

### 3. Researchers' Comments

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- [00:00:23](#) **Goal statement.** The teacher waits for the class to settle then calls them up for a "huddle" without giving a goal statement about the main idea, topic, or activity (Roth et al., 2006, *Teaching Science in Five Countries: Results from the TIMSS 1999 Video Study* [hereafter Video Report], figure 5.8).
- Science organization.** Having the students come up for a "huddle" while they get ready to receive science content is considered to be science organization. There are two science organization segments in this lesson. Science organization accounted for seven percent of the lesson time in Australia, more than in the Czech Republic (Video Report, figure 3.2).
- [00:01:22](#) **Source of content organization.** The students receive a worksheet from the teacher, which signals the start of development work: what ancient philosophers thought was "the natural state of any solid body." A long discussion period follows where the teacher leads the students toward the main point of the lesson about friction. In the Australian data set, the teacher was the primary source influencing content development in 32% of the lessons (Video Report, figure 5.1).
- [00:06:41](#) **Patterns of content development.** This is one example of many in the discussion showing how the teacher supports students in making connections among experiences, ideas, patterns, and explanations. In this lesson, making connections was mostly through applications. Thirteen percent of the Australian lessons primarily developed science content through applications (Video Report, figure 5.6).
- [00:07:05](#) **Theory.** At this point the teacher publicly develops theory associated with gravity. This is a type of canonical science idea that explains patterns of data and events in the real world. In this lesson science ideas are related to theory in three different segments. Twenty-nine percent of the Australian lessons presented scientific laws and theories (Video Report, figure 5.12).
- [00:26:29](#) **Making predictions.** Here the teacher explains the first activity on the worksheet and then asks students to predict whether the force required to start a block of wood sliding along the bench would be the same as the force required to keep it moving. The students will consider this during the lab that is to follow. Predictions related to an independent practical activity occurred in 11% of the Australian lessons (Video Report, table 7.3).
- [00:28:04](#) **Independent practical activity.** The students collect their equipment for the independent practical activity on friction and immediately start. Independent practical activities occurred in 74% of the Australian lessons, more than in the Czech Republic, the Netherlands, and the United States (Video Report, table 3.5).
- [00:36:35](#) **Teacher-student talk.** At this point the teacher begins a discussion with one group that has chosen an inappropriate spring balance. The teacher advises them to get a more sensitive one and then guides them through the activity on friction. This is an example of private teacher-student talk. In the Australian data set, 29% of the science instruction time had private teacher-student talk (Video Report, figure 9.2). During private teacher-student talk, 32% of the Australian lessons had students utter five or more words, which was greater than the Czech Republic (Video Report, figure 9.4).

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**Recording data.** Students are recording their data on the teacher prepared worksheet. Students recorded data in 62% of the Australian lessons, more than in any of the other countries except Japan (Video Report, table 7.3).

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**Interpreting data.** The teacher stops the independent practical activity on friction and instructs the students to return the equipment and sit back in their seats. He then begins to ask the students for some interpretations of their results so far. Fifty-six percent of the Australian lessons showed students interpreting data from independent practical activities, which was greater than the Czech Republic and the Netherlands (Video Report, table 7.3).