Preamble

The Singapore Pedagogy Coding Scheme (SPCS) was designed as part of the Core Research Program of the Centre for Research in Pedagogy and Practice, Singapore. It comprises the coding manual and the coding instrument. The SPCS was used over a 2-year period (2004–2006) in over 1,000 primary and secondary lessons from more than 55 schools, covering key curriculum areas.

The coding manual has 3 parts (see below) consisting: (1) Coding instructions, (2) Notes on the individual coding categories, and (3) Coding field protocols. The coding manual provides a broad heuristic guide for using the coding instrument in the field.

The coding instrument is used in classroom observations to code pedagogical interactions, task framing, class environment and pedagogical knowledge. The full instrument contains formulas embedded in an Excel file, and is only available upon request. (A condensed version may be found in the Appendix.) The coding instrument is intended for trained coders, to be used in tandem with the training and monitoring programme described below.

All coders are put through a rigorous training programme. Coders are largely subject specialists (teachers or research assistants with qualifications in the area). The training programme consists of the following protocols:

1. Video training workshops: New coders are shown a training video of a series of classroom lessons in increasing order of complexity, according to the SPCS categories. The workshops are supervised by a senior coder or principal investigator, who can help clarify any doubts coders may have about the coding categories. Coding results are compared between coders and with the senior coder/principal investigator to establish inter-rater reliability (IRR); this is to ensure that all coders have the same understanding of the categories.

2. Shadowing coders: After the workshops, coders are assigned to shadow a senior coder to observe lessons throughout a unit. The new coders would code the same lesson observed; their coding observation results are checked for IRR against those of the senior coder. At the same time, both new and senior coders would compare notes on the observed lessons to clarify any doubts or uncertainties.

3. Refresher workshops & IRR checks: There are instances where coders may have a brief hiatus from the field due to various reasons. Prior to the observation of new lessons, all coders have to go through refresher workshops to reacquaint themselves with the SPCS. Once again, IRR is rigorously monitored during the workshops and in the field.

4. Transcript checks: As a final check, some lesson transcripts are randomly selected and checked for particular coding categories to ensure that the coding was as accurate as possible.

A more detailed version of the coding manual is forthcoming, for those who wish to use the SPCS without the benefit of the training workshops. For more information on the theoretical background and genealogy of the SPCS, please refer to Luke, Freebody, Lau, and Gopinathan (2005).

References
CODING INSTRUMENT
For the blue cells in the excel worksheet, numbers are to be keyed in. For the yellow cells, a description is needed.

LESSONS AND UNITS
All lessons in a designated unit/topic of the subject are to be coded. The unit can range from 3-12 lessons.

TIMING
Keep a watch running during your observation and make notes as the phase moves along. You will have to allocate approximate times in percentages to kinds of talk and the overall phase.

END OF UNIT OVERVIEW
At the end of each unit, you should complete an overview coding sheet that comments holistically on the overall quality, focus and success of the unit as a whole. On this overview you should make your qualitative observations on the unit. You may wish to make notes as you go and summarise them on completion. You may offer note form, point form or prose. Do not worry about your expression, just write simply and clearly. In particular, take note of the general organisation and ‘flow’ and structure of the unit. In addition, you should pay attention to the general development of the students.

Evidence of Coherence
What is the evidence for coherence in the unit as a whole? For example: Think of a paragraph in contrast to a random set of sentences. In the paragraph, sentences cannot occur in any order; there is a structure that creates a coherent whole. Is there logic to the sequence of activities and lessons?

Evidence of Progress
What is the evidence that there is not only coherence but progress in the students’ understanding, knowledge, and skill? Is there evidence that they are at a different place in their academic development at the end than they were at the beginning? Focus here less on progress shown in what is presented to the students and more on evidence from students’ overall understandings expressed in their oral discussions and written work.

Evidence of Weaving
What is the evidence of weaving, as defined in the coding sheets, across the unit as a whole that is not evident within the smaller phases? In addition, what is the evidence of explicit weaving across time—where the teacher refers backward and or forward to what they have done, learned etc. or will do soon.

Use of Information Technology
Has there been a coherent or consistent use of IT as part of the Unit? Has it enhanced the academic and intellectual outcomes of the Unit? Has there been weaving across the unit between media (e.g., traditional print, video, online)? Has IT principally been in teacher presentation or have the students produced digital artifacts? Are they multimodal? Comment on their depth and substance.

Curriculum-specific features
Whereas the above three sets of questions should apply to all units, there are important questions about how Math, Science, and English weave together and integrate curriculum-specific features. Focus on whether you think the students have been effectively or successfully engaged with these goals, or, for that matter, about whether these goals were addressed at all.

Math: What was the relationship between, and relative weight given to, the dual goals of efficient procedural manipulation and deep conceptual understanding? To achieve these goals, the Singapore curriculum model involves integrating “concrete, pictorial, and abstract” representations of mathematical relationships. How were these included, and sequenced, across the unit?
Science: Here, “inquiry” is the curriculum model, involving both hands-on activities for students and teacher-led discussions for conceptual understanding. How were these included, and sequenced, and integrated across the unit?

English: Pre 2001, the English curriculum had a “communicative” emphasis, based on the assumption that if students focused on comprehending meaning, the language forms expressing those meanings would be learned implicitly. The current syllabus represents a deliberate shift to more explicit attention to language form--sentence-level grammar, and larger text structures such as paragraphs and genres. What was the relative time and attention devoted to meaning and form, and how were the two specifically related.

Mother Tongue: The aim of mother tongue is to teach language in the context of cultural values. Which emphasis is apparent? Is there a weaving or integration of language and cultural issues? In terms of overall instructional focus, is there a particular approach to language teaching apparent? Or is it an eclectic approach? What linguistic unit (e.g., vocabulary, syntax, genre) that has been featured most prominently?

You should be fill in the overview worksheet in the coding instrument. The following is an example of this worksheet.

<table>
<thead>
<tr>
<th>Across the unit</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Theme of Unit</td>
<td>Antarctica</td>
</tr>
<tr>
<td>Evidence of coherence</td>
<td>The unit is organized into reading, listening and writing on the topic of Antarctica. Overall, it is coherent but (1) it is at times repetitive, e.g., listing of websites and textbook info without critiquing the info contained. (2) the topic of Antarctica makes little sense to tropical Singapore P5 kids. And they are going to write some journal entries on this. It is like asking them to reflect on their personal experience of walking alone a snowy night through a forest. Point two is not the fault of the teacher by the textbook authors</td>
</tr>
<tr>
<td>Evidence of progress</td>
<td>Pupils have a better grasp of grammar points (connectors) and structure of journal entries. But little evidence that they have better understanding of Antarctica.</td>
</tr>
<tr>
<td>Evidence of weaving</td>
<td>Yes. Phase 3 which offers an info report on Antarctica is referred to and elaborated/exemplified in later phases.</td>
</tr>
<tr>
<td>Use of IT</td>
<td>Teacher makes an effort in integrating IT in teaching but as said above, overuses it.</td>
</tr>
<tr>
<td>Curriculum specific</td>
<td></td>
</tr>
<tr>
<td>Math</td>
<td>Procedural manipulation vs. Conceptual understanding</td>
</tr>
<tr>
<td>Science</td>
<td>Inquiry</td>
</tr>
<tr>
<td>English</td>
<td>Meaning vs. Form</td>
</tr>
<tr>
<td>Mother tongue</td>
<td>Language vs. Culture</td>
</tr>
</tbody>
</table>

Meaning is given more emphasis than form. Teacher uses KWL (K= what you know, W=what you want to know, L= what you have learnt from this lesson/text) method to teach reading/writing.

The curriculum questions in the overview are general. As curriculum experts, you should raise any apparent curriculum issues that are central to the field you are observing.
SINGAPORE PEDAGOGY CODING MANUAL

PRINCIPLES OF OBSERVATION
Observe. DO NOT overthink or overread. Only report what is observe, not what you like or prefer.

FIELD NOTES
You will be able to make some observations as each phase moves along. If not, you may wish to make a 'running record' of the phase as it proceeds, then making your coding entries afterwards. There is a place for you to make anecdotal notes. This is for 'flagging' the transcript for further detailed attention in Panel 4. You should include information on the following:

- Thematic unit – indicate the title of the unit observed
- Topic – indicate the subtopics within a lesson
- Sequence of main activities – describe the sequence of main activities in prose
- Taped group interactions – indicate if this is present for the purposes of transcription
- Materials – specify title of materials used during instruction if you can

TEACHER ASSIGNMENT/ASSESSMENT TASKS AND RELATED STUDENT WORK
You should arrange for photocopying access at the school if possible (reimbursing the school for any costs). Samples of extended and sustained student writing are of particular importance. At the end of a lesson, you should collect the following:

Unmarked Student Work

(i) **Classwork**: A copy of the teacher’s task questions and TWELVE (12) samples of student work: 4 high-quality, 4 medium-quality, and 4 low-quality as considered by the teacher. You should photocopy them, and file them with your coding sheet for the lesson. You should tag each piece of student work according to school code, classroom code, teacher code, subject, grade level, stream, student’s NRIC, and sample ID. Please ensure that the teacher has: (a) labeled the quality of student work on each piece of student work according to High, Medium, and Low, and (b) answered all the questions on Cover Sheet A.

Marked Student Work: (Panel 5’s Logistic RA will help with this)

(ii) **Homework**: A copy of the teacher’s task questions and TWELVE (12) samples of student work: 4 high-quality, 4 medium-quality, and 4 low-quality as considered by the teacher. You should pass the ‘Instructions to Teacher’ sheet and Cover Sheet B to the teacher and the Logistic RA will make an arrangement with the teacher to pick up the homework assignments.

Logistic RA should photocopy them and tag each piece of student work according to school code, classroom code, teacher code, subject, grade level, stream, student’s NRIC, and sample ID. Please ensure that the teacher has: (a) labeled the quality of student work according to High, Medium, and Low, and (b) answered all the questions on Cover Sheet B.

(iii) **Major Assignment/Project**: A copy of the teacher’s task questions and TWELVE (12) samples of student work: 4 high-quality, 4 medium-quality, and 4 low-quality as considered by the teacher. You should pass Cover Sheet C to the teacher and the Logistic RA will make an arrangement with the teacher to pick up the major assignments.

Logistic RA should photocopy them and tag each piece of student work according to school code, classroom code, teacher code, subject, grade level, stream, student’s NRIC, and sample ID. Please ensure that the teacher has: (a) labeled the quality of student work according to High, Medium, and Low, and (b) answered all the questions on Cover Sheet C.

(iv) **Test (if any)**: A copy of the teacher’s test questions and TWELVE (12) samples of students’ answer sheets: 4 high-quality, 4 medium-quality, and 4 low-quality as considered by the teacher. You should pass Cover Sheet D to the teacher and the Logistic RA will make an arrangement with the teacher to pick up the tests.
SINGAPORE PEDAGOGY CODING MANUAL

Logistic RA should photocopy them and tag each piece of student work according to school code, classroom code, teacher code, subject, grade level, stream, student’s NRIC, and sample ID. Please ensure that the teacher has: (a) labeled the quality of students’ answer sheets according to High, Medium, and Low, and (b) answered all the questions on Cover Sheet D.

VIDEOTAPING
Some of the teachers observed will be designated for Panel 4 videotaping either during the observation period or later. The principal criterion is high quality teaching/teachers. If and when an excellent teacher is observed— you should contact the Panel 4 Project Manager immediately. We will then decide if we are going to videotape during that week or at another point during the core.
FRAMING

For each phase, the duration and order of phase, the physical arrangement, the class size, the topic(s), the lesson number, the date, the sequence of activities must be noted.

Time Begin:
Each phase should have a minimum duration of 5 minutes. Use the international convention (13 hours 25 min). Key in the hour in the hour cell and the minutes in the minute cell.

<table>
<thead>
<tr>
<th>Time begin</th>
<th>Hour</th>
<th>Min</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>25</td>
<td></td>
</tr>
</tbody>
</table>

The 'Time End' item is located before 'SOCIAL SUPPORT'.

Physical Arrangement: Code as phase change if physical arrangement changes (e.g. break into clusters for group work).
1 = Single Column
2 = Double Columns
3 = Cluster (Indicate number in cluster)
4 = Floor Group Seating
5 = Laboratory Benches
6 = Table Rows
7 = Other (Please specify)

Class Size: In this slot, indicate the class size.

Topic(s): In this slot, indicate the topics/subtopics that are dealt with during the lesson. For instance, under the thematic unit of 'Conflict', the subtopics in a lesson could be 'Definition of conflict', 'Conflict resolution', etc.

Lesson Number: In this slot, write the lesson number in the unit.

Date: In this slot, write the date of the lesson

Sequence of Activities: In this slot, indicate the sequence of activities in the lesson using prose. For instance, the sequence of activities in an English lesson might have been as follows: "First the teacher gets the students to read aloud a passage. Then the students get into groups and discuss a series of comprehension questions. This is followed by presentation of student answers."

PHASE

Each phase in a lesson should be coded on a separate excel worksheet. Phases are defined as distinct shifts in ‘activity structure’ (e.g., whole class lecture to whole class answer checking to small group work = 3 phases). Most lessons will not exceed 3 or perhaps 5 phases. Phase should be identified according to the sustained activity. Do not mark digressions as changes in phase. If an activity lasts less than 5 minutes, it should be treated as a digression from a larger phase. E.g. Where the sustained phase is Whole Class Lecture with minor shift, for instance to IRE, it should be coded as one phase of Whole Class Lecture. Take some time to examine the discourse structure if the framing is unclear during the lesson.

1 = Whole Class Lecture (Monologue)
2 = Whole Class Elicitation and Discussion
3 = Whole Class Answer Checking (IRE)
4 = Choral Repetition and/or Oral Reading

5 = Individual Seatwork
6 = Small Group Work
7 = Test Taking
8 = Whole Class Demonstration or Activity
9 = Student Demonstrations/Presentations
10 = Laboratory/Experiments

- **Whole Class Lecture (Monologue):** Stand up teacher talk, no sustained dialogue or exchange. Teacher does at least 70% of the talking. Student questions are not significant, i.e., teacher is not really listening to the answer or teacher is asking questions that may not meaningful to the understanding of the lesson. May include short bursts of IRE or other discussion.

- **Whole Class Elicitation and Discussion:** Substantive questions, open ended questions, student talk extends, teacher uses a range of strategies to open up discussion (e.g., wait time, holding back on evaluation, extension or redirection moves). Teacher may request and record or note student contributions verbally or on whiteboard, less explicit evaluation of worth or value, more free flowing discussion, students in dialogue with other students, teacher connections between comments, ideas and redirection. The following excerpt is an example of discussion:

  Student 1: (Giving presentation) You should know of this person, Mohandas Gandhi. I have the picture to show you afterwards... He is actually a nationalist leader and he spent his life campaigning for human rights in India. He worked to improve the status of members of India’s lowest social order, formerly known as the Untouchables, which means children of God. Yeah, these are the Untouchables in India.

  Teacher: Any questions about the Caste System?

  Student 2: You know the Mohandas Gandhi, right?

  Student 1: Yeah, yeah, yeah.

  Student 2: You said he was a nationalist leader and what does it mean to be a nationalist leader? What is a nationalist?

  Student 1: Nationalist is so called like last time you call it the, what you call the, so called, yeah, governor, governor. So called governor. So actually, he’s just like anyone on the streets. He will look like a beggar, beg for food. He might just go one day without anything, without eating anything lah.

  Student 2: And he’s the governor.

  Student 1: So called governor.

  Student 2: When he goes to...

  Student 1: He is trying to promote the rights of the Untouchables in India. Get what I mean, ok?

  Teacher: Any other questions on the Caste System?

  (Excerpt from classes observed in the Digital Curricular Literacies Project)

- **Whole Class Answer Checking (IRE):** Teacher solicits, student responds, teacher evaluates; repeated pattern. Teacher asks serial questions for which there is a specific answer that s/he is seeking. Another example is reviewing the answers on a worksheet, one question at a time. For example:
SINGAPORE PEDAGOGY CODING MANUAL

Teacher: Our last lesson we stopped right here. About factors promoting the growth of civilization. In general, key ingredient will be?

Class: Water.

Teacher: Water, right? ... What are the major ingredients that will be provided by water?

Class: Food source.

Teacher: Food source. True. (Excerpt from classes observed in the Digital Curricular Literacies Project)

- **Choral Repetition or Oral Reading:** Chanting, singing, choral response, reading aloud singly or together of pre-prepared texts. Often found in primary language lessons and mother tongue. You may aggregate this into a total duration of time.

- **Individual Seatwork:** Students do their own work.

- **Small Group Work:** Students work in small groups.

- **Test Taking:** Students take tests, quizzes or examinations.

- **Whole Class Demonstration or Activity:** Teacher initiated and guided whole class game, activity. Includes demonstration game; science lab demonstrations. Can involve 2 or more students.

- **Student Demonstrations/Presentations:** Student report back, demonstration at whiteboard, show and tell; presentation of students’ writing or text. Include OHT presentations; formal presentations; presentation of results from experiments.

- **Laboratory/Experiments:** Students do experiments or laboratory work.

**Taped Group Interaction:**
Note that during small group work, coders are required to move tape recorders at the side and the back of the class and place them in the centre of two groups so that group discussions of at least two groups can be captured. If such group interactions have been recorded, this has to be keyed as ‘1’ for ‘Yes’ in the excel sheet under the phase of ‘small group work’ so as to facilitate transcription work. If they have not been recorded then key in ‘0’ for ‘No’.

0 = No
1 = Yes

**PROPORTION ENGAGED**
This refers to the proportion of students paying attention. For example, if only 4 out of 40 students were not paying attention, it should be coded as 100%.

0 = 0%
1 = 25%
2 = 50%
3 = 75%
4 = 100%

**TALK**
For each of the sub-items on talk, estimate the percentage of time spent on different types of talk. Round up or down to the nearest multiple of 5. All the different types of talk should add to to 100%.
Percentage Talk: Refers to the percentage of time spent on teacher and student talk during a given phase. Aggregate from whole phase and estimate total percentage. However, it does not include 2 students at the back of the room chatting while teacher lectures. The following table is an example:

<table>
<thead>
<tr>
<th>Talk:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Organisational:</td>
<td>10%*</td>
</tr>
<tr>
<td>Regulatory:</td>
<td>20%*</td>
</tr>
<tr>
<td>Test Strategy:</td>
<td>15%*</td>
</tr>
<tr>
<td>Curriculum-related:</td>
<td>50%*</td>
</tr>
<tr>
<td>Informal:</td>
<td>5%*</td>
</tr>
<tr>
<td>Percentage talk:</td>
<td>30%</td>
</tr>
</tbody>
</table>

N.B. All the percentages in asterisk add up to 100%

- **Organisational Talk:** Organisation of phase and/or lesson, framing of activities, instructions, set up, moving of bodies, space, what’s coming next, transitions, school/classroom administration talk, canteen rules, upcoming school events, etc. An example will be:

  Teacher: Second half of the lesson, we will be doing the Shang Dynasty but before that, you have to finish your walking gallery tour, and your walking gallery judging. Later on, at the end of the lesson, I will get the History rep to go and count the number of votes. I’m sure she’s an impartial lady, alright? So she is going to go around and collect the votes, and we will know who are the winners.

  (Excerpt from classes observed in the Digital Curricular Literacies Project)

- **Regulatory Talk:** Discipline, behaviour management, class and student control talk by teacher. Some examples are:

  Example 1:

  Teacher: Hands up, please. Hands up.

  Example 2:

  Teacher: Look at your own watch? The lesson starts at 8.30am, isn’t it? Yes or no?

  Class: Yes.

  Teacher: What did I say from my very first lesson? You have to reach the lab or any place I am holding my lesson within 5 minutes, isn’t it? Similarly, I do the same thing, right? I try to go to your class within 5 minutes, and the lesson starts within 5 minutes, right? I don’t want to waste time and I don’t want you to waste your own time as well. Now, do you realise that today, almost every practical lesson I have with you, you have a problem reaching this 5 minutes target. This 5 minutes goal. [Teacher continues for 7 more teacher-class interactions.]

  (Excerpts from classes observed in the Digital Curricular Literacies Project)

- **Test Strategy Talk:** Explicit reference to testing, exams or test requirements; may include advice on how to take tests, e.g., “This will be useful when you take your O- levels exam”.

- **Curriculum-related Talk:** Any talk about the actual content or skills to be taught.

- **Informal Talk:** Digressive whole class talk with teacher. Do not include a group of students chatting in the classroom, e.g., background talk. E.g. Teacher talks about the weather when it has no bearing on the topic taught. Teacher calls for time-out and chats with students.
SINGAPORE PEDAGOGY CODING MANUAL

SOCIAL SUPPORT

Encouragement: Teacher is supportive and positive to students through affirmation, praise, warmth, verbal support and encouragement. Explicit is verbal; implicit is behavioural, affective, perhaps gestural.

0 = Explicitly discouraging
1 = Implicitly discouraging
2 = Implicitly encouraging
3 = Explicitly encouraging

An example of this is:

Teacher: Come on, boys. Boys, have to do more pair work. The girls are sharing their information better. The boys are too solo. You all are selfish, maybe? Come on, do more pair work. Ask each other questions while reading. It’s easier and it’s faster. [This can be seen as encouraging, depending on the teacher’s tone.]

(Excerpt from classes observed in the Digital Curricular Literacies Project)

ETHOS

Student Voice: This refers to teacher-led and/or teacher encouraged student self-expression. Extended student discourse beyond short or structured answers and responses. For example, teachers encourage student debate, student independent expression, personal opinions, and differences in point of view.

0 = Nil
1 = A little
2 = Sometimes
3 = Almost always

KNOWLEDGE CLASSIFICATION

The focus here is on how knowledge is presented and represented to students. The focus is on teacher-led observable behaviour. The scales are coded on depth or complexity.

Source of Authoritative Knowledge: Where does knowledge come from? What is referred to as the key or central source of knowledge? What sources are the ‘final arbiter’s’ of ‘truth’ or validity or value. Where does the ‘buck stop’? Unless the teacher explicitly refers to/uses another source, it is teacher. For example, where the teacher is using the textbook but not referring to it, code the source as teacher. Where the teacher explicitly refers to the textbook as the source, code as textbook. Tick the major source of authoritative knowledge. Some examples are:

1 = Student
2 = Teacher
3 = Test/Exam
4 = Textbook
5 = Internet
6 = Data
7 = Mass media
8 = Other (Please specify)

Example 1 (the Bible):

Teacher: Well, any questions? Yes?
Student 1: Could this flood be linked to Noah’s Ark?
Teacher: Oh! In the bible. I think it’s Old Testament… (Student 1’s name), I think there are not too many Christians out here so they may not know Noah’s Ark.
Student 1: God sent it.
Teacher: It's God send one, but what about historical proof?
Student 2: All these are religion, and ...
Teacher: All these are religion but sometimes, you can always use History to try, to decide whether there was a flood here.

Example 2 (the textbook):
Teacher: This exercise is basically an overview. Let us look at China, India and Southeast Asia again. We've already completed the textbook, what is required to know. Let us look at it carefully again.

(Excerpts from classes observed in the Digital Curricular Literacies Project)

Stated Teacher Rationale for Phase: Teacher’s verbal explanation explaining reasons for lessons, teaching and learning. There is no default choice. This has to be explicitly stated by the teacher. Please code under Nil if there are no such statements. Pick one rationale for each phase.

0 = Nil
1 = Intrinsic Rewards
2 = Institutional Performance
3 = Disciplinary Knowledge
4 = Functional Use
5 = Moral and Ethical Values
6 = National Interest

- **Intrinsic Rewards**: Knowledge or learning is valuable in and of itself.
- **Institutional Performance**: Reasons related to school performance, e.g., test, examination, overall performance.
- **Disciplinary Knowledge**: To improve understanding of the subject or to be a practitioner of a field or discipline, e.g. Science, and Maths. Prerequisite knowledge.
- **Functional Use**: For use in society, at work, and in everyday communication, etc.
- **Moral and Ethical Values**: To make student a better person. May be related to family, religious and cultural values.
- **National Interest**: For the good of the nation, state, government, economy.

TEACHER’S AND STUDENT’S TOOLS
This refers to the tools through which text, image or knowledge are presented and handled. For student’s tools, it must be used by the majority of the class, not just a few students. Teacher and student tools can be the same or different. If the teacher copies something from the textbook onto the whiteboard, overhead or powerpoint – the item should be marked as powerpoint.

Note: Scientific or mathematical apparatus may include manipulatives, calculators, traditional laboratory equipment. Art materials should be coded under Other.

Teacher’s tools
0 = Nil
1 = Whiteboard
2 = OHT/Visualiser
3 = Powerpoint
4 = Textbook
5 = Worksheet
6 = Internet
7 = Scientific or Mathematical Apparatus
SINGAPORE PEDAGOGY CODING MANUAL

8 = Other (Please specify)

Student’s tools
0 = Nil
1 = Whiteboard
2 = OHT/Visualiser
3 = Powerpoint
4 = Textbook
5 = Worksheet
6 = Internet
7 = Science or Mathematical Apparatus
8 = Blank Paper
9 = Other (Please specify)

Student Produced Work: For major sustained text, it should be coded as sustained oral response or sustained written text. For work like mind-mapping on wide-paper in science, please code under Other.

0 = Nil
1 = Short Oral Response
2 = Sustained Oral Response
3 = Written Multiple Choice/Fill in the Blanks
4 = Written Short Answers
5 = Sustained Written Text
6 = Multimodal Text
7 = Combination Written Text (Please specify)
8 = Other (Please specify)

- Short Oral Response: Short answer, word, phrase, single or double sentence utterance
- Sustained Oral Response: extended utterance, explanation, verbal explanation beyond double sentences
- Written Multiple Choice/Fill in the Blanks: word or tick box answer
- Written Short Answers: sentence or less writing
- Sustained Written Text: paragraph or more level written text
- Multimodal Text: combination of visual, digital, traditional print, spoken, any of the above
- Combination Written Text: that mixes any of the above

Materials
In this particular slot, fill in the title of the handout or worksheet used during the phase of instruction. For instance, during a phase of “teacher monologue” if the students are referring to a handout entitled “Dinosaur” or “worksheet 1” then this title has to be recorded in this slot. Write the name of the textbook referred to and the page number of the book.

SINGLE/MULTIPLE DISCIPLINES
Please define discipline as according to the ones available in the syllabus; i.e. English, Maths, Science, Social Studies, Mandarin, Malay, and Tamil.

- Single discipline:
  0 = Nil
  1 = A little
  2 = Sometimes
  3 = Almost always

- Several disciplines: The disciplines may not be integrated.
  0 = Nil
  1 = A little
  2 = Sometimes
  3 = Almost always
SINGAPORE PEDAGOGY CODING MANUAL

• Integrated project: For integrated projects, include both formal ‘project work’ and also integrated activities, problem-based learning, task-based lessons. The focus must be sustained and bring together different knowledges to bear on a specific ‘whole’ task or activity to be completed by the students.
  0 = Nil
  1 = A little
  2 = Sometimes
  3 = Almost always

DEPTH OF KNOWLEDGE
Taxonomic orders of knowledge as presented. Please note the difference between the definition of Procedural here and “organisational talk” under Framing above. Here it refers to the task itself. That is, the how to and practical application of the knowledge. ‘Basic’ constituted in relation to age/background of children, grade level, and syllabus/field conventions.

• Fact/Rote/Basic: representation of basic facts, information from the field, ‘basic’ constituted in relation to age/background of children, grade level, and syllabus/field conventions.
  0 = Nil
  1 = A little
  2 = Sometimes
  3 = Almost always

• Procedural/How to: explication of strategies, procedures and applications.
  0 = Nil
  1 = A little
  2 = Sometimes
  3 = Almost always

• Conditional knowledge/When to: appropriateness and understanding of context of application, why certain procedures or strategies are used or in what circumstances one procedure or strategy is preferred over another.
  0 = Nil
  1 = A little
  2 = Sometimes
  3 = Almost always

• Advanced concepts: elaborated or deep concepts from field or discipline, ‘advanced’ construed in relation to age of children, grade level and syllabus/field conventions.
  0 = Nil
  1 = A little
  2 = Sometimes
  3 = Almost always

KNOWLEDGE CRITICISM
This refers to the explicit critique of knowledge. That is, second guessing it, criticizing it, asking how it might be erroneous, misleading or problematic.

• Truth: there is only one right answer, usually the teacher’s answer.
  0 = Nil
  1 = A little
  2 = Sometimes
  3 = Almost always

• Comparison: students manipulate different sources, ideas to compare and contrast. An example of this will be:
  0 = Nil
  1 = A little
  2 = Sometimes
Teacher: Now you can start reading the readings, alright? As you are reading, I would like you to bring along your highlighter, ok? Go through some highlighting. In History, you have learnt consistency. One question, boys and girls, is this reading consistent with the content found in your textbook? You can try to locate 2 consistencies for me and if you can, 2 forms of inconsistencies. If you have finished, you can compare with the content in your textbook. Then you can compare the information and to detect consistency, such as the years involved, the location…

(Excerpt from classes observed in the Digital Curricular Literacies Project)

- **Critique**: students actively challenge the validity of the sources of knowledge and/or the claims made.
  - 0 = Nil
  - 1 = A little
  - 2 = Sometimes
  - 3 = Almost always

**KNOWLEDGE MANIPULATION BY STUDENTS**
Student handling, construction and deconstruction of knowledge.

- **Reproduction**: Regurgitation/Copying/Repeating of what was taught.
  - 0 = Nil
  - 1 = A little
  - 2 = Sometimes
  - 3 = Almost always

- **Interpretation**: Creating a plausible explanation among choices.
  - 0 = Nil
  - 1 = A little
  - 2 = Sometimes
  - 3 = Almost always

An example will be:

Student 1: Bricks of the same size.

Teacher: So what does bricks of the same size tell you?

Student 1: There were these very skilled craftsmen.

Teacher: Skilled craftsmen, good. Bricks of the same size, skilled craftsmen. That is a proper relationship. What about roads, buildings, and the pattern of buildings?

Student 2: Well-organised.

Teacher: What tells you about the organization of the government? What tells you?

Student 2: The condition of the buildings and the roads.

Teacher: Roads. Ok, placement of the buildings, roads, tells you that government is well-organised. The well-organised part is important to us learning History.

[Only if the students are not reproducing relationships that were taught in earlier lectures or readings. If the students are reproducing, these should be coded as Interpretation.]

(Excerpt from classes observed in the Digital Curricular Literacies Project)
SINGAPORE PEDAGOGY CODING MANUAL

- **Application/Problem Solving**: Taking the knowledge and applying appropriately across contexts.
  0 = Nil  
  1 = A little  
  2 = Sometimes  
  3 = Almost always

- **Generation of Knowledge New to Students**: Students generate findings, claims, insights, perspectives new to them and their peers.
  0 = Nil  
  1 = A little  
  2 = Sometimes  
  3 = Almost always

**SPECIALISED LANGUAGE**
This refers to the degree of teacher-based, explicit introduction of discipline-specific language and advanced terms. In English and MT, this may be foreground grammar in language teaching (or 'language about language'). In other disciplinary fields this involves technical terminology, e.g. "In Maths, we call this _______" or "In Physics terms, this is known as _______."

  0 = Not used  
  1 = Used but not explained  
  2 = Used and explained briefly  
  3 = Used and explained in-depth and explicitly

**WEAVING**
This refers to the degree in which the teacher shifts teaching in the levels or kinds of knowledge. It is not just a matter of random shifts or topic switches, or another form of representation of the knowledge. The teacher actually systematically moves students into different, more complex levels or kind of knowledge, making connections between these in sophisticated and complex ways. The degree of purpose of the weaving increases when the teacher indicates clearly the intellectual reasons for the weaving. Weaving types include:

**Weaving within a Phase:**

  0 = Nil  
  1 = A little  
  2 = Sometimes  
  3 = Almost always

**Type of Weaving within a Phase:**

  0 = Nil  
  1 = New-Known  
  2 = Technical-Commonsense  
  3 = Theoretical-Practical  
  4 = Global-Local  
  5 = Scientific-Everyday  
  6 = Individual-Society  
  7 = Literal Metaphor  
  8 = Other (Please specify)

**Weaving between Phases**: It could be weaving with a previous lesson or unit.

  0 = Nil  
  1 = A little  
  2 = Sometimes
Phase Weaved with: Please indicate the phase which the teacher is weaving with. Key in ‘1’ for ‘Phase 1’, ‘2’ for ‘Phase 2’, etc. If the teacher is weaving with a previous unit or lesson, please write it in the item ‘Describe’.

Note: 0 = If there is no weaving between phases.

Type of Weaving between Phases

0 = Nil
1 = New-Known
2 = Technical-Commonsense
3 = Theoretical-Practical
4 = Global-Local
5 = Scientific-Everyday
6 = Individual-Society
7 = Literal Metaphor
8 = Other (Please specify)

Describe: Describe in words how the weaving is done during the phase, how the ‘levels’ are connected and how the teacher or student initiated it.

TASK FRAMING

Type of Task: For this item, coders are asked to identify the type of task(s) that the task framing is based upon:

0 = Nil
1 = Classwork (daily classroom assignments)
2 = Homework
3 = Major Assignment/Project;
4 = Test
5 = Activity

Explicit Performance Criteria: For this item, coders are asked to report on the presence of explicit performance criteria given by the teacher on the completion of the task.

Low explicit performance criteria is identified by an absence of written or spoken reference to the quality of work expected of students. Reference to technical or procedural requirements only (such as the number of examples, length of an essay or the duration of a presentation) is not evidence of explicit performance criteria.

High explicit performance criteria is identified by frequent, detailed and specific statements about the quality of work required of students. Explicit performance criteria become reference points when the teacher requires students to use the criteria to develop and check their own work or the work of others.

SCAFFOLDING

This refers to the degree of support, guidance, and direction provided by the teacher to help the students to learn to do a given task.
SINGAPORE PEDAGOGY CODING MANUAL

- **Content Scaffold**: Teacher provides students with concept maps and definitions to help the students to learn to do a given task.

- **Procedural Scaffold**: Teacher gives guidance about how to utilize available resources, materials, and tools to help a student to learn to do a given task.

  An example will be:
  
  Teacher: And after Egypt, I’ll have to teach you a little bit more about open-ended questions. What is open-ended question?
  
  Student 1: You have to write in full sentences.
  
  Teacher: You have to write in full sentences.
  
  Student 1: No MCQ.
  
  Teacher: No MCQ, good. There’s something a little bit more about open-ended questions.
  
  Student 2: Make inference.
  
  Teacher: Make inference, yes, yes!
  
  Student 3: You have to write in your own words.
  
  Teacher: Write in your own words, make inferences…

  (Excerpt from classes observed in the Digital Curricular Literacies Project)

- **Strategic Scaffold**: Teacher gives guidance about alternative strategies or approaches that help the students to learn to do a task.

  **Content Scaffold**:
  
  0 = Nil  
  1 = A little  
  2 = Sometimes  
  3 = Almost always

  **Procedural Scaffold**
  
  0 = Nil  
  1 = A little  
  2 = Sometimes  
  3 = Almost always

  **Strategic Scaffold**:
  
  0 = Nil  
  1 = A little  
  2 = Sometimes  
  3 = Almost always

**OPTIONAL ADDENDA**

**Notes**: You can write here things which are important to the classroom observation but which do not figure in the coding instrument. Write anything which is interesting or unusual about the class.
GENERAL

Professionalism: Remember that you are representing CRPP and NIE. In all our contacts with stakeholders and the general public, we need to exhibit our expertise and professionalism. This includes:

- **Being Informative**—Make sure you are confident in your knowledge of what we are doing and why.
- **Being Courteous**—Treat everyone we meet with the utmost courtesy. Be punctual and follow through on your commitments. Listen actively to our stakeholder’s concerns and be sensitive to their needs.
- **Looking Smart**—Dress professionally (business casual) when interacting with stakeholders or representing CRPP to the general public. You only have one chance to make a good first impression.
- **Being Respectful**—The people we will work and interact with are professionals in their field—treat them as such. When we visit schools, remember that they are the hosts and it is a privilege for us to be allowed into their schools.
- **Minimizing Disruption**—Data collection will interfere with planned activities and add work to people who are already very busy. Be aware of this and try to minimize interference.

If we leave our partners with a good impression, they are more likely to be willing to help us in the future. If we leave them with a bad impression that reputation will spread throughout the school system and make all subsequent work that much more difficult.

FREQUENTLY ASKED QUESTIONS

1. **What is the purpose of the study?**

   CRPP’s Core Research Project seeks to get a better understanding of the Singapore school system in order to make recommendations on how it can better meet the needs of Singapore students. The main body of the Core Research Project is analysis of data gathered through classroom observations.

2. **What is CRPP?**

   The Centre for Research in Pedagogy and Practice is a research centre established by NIE and funded by MOE to study, prototype and innovate a strong futures-oriented agenda in Singapore schools. It provides an opportunity for researchers, teachers and administrators to work together to develop and implement new ideas in the schools to better educate students for the challenges in the decades ahead.

3. **Why are you collecting this data?**

   We are looking for examples of success throughout the Singapore education system so that we can share them across schools and among teachers. The data we gather will be collected, analysed, summarised and published, but no individual schools will be identified. The results will be used to shape educational policy as well as teacher training.

4. **Will the performance of teachers be evaluated?**

   All personal details will remain confidential to the research team. No individuals will be identified in any published data or recordings. No data on individuals will be reported to your principal or MOE.

Materials Checklist—data collection

- Coding instrument (**the latest coding instrument**)
- Directions and contact details for school
- Notepaper and writing stationery
- Name tag or name card
APPENDIX: SINGAPORE PEDAGOGY CODING INSTRUMENT

Date: (DD/MM/YYYY) .................. Coder ID: .................. Time Begin: .................. Time End: ..................

Topic(s): ................................................................. Phase Number: .................. ..................

Lesson Number: .................. Lesson Size: ........... Sequences of Activities: ..................................................

Taped Group Interaction: .................. (Yes/No)

### FRAMING

**Identify the Sustained Phase /Social arrangement (Please tick ONE only)**

<table>
<thead>
<tr>
<th>Φ</th>
<th>WHOLE CLASS LECTURE (MONOLOGUE)</th>
<th>Φ</th>
<th>SMALL GROUP WORK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Φ</td>
<td>WHOLE CLASS ELICITATION AND DISCUSSION</td>
<td>Φ</td>
<td>TEST TAKING</td>
</tr>
<tr>
<td>Φ</td>
<td>WHOLE CLASS ANSWER CHECKING (IRE)</td>
<td>Φ</td>
<td>WHOLE CLASS DEMONSTRATION OR ACTIVITY</td>
</tr>
<tr>
<td>Φ</td>
<td>CHORAL REPETITION AND/OR ORAL READING</td>
<td>Φ</td>
<td>STUDENT DEMONSTRATIONS/PRESENTATIONS</td>
</tr>
<tr>
<td>Φ</td>
<td>INDIVIDUAL SEATWORK</td>
<td>Φ</td>
<td>LABORATORY/ EXPERIMENTS</td>
</tr>
</tbody>
</table>

**Identify the Physical Arrangement of the Class (Please tick ONE only) (Provide a Sketch on paper provided at end of sheet)**

| Φ | Single Column | Φ | Double Columns | Φ | Clusters (number............) | Φ | Floor group seating | Φ | Lab benches | Φ | Table Rows | Φ | Other __________ |

**Proportion of students paying attention (Circle ONE only)**

| 0% | 25% | 50% | 75% | 100% |

**Duration and order of the phase (Please indicate the amount of time in percentages taken for each category)**

<table>
<thead>
<tr>
<th>Total duration of Phase</th>
<th>Mins (rounded up/down to the nearest 5 mins)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organisational Talk</td>
<td>%</td>
</tr>
<tr>
<td>Regulatory Talk</td>
<td>%</td>
</tr>
<tr>
<td>Test Strategy Talk</td>
<td>%</td>
</tr>
<tr>
<td>Curriculum-related Talk</td>
<td>%</td>
</tr>
<tr>
<td>Informal Talk</td>
<td>%</td>
</tr>
<tr>
<td>Percentage Talk</td>
<td>%</td>
</tr>
</tbody>
</table>

- Percentage of time spent on teacher & student talk during a given phase
APPENDIX: SINGAPORE PEDAGOGY CODING INSTRUMENT

SOCIAL SUPPORT

Identity encouragement *(Circle ONE only)*

**Encouragement:**
Teacher is supportive and positive to students through affirmation, praise, warmth, verbal support and encouragement. Explicit is verbal; implicit is behavioural, affective, perhaps gestural.

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explicitly Discouraging</td>
<td></td>
<td></td>
<td>Explicitly Encouraging</td>
</tr>
</tbody>
</table>

ETHOS

What type of ethos did the teacher focus on? *(1=A little; 2=Sometimes; 3= Almost Always) *(Circle ONE only)*

<table>
<thead>
<tr>
<th>Student Voice</th>
<th>Nil</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

KNOWLEDGE CLASSIFICATION

**Please circle ONE only**

What was the major source of authoritative knowledge?

1) Student 2) Teacher 3) Test/ Exam 4) Textbook 5) Internet 6) Data 7) Mass Media 8) Other

**Stated teacher rationale for the phase**


**Teacher's tool**

1) Whiteboard 2) OHT/ Visualiser 3) Powerpoint 4) Textbook 5) Worksheet 6) Internet 7) Scientific Apparatus/ Mathematical Apparatus 8) Other

**Student's tool**


**Student Produced Work**

1) Short Oral Response 2) Sustained Oral Response 3) Written Multiple Choice/Fill in the Blanks 4) Written Short Answers 5) Sustained Written text *(Name genre & estimate average length range in words, e.g., narratives, 50-75 words)*

6) Multimodal Text: (describe)

7) Combination Written Text (describe)

8) Other (Please specify)

<table>
<thead>
<tr>
<th>Material</th>
<th>Please specify title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## APPENDIX: SINGAPORE PEDAGOGY CODING INSTRUMENT

### KNOWLEDGE CLASSIFICATION (cont’d)

For each of the items below, please indicate. Circle ONE only.
(1=A little; 2=Sometimes; 3= Almost Always)

<table>
<thead>
<tr>
<th>Single/ Several Disciplines/ Integrated Project</th>
<th>Single discipline</th>
<th>Nil</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Several disciplines</td>
<td>Nil</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Integrated project</td>
<td>Nil</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Depth of Knowledge</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Factual / Rote/Basic</td>
<td>Nil</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Procedural/ How to</td>
<td>Nil</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Conditional/ When to</td>
<td>Nil</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Advanced concepts</td>
<td>Nil</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

For each of the items below, please indicate the degree of occurrences. Circle ONE only.
(1=A little; 2=Sometimes; 3= Almost Always)

<table>
<thead>
<tr>
<th>Knowledge Criticism</th>
<th>Truth</th>
<th>Nil</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comparison</td>
<td>Nil</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Critique</td>
<td>Nil</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Knowledge Manipulation</th>
<th>Reproduction</th>
<th>Nil</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interpretation</td>
<td>Nil</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Application/ Problem solving</td>
<td>Nil</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Generation of Knowledge New to Students</td>
<td>Nil</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Explicitly marked and explained advanced/specialized language</th>
<th>0) Not Used</th>
<th>1) Used but not explained</th>
<th>2) Used &amp; explained briefly</th>
<th>3) Used &amp; explained in-depth &amp; explicitly</th>
</tr>
</thead>
</table>

### WEAVING

Was there any purposeful weaving observed? (1=A little; 2=Sometimes; 3= Almost Always) (*Circle ONE only*)

<table>
<thead>
<tr>
<th>Within a phase</th>
<th>Nil</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Phases</td>
<td>Nil</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
### APPENDIX: SINGAPORE PEDAGOGY CODING INSTRUMENT

#### WEAVING (cont’d)

**Identify the type of weaving observed**

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
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<td></td>
<td></td>
<td></td>
<td>8) Other ________</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>0) Nil</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
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<th></th>
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<td></td>
<td>8) Other ________</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>0) Nil</td>
</tr>
</tbody>
</table>

**Phases Weaved with:** Please indicate the phase which the teacher’s weaving with. ____________________________

**Briefly describe the weaving, i.e., how the ‘levels’ are connected and how the teacher or student initiated it.**

#### TASK FRAMING

**Please circle ONE only**

<table>
<thead>
<tr>
<th>Type of Task</th>
<th>1) Classwork</th>
<th>2) Homework</th>
<th>3) Major Assignments /Project</th>
<th>4) Test</th>
<th>5) Activity</th>
<th>0) Nil</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explicit Performance Criteria <em>(Refer Coding Manual)</em></td>
<td>Nil</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0) Nil</td>
<td></td>
</tr>
</tbody>
</table>

**Scaffolding:**

For each of the items below, please indicate the degree of occurrences. Circle ONE only.

(1=A little; 2=Sometimes; 3= Almost Always)

| Content Scaffold | Nil | 1 | 2 | 3 |
| Procedural Scaffold | Nil | 1 | 2 | 3 |
| Strategic Scaffold | Nil | 1 | 2 | 3 |

#### OPTIONAL ADDENDA

*Write anything which is interesting or unusual about classroom observations.*