3. Researcher's Comments (English)

00:00:34 Although the teacher says that they will start a new chapter today, first there is a review (i.e. solving equations) that leads in to the new topic. The introduction of new content begins at 6:04. At 20:58 the students practice what they have just learned.

Overall, 18% of the lesson time is devoted to reviewing, 47% is devoted to introducing new material, and 35% is devoted to practicing the new material. These proportions are similar to those found across the Hong Kong data set where, on average, 24% of the lesson time was spent reviewing, 39% was spent introducing new content, and 37% was spent practicing (Hiebert et al., 2003, *Teaching Mathematics in Seven Countries: Results from the TIMSS 1999 Video Study* [hereafter Video Report], figure 3.8).

These first two problems both have problem statements that imply students can apply a set of procedures to reach the solution (i.e., "Find the solution for these two equations"). However, as they discuss the problems the class uses mathematical reasoning and examines the mathematical relationships involved. Therefore both are coded as having a "using procedures" problem statement and a "making connections" implementation.

These types of problems were relatively uncommon in Hong Kong lessons. Although 84% of the problems per lesson, on average, had a using procedures problem statement (Video Report, figure 5.8), only nine percent of those had a making connections implementation (Video Report, figure 5.10).

00:08:34 The teacher tells the class to work privately and check several possible solutions to the equation on the board. The task requires students to repeat procedures they have already learned, rather than to develop new solution procedures or modify known procedures in some way.

In Hong Kong lessons, 81% of private work time was spent repeating procedures and 18% was spent doing something other than repeating procedures or was a mix of repeating procedures and something other than repeating procedures (Video Report, figure 5.13).

This is the only private interaction segment in the lesson, and it lasts for about two minutes. More than 90% of the lesson time is spent in whole class public interaction.

On average across the Hong Kong data set, more time was spent in private interaction (20%) and less time was spent in public interaction (75%) compared to this lesson. On average, five percent of the time was spent in optional interaction, where students presented information at the board while others either attended or worked privately (Video Report, table 3.6).

00:10:12 While they are working privately, the teacher tells the students not to use a calculator to

solve the equations. However, they are allowed to use a calculator to check their answers.

Computational calculators (i.e. those not for graphing) were used in less than half (48%) of the Hong Kong lessons (Video Report, figure 5.18).

00:16:37 The teacher summarizes this problem, after the class has reached the answer, by mentioning again the key points. On average in the Hong Kong data set, 13% of the problems per lesson were summarized (Video Report, table 5.4).

00:17:14 This period of time is considered a "non-problem" segment because a mathematical discussion takes place that is not focused on a particular mathematical problem. In this case, the teacher is generalizing, instructing students on the appropriate terminology and symbol to use when two sides of an equation are the same.

This lesson is comprised entirely of mathematical problems and non-problem segments, with no time allocated to non-mathematical discussion, for example. Altogether 83% of the time is devoted to problems and 17% is devoted to non-problem segments. These percentages are similar to those across the Hong Kong data set where, on average, 83% of the lesson time was spent working on problems and 15% was spent on non-problem segments (Video Report, figure 3.3).

00:28:04 At this point in the lesson the teacher assigns a set of seven problems for the students to work on privately. The students work individually, as was common across the Hong Kong data set. On average, 95% of private interaction time per lesson was spent working individually rather than in pairs or groups (Video Report, figure 3.10).

The students only have a few minutes to work before the bell rings, and the teacher assigns these problems as homework due tomorrow. On average, Hong Kong students worked on two future homework problems during class for about three minutes (Video Report, table 3.8).