுவருக்கும் மதிப்பைத் தருவது.SST gives respect to the speaker and the listener.	வாங்க உக்காருங்க. எப்போ வந்தீங்க. vaanga ukkaarunga eppoo vandinika?. Yes, come and sit. When did you come? நல்லாருக்கேன். இப்போதான் வந்தேன். நீங்க எப்படிருக்கீங்க. nallaaruukkeen. Ippoodaan vandeen. niinga epTirukkinkka? I am fine. I just came. How about you?
3.	SST	எழுத்துத்தமிழுடன் இணைத்துப்பேசாமல் பேசுத்தமிழில் பேசுவது. Without mixing the SST variety with WT variety	கூப்பூடுறாங்க. kuuppuDuRaanga. (They are) calling you. மாணவங்களே! maanavangalee! Hi students!
4.	SST	உச்சரிக்கவேண்டிய முறைப்படி உச்சரித்தல். Use of proper pronunciation and well articulated.	அம்மா சொன்னாங்க. ammaa sonnaanga. Mother told(correct pronunciation) அமா சொனாங்க. amaa conanga. Mother told(Wrong pronunciation)
5.	SST	படித்தவர்கள் பேசுவதுபோலப் பேசுதல்; பெரும்பாலோர் பேசும் முறைசாராத் தமிழைப் பேசுதல் Use of the language variety which has been spoken by the educated speakers of the community	
6.	SST	தமிழில் உள்ள எழுவாய், பயனிலை முறைப்படிப் பேசுதல் Use of the proper Noun - Verb sequences according to the Tamil Language syntax form.	நான் கடைக்கிப் போறேன். naan. n kaDekkippooreen. I am going to the shop. கடையில் புஸ்தகம் வாங்குனேன். pustaham vaanguneen. I bought the book at the shop. பெறகு வீட்டுக்கு வந்தேன். peRahu viTTukku vandeen. Then came home.
7.	SST	உரிய வினைச்சொற்கள் வந்தால் தரமான பேச்சுத்தமிழ் அப்படி வராமை தரமில்லாப் பேச்சுத்தமிழ் ஆகும். இதை	நான் சமையல் செஞ்சேன். naan samaiyal senjeen. I did the cooking. நான் சட்டிய உரிச்சேன். naan saTTaya uricceen. I peel off the shirt)

		ஆங்கிலத் தாக்கத்தினால் வந்த பேச்சுத்தமிழ் வடிவம் எனலாம் Use of direct translation based verbs Instead of Tamil language based verbs in Tamil syntax formation.	நெத்தியில் பொட்டப் போட்டேன். nettiyile poTTappooTTeen. I put the pottu on the forehead. நெத்தியிலிருந்து பொட்டு அவந்துடுச்சு. nettiyilerundu poTTu avunduUccu. Pottu takes off from the forehead. துணிய கழுவு. tuNiye kaRuvu. Wash the cloth.
8.	SST	Use of standard form instead of community(caste) or regional dialect forms	பாட்டி என்பதை அப்பத்தா என்றால் அது தரமான பேச்சுத்தமிழ் இல்லை அப்பா என்பதை அச்சா என்றால் அது தரமான பேச்சுத்தமிழ் வடிவமில்லை. aappattaa is used instead of paatti (grandmother) accaa is used instead of appaa(father) paatti and appaa are the standard forms.
9.	Neutral for WT&SST	எழுத்துத்தமிழிலும் பேச்சுத்தமிழிலும் ஒரே மாதிரி எழுத்துக்கூட்டல் இருக்கும்போது விதிவிலக்காகும். In Tamil still some words are neutral to SST and WT.	அந்த. anda. That வந்து. vandu. Came
10.	Use of English (purposefully)	தமிழில் சொல் இருந்தும் ஆசிரியர் அதைப் பேசாமல் ஆங்கிலத்தில் பேசும்போது அவர் பேச்சுத்தமிழைப் பயன்படுத்தாதவராகிறார். Use of proper SST variety instead of using English.	திரை.thire.. Screen திரும்பு. tirumbu.Turn.
11.	Use WT instead of SST	பேச்சுத்தமிழில் சொல் இருந்தும் எழுத்துத்தமிழில் மின்பற்றுகிறார் என்றால் அவர் பேச்சுத்தமிழைப் பயன்படுத்தத் தெரியாதவராகிறார். Use of Written Tamil although there is a Standard Spoken Tamil morphology.	சொற்கள்.coRkaL. Words(WT) instead of வார்த்தைங்க. vaarttainka. Words
12.	Use CT	பேச்சுத்தமிழில் இறுதி எழுத்தை விழுங்குதல் அல்லது விட்டு விடுதல்-இங்கு அவர் தரம் தாழ்ந்த தமிழைப் பயன்படுத்துகிறார். Pronounce the word	பாத்துட்டோ. paattuTToo. Seen already மாமியார் என்பதை மாமியா என்று கூறுதல் மாமியார். maamiyaar(mother in law)

		fully. If did not pronounce the last syllable of the word, then it is a non-standard way of using the language.	becomes மாமியா . <i>maamiyaa</i> (mother in law) நாத்தனார் . <i>naattanaar</i> . Sister in law becomes நாத்தனா அல்லது நாத்தனா . <i>naattanaa or naatnaa</i> (Sister in law) நாத்தனார் என்பதை அல்லது நாத்தனா என்று கூறுதல்
13.	Use CT	பேச்சுத்தமிழில் உள்ள சொல்லை மேலும் இழுத்துப் பேசுதல் . Stretching the word longer than the expected length.	கட்சியா <i>kaDesiyaa</i> . At last becomes கட்சியா <i>kaDeesiyaa</i> . at last என்பதை என்றல்
14.	Use CT	பேச்சுத்தமிழில் உள்ள சொல்லை மென்றுவிழுங்கி மிகவும் சுருக்குதல் . Does not pronounce the words clearly. Swallow vowels/consonants here and there from a word or speak very fast.	இருக்குது . <i>Irukutuu</i> . It is (here/there) becomes கீது . <i>kiidu</i> . It is (here/there) சும்மாயிருடா . <i>cummayiruDa</i> . Keep quiet becomes ஸும்மா ரரா . <i>cmaarTaa</i> . Keep quiet வெளயாடுறாங்க . <i>vaLayaaDuRaanga</i> . (They are) playing becomes vLaaDRaanga - வளாட்டுறாங்க . (They are) playing.
15.	Use CT	தரமான பேச்சுத்தமிழில் சொல் இருந்தாலும் அதைப் பயன்படுத்தாது தரம் தாழ்ந்த தமிழில் பேசுதல் . Non use of non-standard variety.	சாப்பிடு . <i>caapiDu</i> . Eat becomes கொட்டிக்க . <i>koTTikka</i> . Eat use of the term நாறுகிறது . <i>naaRukiRatu</i> . It is smelly. Instead of ஒரு மாதிரியான வாடவருதே <i>"oru maatiriyana vaaTa varutee"</i> . A kind of smell is coming becomes" என்பதை என்று கூறுதல்
16.	Use WT instead of SST	எழுத்துத்தமிழ்ச்சொல்லுடன் பேச்சுத்தமிழ் இறுதியைப் பயன்படுத்துதல் (use the spoken Tamil suffix with the written Tamil)	தேர்வுல் <i>.Theervulu</i> . In the exam. (பரிட்சையல்). <i>(paritcayil)</i> . In the exam
17.	Use SST in nouns with respect	உரிய மரியாதை விகுதிகளைப் பயன்படுத்துதல் (ங்க, ப்பா,ம்மா) (Use of proper suffix to show respect to the speaker and other humans)	வாப்பா தம்பி . <i>vaappaa tambi</i> . Come brother வாம்மா ராதா . <i>vaammaa Radha</i> Come Radha. நீங்க எனன சொல்றீங்கன்னு தெரியல் . <i>niinga enna colRingannu teriyale</i> . I do not know what you are saying.
18.	Not using SST	உரிய மரியாதை விகுதிகளைப் பயன்படுத்தாமை . Do not use of suffix	என்னாடி அப்பி பாக்றே . <i>EnnaDee apTi pakRee</i> . Girl, why you are looking like that?

		which shows respect to others.	டே ஏன்டா அப்பிடி நிக்கறே . <i>Tee yeenDaa apiDi nikkaDee</i> . Boy, why you are looking like that?
19.	Not using SST	இடம், பொருள், ஏவலுக்கு ஏற்பப் பேசத்தெரியாமை இடக்கரடக்கல் . Do not know how to use SST while conversing with others. So, do use the colloquial, slang or unwanted words.	என்னா மேடம் கம்மா கத்துற . <i>Ennaa meedam cumma kattuRa</i> . Madam, why you are shouting without any reason.
20.	Not using SST	அமங்கலவழக்கைப் பயன்படுத்துதல் . Speaking in an unrespectable way; use of inauspicious words/terms.	நாண்டுகிட்டார் . <i>naanDukITTa</i> ar. He died புட்டுகிட்டார் . <i>puTTuKITTa</i> ar. He died/ He lost his job. ஒழிஞ்சிட்டார் . <i>oRinjiTTa</i> ar. He has gone. He died.

APPENDIX B. FRAMEWORK FOR THE ANALYSIS OF CULTURAL WORDS AND FUNCTIONS IN CHINESE LANGUAGE LESSONS

Situation dimensions of cultural activities observed	Functions of cultural words identified
<p>Field:</p> <p>What is happening in classroom?</p> <p>What kinds of activities the teacher and students are engaged in?</p>	<p>Ideational function:</p> <p>Actor/Senser /Sayer/Carrier Goal/Phenomenal/Verbiage/Attribute or Process</p>
<p>Tenor:</p> <p>Who is taking part in the cultural activities observed?</p> <p>What is the relationship between teacher and students involved in these activities?</p>	<p>Interpersonal function:</p> <p>Subject/Finite/Predicator/Complement/ Adjunct</p>
<p>Mode:</p> <p>What is the form of language used in these activities, formal or informal, written or spoken?</p> <p>What is the rhetorical contribution of these activities, informative, reporting or communicating?</p>	<p>Textual function:</p> <p>Theme/Rheme Given/New</p>

APPENDIX C: SPECIFIC VALUES TO INCULCATE AS PART OF MALAY LANGUAGE INSTRUCTION (based on MOE Malay Language Syllabus, 2007)

- Sincere honest (Amanah/ jujur)
- Kind hearted (Baik hati)
- Independent (Berdikari)
- Polite (Budi bahasa/ hemah tinggi)
- Willingness to accept / appreciate smth (ideas, views, gifts) (Kesediaan untuk menerima/Menghargai sesuatu) (**Contoh** idea, pandangan pemberian)
- Living in society harmoniously (Hidup bermasyarakat)
- Mutual respect (Hormat-menghormati)
- Thrift (Jimat cermat)
- Love (Kasih sayang)
- Fairness /Justice (Keadilan)
- Hard working/ perseverance (Kerja keras/ kegigihan)
- Patience (Kesabaran)
- Willingness to explore /experiment (Kesediaan untuk meneroka/mencuba)
- Loyal (Kesetiaan)
- Mutual help / working together (Tolong menolong/ bekerjasama)
- Sense of responsibility (Sikap Tanggungjawab).

APPENDIX D: SPECIFIC VALUES TO INCULCATE AS PART OF TAMIL LANGUAGE INSTRUCTION (BASED ON MOE TAMIL LANGUAGE SYLLABUS, 2007)

Topics and terms from the Tamil Language Syllabus (Primary), 2008		
	Category/Sub-category	Approx Translation*
1	Values	
	மரபுவழி பண்புகள்	Traditional characters
	பண்பு	Character
	பண்பாட்டு விழுமங்கள்	Cultural values
	நன்னெறிப் பண்புகள்	Moral values
	பண்பாட்டு நெரிகள்	Cultural values
2	மனிதப் பண்புகள்	Humanistic characters
	தோழமை	Friendship
	பெருமிதம்	Proud
3	நிகழ்வகள்	Happenings
	விழாக்கள்	Festivals
	பண்டிகைகள்	Festivals
	கொண்டாட்டங்கள்	Celebrations
	கலைகள்	Arts
4	பாரம்பரிய, நாட்டு அடையாளத்துடன் தொடர்புடையவை	Related to the traditional and country based identity
	அடையாளம்	Identity
	மரபுவழி	Traditional way
	மரபும் பண்பாடும்	Tradition and culture
	தமிழ் இனத்தவர்தம் பண்பாடுகள்	Tamil ethnic's cultures
	பண்பாடுக்கூறு	Cultural feature
	பாரம்பரியக்கூறு	Traditional feature
5	இலக்கியங்கள்	Literary works
	நீதிக்கதைகள்	Moral stories(based on good justice)
	நன்னெறிக்கதைகள்Moral	Stories(based on good values)
	பாரம்பரியக்கதைகள்	Traditional stories
6	அமைப்புகள்/மனிதர்கள்	People/associations
	குடும்பம்	Family
	அரசர்கள்	Kings
	புலவர்கள்	Ancient poets
	கவிஞர்கள்	Poets

7	பாரம்பரியத்துக்கும் நாட்டுக்கும் பொது	Common for Ethnic Traditions and Country
7a	தமிழ் இனம்	Tamil Ethnic Group
	நற்பண்புகளை வளர்த்தல்	Developing or inculcating good characters
	சமூக மனவுணர்வுப்பண்புகள்	Social psychological feelings related characters
	மண்வாசம்	Smell of the sand
	குடியுரிமை	Citizenship
	வாழ்க்கை	Life
	கல்வித்தேர்ச்சி	Educational achievement
	மொழி பயன்பாடு	Language use
	சுயமனநலன்	Psychological welfare
	ஆசிரியர்-மாணவர் உரவு	Teacher-student relationship
7b	நாடு	Country
	நற்பண்புகளை வளர்த்தல்	Developing or inculcating good characters
	சமூக மனவுணர்வு பண்புகள்	Social psychological feelings related characters
	மண்வாசம்	Smell of the sand
	குடியுரிமை	Citizenship
	வாழ்க்கை	Life
	மொழி பயன்பாடு	Language use
	சுயமனநலன்	Psychological welfare
	ஆசிரியர்-மாணவர் உரவு	Teacher-student relationship
8	நாடு நார்ந்த	Country related
	சிங்கப்பூரை நேசித்தல்	Love Singapore
	நாட்டுருவாக்கப்பண்புநலன்கள்	Creation of a good country and related characters
	நாட்டின் பொதுநலம்	Country's general welfare
	அரசாங்கம்	Government
9	Related to the above mentioned subjects	
	தென்னிந்தியப் பண்பாடு	South Indian Culture
	இந்தியப் பண்பாடு	Indian Culture
	பண்பாடுக்கூறுகள்	Other Dravidian languages related cultural features
	தமிழக/தென்னிந்திய/இந்தியச் சமூகங்கள் தொடர்புடைய சமையக்கூறுகள்	Religious features in relation to Tamil/South Indian/Indian communities

*Approximate English translations are provided to help non-Tamil readers. However, in many cases, the translations do not capture the full meaning of the category. For more details with examples and explanations, contact Dr Seetha Lakshmi (seetha.lakshmi@nie.edu.sg)

APPENDIX E. CODING OF 'CLASSROOM CULTURE' FOR ENGLISH LANGUAGE (POST-OBSERVATION INTERVIEWS)

Code	Criteria	Example
Student comments	These are comments about student welfare, student needs and abilities, students' characteristics etc.	
<i>Individual comments</i>	Any comments made by teachers about the character/behaviour, background, skills, needs of individual students	Ah this boy of late, he has been coming late. He is Filipino boy. Ah because he has problems waking up early. (S2T7PointR_English_P1_SP_08.09.09)
<i>Group comments</i>	Any comments made by teachers about the character/behaviour, background, skills, needs of groups of students etc.	But it's just that there are still a few of them who no matter where I put them in, they are not able to you know collaborate lah. (S3T19PointTR_English_P1_SP_29.09.09)
Classroom discipline and management	This involves the procedures or actions by the teachers to ensure the smooth running of the class and ways of setting up boundaries for how students should behave during lessons. This includes ways of motivating the students	Even for daily lesson, if we have group work, it's only around this area so I can watch over them better. (S7T60PointTR_English_P2_SP_17.11.09)
Beliefs and values	Conceptions of teaching and learning, values to inculcate in students, beliefs that underpin teaching styles	I'm particular that my class must look clean you see. (CIEPSS_COC_S2T7PointTR_English)
Policy Ω		
Pedagogy and practice	Comments to do with carrying out of daily lessons and reflections about teaching and learning.	
<i>Implementation</i>	How the teacher carries out the English lessons, activities, use of materials/resources, describe what the students are actually doing, either generally or at the specific instance. Related only to teaching and learning; does not cover motivating students, classroom discipline and management	(No example included)
<i>Self-observation</i>	These are teachers' feelings or judgments about their teaching that are mental/emotional.	So the groups will um . group by group will come out and read their writing. And then as a class, we help them edit the sentences. (S3T19PointTR_English_P1_SP29.09.09)

<i>Other observation</i>	Comments by teachers on what others have said about their lessons or soliciting RA's opinions of their lessons	<p>I didn't know I'm so boring (S2T7PointTR_English_P1_SP_08.09.09)</p> <p>Ah to cut down because the STELLAR people last year er inform us that er to cut down on XX you can get them to choose the day before. So choose before the day and then, but still you see, you read one book (S2T7PointTR_English_P1_SP_08.09.09)</p>
Skills for academic context	These refer to skills that are required in academic contexts such as speaking proper English as opposed to Singlish, grammar	<p>Yah. And then um those who speak English, it's good to have some children who actually speak good English from home. You know it's like er, it's a model. (S2T7PointTR_English_P1_SP_08.09.09)</p>
STELLAR	Explicit mention of STELLAR	<p>So I am adopting this STELLAR approach though it is like teaching of grammar. Yah. So we have to do the tuning in. (S2T7PointTR_English_P1_SP_08.09.09)</p>

APPENDIX F. CODING OF TEACHER TALK IN P1 MATHS LESSONS ON 'TIME'

Code	Criteria	Example*
Regulatory talk	Talk surrounding classroom management issues	[Students are seated on the floor. Teacher is standing in front of them.] T: SM, can you make a space for RF to sit down. Where is he supposed to sit? Can you move away. [Student moves] Right, sit up straight.
Curriculum/ content-related teacher talk	Talk about mathematical skills or concepts	
<i>Teacher explanation or exposition</i>	a) Defining a new concept b) Give examples or evidence	T: Once the minute hand is at 12, we will say o'clock okay. O apostrophe clock. T: Yeah, long time ago, very long time ago, they don't have clocks. They use other forms of clocks. Different people use different types of clocks to tell them the time.
<i>Teacher questions or elicitations</i>	a) Elicitations of student response through actions /questions/statements b) Rhetorical questions	T: Show the class what do you, what you have. AR, show the class what you have. T: <u>So what should I write?</u> I can spell it out. 3 o'clock.
<i>Problem-solution statements</i>	Instances where students face problems solving a question posed	T: I have some children, they will tell me this is half past 7. Okay because they look at the hour hand, it is very close to 7, so they say half past 7. [CLT points to the hour hand] But always remember, the hour hand must past that number, then you call it half past. Must past that number.
<i>Instructional management talk</i>	Giving directions about how to approach a question or instructions on class activities related to content.	T: I need register number 1 to number 15, can you form the inside circle. [Students start to move.] Wait, wait. Number 16 to 30, you for the outside circle. Okay now I need 16 to 30, you go back to your place.
<i>Teacher feedback/ assessment</i>	a) Repetition of student's response with a falling/rising tone b) Confirmation check	(No example included) S: The time.

	<p>c) Assessment</p> <p>d) Neutral feedback</p> <p>e) Teacher correction</p>	<p>T: The time. Now it is used to tell the time. All right the clock is used to tell the time. Now what do you see on the face of the clock? [CLT points to the face of the clock.]</p> <p>T: Okay now is she correct? Look at the clock here, is she correct? Is she correct? Yes or no?</p> <p>T: What does these numbers actually tell you?</p> <p>S: The time.</p> <p>T: Time, <u>OK, very good.</u></p> <p>T: Now what other things can you see?</p> <p>S: The minute hand and hour hand.</p> <p>T: <u>Alright.</u></p> <p>T: Okay again which one moves first?</p> <p>S: Long hand first.</p> <p>T: What long hand? <u>This is not call long hand.</u></p>
Uncodable talk	Includes other instances of teacher talk which do not fit the categories above (eg. other types of discourse markers).	<p>T: Again. 1, 2, 3, go.[T moves the hands of the clock one round.]</p> <p>S: 3 o'clock.</p> <p>T: <u>Thank you very much.</u></p>

*Non-verbal and contextual data is presented in square brackets